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Analytical Study on Integration of Islamic Science in Indonesia Based on Ontology, Epistemology, and Axiology

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Abstract

The concept of knowledge or truth can vary among various scientific traditions. Integrating various epistemological approaches, such as Islamic and modern scientific epistemologies, becomes complex. There are differences in understanding the integration of Islamic science and traditions among Islamic scholars and other scientists. Understanding these differences and trying to integrate multiple perspectives becomes a challenge. This research aimed to analyze the integration of Islamic science in Indonesia based on ontology, epistemology, and axiology points of view. This research was conducted using library research. The objects in this research were searched using various library information such as books, scientific journals, magazines, newspapers and documents. The research results show that an analytical study on the integration of Islamic science in Indonesia based on ontology, epistemology and axiology at the Indonesian Islamic University can cover several essential aspects. Islamic Scientific Ontology includes an understanding of the nature of science in the Islamic context. This includes questions about the sources of knowledge in Islam, whether the Islamic scientific ontology at the Islamic University of Indonesia recognizes the Qur'an and hadith as the primary sources or whether there are additions from other philosophical or scientific traditions. Islamic Scientific Epistemology focuses on the methodology and approaches used in building and developing Islamic scientific knowledge. Islamic Scientific Axiology investigates the values or principles underlying the use of Islamic scientific knowledge and their ethical implications. This involves considering how Islamic scientific knowledge is used and applied in the Indonesian social and cultural context and its impact on society.

Keywords: axiology, epistemology, integration of Islamic science, ontology

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A. Introduction

Amid a world increasingly experiencing a humanitarian crisis, the existence of PTAIN to create appropriate integration between scientific traditions, both religious, social, humanities and science, is essential. The sciences developed in the West are based on a separation between science and moral (ethical) teachings, let alone religion (spiritual). Therefore, Western product sciences put humans in danger of humanity, namely the threat to human life itself. Western science has proven to encourage humans to exploit nature. The level of natural destruction in the last 200 years since modern science was discovered has proven to be much more severe than in the previous 2000 years. Global warming and weather irregularities are clear evidence of the impact of secular science. If this is allowed, then science, which should help life, will endanger life. For this reason, science must be given a spiritual basis to function as it should (Barizi, 2011).

Islamic education in Indonesia is still dichotomous, where general subject matter is separated from religious material. This condition does not follow the aim of Islamic education to form humans who function as 'caliphs'. The dichotomy can be eliminated by integrating science with Islam. The problem is how to integrate science and Islam through the science learning process and what kind of integration can be done. The integration of science and technology with Islam has been implemented in various Islamic-based schools in Indonesia. The steps and implementation of science subject teachers in the learning process are integrated with Islam (Zain & Vebrianto, 2017).

The idea of Islamization of science emerged when the first world conference on Islamic education was held in Mecca in 1977. One of the ideas recommended at the conference was regarding the Islamization of science by Syed Muhammad Naquib al-Attas and Ismail Raji al-Faruqi. From the idea of Islamization of these two figures, a discourse was born about scientific integration in various Islamic higher education institutions in the world, including in Indonesia. The development of IAIN into UIN is an example of scientific integration itself. Several Islamic higher education institutions in Indonesia, especially UINs throughout Indonesia, are developing an integrative paradigm in Islamic sciences. These include the integration of general science and religious knowledge at UIN Jakarta, integration-interconnection using the spider web metaphor at UIN Yogyakarta, the science tree at UIN Malang, Roda Pedati or revelation guiding science at UIN Bandung, and integrated twin towers at UIN Surabaya. The study of the concept of scientific integration at the 5 UINs found that the scientific integration at each UIN in Indonesia is substantially the same, namely combining religious sciences and general sciences and eliminating the dichotomy between the two sciences (Hanifah, 2018).

To provide a spiritual touch to science, PTAIN (state Islamic higher education) is developing science integration. The integration refers to incorporating substantive values from Islam into scientific buildings at the epistemology, ontology, and axiology levels. In science integration, the primary awareness is that any knowledge, whether based on nature or *qauliah* verses, is a sign of Allah (verses of Allah). Therefore, it cannot be justified if knowledge leads its observers away from Allah. Every science, whatever its name, should lead the learner to know God (Kartanegara, 2012). Science integration is a new scientific paradigm developed at Islamic University. The integration of science can be an alternative to ending the dichotomy of science, which is alleged to be one of the causes of the decline of Islamic scientific civilization. It is

also expected that the concept of knowledge integration can be used to study two scientific fields simultaneously under the auspices of the university (Muhyi, 2018).

Studies on the problems of integrating Islamic knowledge at the Indonesian Islamic University must involve in-depth analysis of the curriculum, research conducted by lecturers and students, and the dynamics of academic discussions on campus. Efforts to overcome this challenge can involve dialogue between scientific traditions, updating epistemological approaches, and applying Islamic axiological values in a contextual and relevant manner. This research aimed to analyze the integration of Islamic scholarship in Indonesia based on the perspectives of the philosophy of ontology, epistemology, and axiology.

Integration can be interpreted as uniting, combining, the totality of inner situations such as sincere, honest and whole, open and dialogical. Meanwhile, science can be seen from the word science in the Islamic tradition and science from a general perspective. The Islamic tradition defines science as knowledge about something as it is (Irawan & Putra, 2022).

This idea of the integration of religion and philosophy continued to develop in the Islamic world until it reached its peak in the hands of Ibn Rushd. Ibn Rushd explains the relationship and harmonization between religion and philosophy. For Ibn Rushd, the relationship between the two only raises three possibilities. The first possibility is that the findings of reason (philosophy) are the same as what religion teaches. So, in this case, there is no contradiction. The second possibility is that the findings of reason are outwardly different or contrary to revelation (religion). To achieve harmony, these differences can be reconciled through ta'wil, namely deep thinking. So, in this case, the conflict is only external or surface. Because it is only external, the conflict in this second case essentially does not exist. The third possibility is that the findings of reason have never been mentioned in the texts, namely problems or thoughts regarding issues that are *maskutah* (kept silent, i.e. never discussed in the Qur'an and al-Hadith, either directly or indirectly). In this third case, according to Ibn Rushd, it cannot be said that there is a contradiction because the text does not speak (Sarbaini et al., 2022).

Integration means unification so that it becomes whole or whole (Sardar, 1985). Integration can also be interpreted as the process of combining specific values with other different concepts so that they become a coherent and inseparable whole or a process of blending until they become a complete and rounded whole. In the discourse on scientific integration, integration in its generic sense is intended to combine two entities (general science and Islamic religious knowledge) under one scientific umbrella. This concept of scientific integration among Muslims has become more popular with the term Islamization of science. Three scientific paradigms have developed over time: the secular science paradigm (the scientific paradigm), the Islamic scientific paradigm (Islamic scientific paradigm), and the science integration paradigm (Barbour, 2002).

In the context of scientific integration, Zainal Abidin Bagir offers several models of scientific integration, including monadic, dyadic, triadic, tetradic, and pentadic models (bagir et al., 2005). These models are constructed by calculating the number of basic elements that are the main components of the integration model. If there is only one basic element, the model is called a monadic model. If there are two basic elements, it is called a dyadic model. If there are three, it is called a triadic model; if there are four, it is called a tetradic model; and if there are five components, it is called a pentadic model.

In the view of religious fundamentalists, religion has a higher position than science as a cultural product. This group holds the view that religion contains all cultures. Meanwhile, secular fundamentalist groups hold the opposite view. Religion as a cultural product. This means that both negate the existence of the other and confirm their existence. From these differences in views, it can be identified that this totalistic monadic model is based on the conflict relationship between religion and science as mapped by Barbour and Haught (Haught, 2004).

The second model is the dyadic model. This model is divided into three parts: the compartmental dyadic or independence relationship, the complementary dyadic model, and the dialogic dyadic model. The first dyadic model holds that science and religion are two equivalent truths. Science discusses natural facts, while religion discusses divine values. The second dyadic model is the complementary dyadic model. This model is depicted in a circle, divided by a curved line into two parts with the same area. This model can be seen in the Taoist symbol in Chinese tradition. In this model, science and religion are depicted as an inseparable unity. The third dyadic model is the dialogic dyadic model. This model can be shown in a diagram with two circles of the same size that intersect. The two diagrams reflect the similarities between science and religion in the diagram. These similarities illustrate the existence of a dialogue between science and religion. In religion, there is an explanation of science; in science, there is truth, as stated in religion. This methodology is often used by Harun Yahya, who consistently links the results of his research to verses from the Quran.

The third integration model is the triadic model, which is expected to be an alternative to various existing models. In this triadic model, the relationship between religion and science is bridged by other concepts such as philosophy, humanities, and social sciences. These three types of knowledge can be a link between religion and science. This model was proposed by theosophists whose motto was "There is no religion higher than truth". Truth is what science, philosophy, and religion have in common. This model extends the complementary dyadic model by including another element between science and religion. In this model, modifications are possible; the connecting elements can be alternated between philosophy, humanities, social sciences, and other types of knowledge, which can be a bridge between science and religion.

In general, science is classified as general science and religious science. This classification is based on the object of study, the subject of study, and the philosophical values adhered to. Judging from the philosophical aspect, the building of knowledge (body of knowledge) can be seen from three aspects: ontology, epistemology and axiology. In terms of ontology, al-Ghazali divides science into two parts, namely, knowledge that is *fardu 'ain* and knowledge that is *fardu kifayah* (Ramayulis, 2010). This typology is based on the object of study of the science being studied. Therefore, this division has implications for the legal aspects of seeking it.

In terms of epistemology, science is also divided into two parts: Shariah science and *naqli* science. Second, the science of ghiru shariah or the science of *naqli*. Meanwhile, from an axiological perspective, there is praiseworthy knowledge (*mahmudah*), permissible (*mubah*), and reprehensible (*mazmumah*). In simple terms, religious science can be defined as a science whose scientific structure is always based on the Quran and hadith. Even though in its development, this type of science, categorized as religious science, also uses the power of human reason and senses in constructing its science, the use of human potential is always based on

these two religious sources. Meanwhile, general knowledge is often defined as knowledge obtained and accumulated from human efforts and thought processes without being tied to religious values. In some views, general knowledge is frequently equated with science, while science is often called secular science. The word secular is understood as something that is irreligious (not religious) or anti-religious. The mention of secular science has a negative connotation and is often attributed to the Western world. This type of knowledge is considered profane because it is suspected that the method of producing it is not based on transcendental-theocentric values (Nasution, 2010).

In the view of modern science, science that studies unreal objects is said to be pseudo-scientific or quasi-scientific. Meanwhile, axiologically, science is considered value-free; this is a jargon and motto for admirers of modern science. This motto says that science is for science. However, several scientists have recently challenged this assumption of value-free science. Muslim scientists who reject the positivistic views above include Sayyed Hossein Nasr, Ismail Raji Al-Faruqi, Ziauddin Sardar, Fazlurrahman, Naquib Al-Attas, Maurice Bucaile; in Indonesia, figures who reject them include Mulyadhi Kartanegara, Kuntowijoyo, Amin Abdullah and there are still other scientists. These figures simultaneously reject the notion that science is value-free. According to these figures, science is bound by specific values. Islamic science is included in this second category. From this perspective, any science whose scientific philosophy is identical to the values of Islamic philosophy can be categorized as Islamic science (Kartanegara, 2007).

The integration of science in the context of ontology, epistemology, and axiology reflects a deep understanding of ontological (study of reality), epistemological (study of sources, methods and limits of knowledge) and axiological (study of values) aspects. Overall, the integration of knowledge based on ontology, epistemology, and axiology in the context of an Islamic university enables the development of a holistic understanding of reality, acceptance of knowledge from various sources, and the development of individuals with moral integrity. This allows universities to play an active role in creating a more just, harmonious and sustainable society.

B. Method

This research was carried out using library research, which is research whose objects are searched using various library information such as books, scientific journals, magazines, newspapers and documents. To refine the theory and the relationship or influence between variables, authors also quoted from books and journals, both offline in the library and online, taken from Mendeley, Google Scholar, and other online media, consisting of 18 national and international journals.

The author applied several data management techniques in this research: 1). Data Collection, 2). Coding Data, 3). Data Processing, 4). Data Analysis, 5). Data Visualization, and 6). Data Storage. During the data management process, the author documented every step taken. This included notes on how to code the data, the data processing process, and all decisions during data analysis. Data management in this research is an essential part of successful library research. This helps ensure the clarity and validity of research results and allows other researchers to verify the findings if necessary.

The data collection instruments in this research used observation and documentation techniques and were processed using qualitative analysis. The data

processed includes primary data such as regulations related to religious universities and scientific journals. Meanwhile, as explained above, secondary data comes from literature studies and online reference sources.

C. Findings

Based on ontology, the Integration of Islamic science can be seen as an effort to unite understanding of reality or existence from an Islamic perspective with ontological views from modern science. This includes considering the relationship between God, the universe, and humans within a holistic thinking framework. Based on Epistemology, the Integration of Islamic science requires a deep understanding of how to gain knowledge through Islamic intellectual traditions and modern scientific methods. This involves critical thinking about the sources of knowledge, research methods, and boundaries of knowledge in both traditions. Based on Axiology, the Integration of Islamic science also includes the application of Islamic values in understanding and developing knowledge and technology. This involves considering ethics, morality, and desired goals in using and developing science and technology.

An analytical study on the integration of Islamic science in Indonesia based on ontology, epistemology and axiology at the Indonesian Islamic University can cover several essential aspects. First, Islamic Scientific Ontology includes an understanding of the nature of science in the Islamic context. This includes questions about the sources of knowledge in Islam, whether the Islamic scientific ontology at the Islamic University of Indonesia recognizes the Quran and hadith as the primary sources or whether there are additions from other philosophical or scientific traditions. Second, Islamic Scientific Epistemology focuses on the methodology and approaches used in building and developing Islamic scientific knowledge. Third, Islamic Scientific Axiology investigates the values or principles underlying the use of Islamic scientific knowledge and their ethical implications. This involves considering how Islamic scientific knowledge is used and applied in the Indonesian social and cultural context and its impact on society.

The challenges of integrating Islamic knowledge in Indonesia, especially at the Indonesian Islamic University, can be discussed based on ontology, epistemology and axiology. First is Ontological Plurality, the main challenge is managing ontological plurality in the context of Islamic knowledge. The Indonesian Islamic University may face complexities in integrating different traditions of Islamic thought, such as Sunni, Shia and Sufi traditions, as well as diverse philosophical approaches. Second, understanding Sources is related to how the Islamic University of Indonesia interprets and places the Qur'an, hadith, and other Islamic scientific traditions as the primary ontological sources of Islamic knowledge and to what extent this integration can be carried out without sacrificing the authenticity or scientific integrity of each-each tradition. Third, in the Methodological Approach, the main problem is determining the appropriate epistemological approach to building Islamic scientific knowledge at the Islamic University of Indonesia. Fourth, Methodological Challenges are How to manage methodological challenges in facing developments in science and technology, as well as how to maintain the epistemological relevance of Islam in the context of the ever-changing modern era. Fifth, the Application of Values is how Islamic axiological values such as justice, truth and virtue can be translated into scientific development at the Islamic University of Indonesia. Challenges may arise in integrating Islamic values with different global or local values. Sixth, Social Implications are How Islamic scientific knowledge at the Islamic University of

Indonesia makes a meaningful contribution to society by providing solutions to social problems and promoting Islamic moral and ethical values.

The Islamic university concept of knowledge integration emphasizes the combination of Islamic religious knowledge with general knowledge or science. Several conclusions can be drawn. First is the Balance between Religious Knowledge and Science**.** The Islamic University advocates a balanced integration between Islamic religious knowledge (Islamic knowledge) and general knowledge (science, technology, social). It aims to create a holistic and deep understanding of the world and religion. The second is the Application of Islamic Values in Science. Integrating science with Islamic values means applying Islamic moral, ethical and spiritual principles in the teaching and learning, and research processes. This creates a more meaningful and ethical academic environment. Third is the Goal of Creating Holistic Leaders. Islamic University strives to produce graduates who not only have strong academic knowledge but also have a deep understanding of Islamic values. They are expected to become leaders who can respond to the challenges of the times wisely and responsibly. Fourth is the Important Role in Community Development. This concept also emphasizes the role of universities in developing a society based on the principles of justice, truth and humanity inspired by Islamic teachings. It is hoped that Islamic Universities can become agents of positive change in society. Fifth is Collaboration between Scientific Disciplines. The integration of knowledge in this context also encourages collaboration between scientific disciplines, thereby creating a deeper and more holistic understanding of the complexity of contemporary issues. Thus, the concept of knowledge integration in the context of Islamic universities prioritizes comprehensive knowledge development and aims to produce individuals who have strong moral and spiritual integrity and can make positive contributions to society at large.

Scientific integration refers to efforts to combine and unite various branches of knowledge and scientific disciplines in a more extensive and complementary framework. This concept aims to achieve a more comprehensive understanding of complex phenomena in the continuously developing modern world. This concept of knowledge integration is particularly relevant in higher education and research, where complex and global challenges require a more collaborative and cross-disciplinary approach. In addition, the integration of science can also facilitate better innovation and more effective solutions to complex contemporary problems such as climate change, poverty and global health.

D. Discussion

Islam does not recognize the term dichotomy of science. Because according to Islam, science has the aim of uniting Allah SWT. To eliminate this paradigm, Islam provides a solution, namely scientific integration. This knowledge integration aims to restore the essence of knowledge, namely the monotheism of Allah, and to instill morals and values in the people who study this knowledge (Firdaus, 2019). Holistic Islamic education through the integration of science and spirituality is essential in meeting the demands of the times. In the context of globalization and technology, where moral and ethical challenges are increasingly complex, holistic Islamic education through the integration of science and spirituality provides a new perspective on producing a generation of Muslims who excel academically and have deep moral awareness. This conclusion underlines that holistic Islamic education is not only an innovative concept but an urgent need to educate the next generation,

who can positively impact society and the world. Thus, initiating holistic Islamic education through the integration of science and spirituality is a call to build an educational foundation that is relevant, solid, and follows Islamic principles (Hasan et al., 2024).

Today's phenomenon shows a new scientific trend based on integration and interconnection between sciences. Islam never loses its allure for scientists to study it more deeply. Various religious problems often occur due to the religious expressions of its adherents being played out radically. Conflicts between various sects, beliefs, and interests are inevitable. This phenomenon implies destruction and loss of peace, even though the Islamic religion aims to bring mercy to the universe (Wahyudi & Kurniasih, 2022).

The dichotomy of knowledge has led to inequality in education management between educational institutions that manage religious knowledge and general science. Apart from that, the dichotomy of knowledge also greatly influences society's perspective. In Islamic society, a view has developed that only Islamic sciences such as fiqh, the Quran, hadith, Sufism and so on are required to be studied. Meanwhile, sciences such as physics, chemistry, geography, sociology and other sciences are considered secular, so they are not required to be studied. Some believe Islamic sciences are traditional and outdated, so they are not worth studying. In contrast, general sciences are a class of knowledge that suits the needs of the modern world and, therefore, needs to be studied. Such wild views have a significant impact on the increasingly weakening existence of universities with an Islamic label. Therefore, there needs to be a new scientific paradigm that can make Islamic universities a center for the development of science that can still be relied upon. Several Muslim scientists have created many concepts to reconcile general science and religious knowledge, which have always been in conflict. One is the concept of "Islamization of science (Sulaiman, 2000)." Apart from the term Islamization, other terms are also used, such as naturalization of science (Kartenagara, 2003), Islamic science (Kuntowijoyo, 2006), Islamic science, etc.

From these concepts of sacralization of knowledge, discourse emerged on the concept of scientific integration in Islamic higher education as a prerequisite. The phenomenon of Islamic scientific integration is motivated by the existence of a scientific dualism or dichotomy between general sciences on the one hand and religious sciences on the other. This has broad implications for education in the Muslim community regarding how people view science and education, educational institutions, educational curricula, and the psychology of people in general. The scientific integration models can be IFIAS, ASASI, Islamic Worldview, Islamic Knowledge Structure, Bucaillism Model, Classical Philosophy-Based Scientific Integration, Sufism-Based Scientific Integration, Fiqh-Based Scientific Integration, Ijmali Group Model, Aligarh Group Model (Jamal, 2017).

This scientific integration model departs from a conception that the dichotomy of knowledge has been the influence of a mindset that places Islamic religious knowledge originating from the Koran on an equal footing with other scientific knowledge so that the Quran and hadith should be positioned as sources of knowledge. If the Quran and hadith were used as a source of knowledge, the dichotomy view of science as it has so far would never exist. However, considering that the Quran and hadith are universal, other sources of knowledge that are more technical-practical are needed, such as knowledge obtained from observation,

experimentation and logical reasoning to understand what the Quran discusses (Rasmianto, 2008).

In this case, what is categorized as part of the religious sciences is the knowledge related to religion, especially the Islamic religion, such as fiqh, hadith, Quran science, kalam science, Islamic philosophy and other Islamic sciences. Meanwhile, general knowledge is knowledge obtained through human effort, either through reason or the senses, such as Medicine, Arithmetic, Geometry, Astronomy and so on. In current academic discourse, religious sciences are called Islamic science (Islamic sciences) or religious knowledge (religious sciences). Islamic science can be viewed from two perspectives: traditional or historical and philosophical perspectives. From a traditional perspective, Islamic sciences are defined as knowledge that developed within the traditions of the Muslim community. Islamic science is defined as science in the context of traditional religious ideas of Islam, including its ethics and philosophy. A Muslim engaged in this field is called a Muslim scientist (Toyyar, 2009).

Another definition was proposed by Osman Bakar, who defined Islamic science as the entire scientific family consisting of mathematics, natural sciences, and so on, which grew in Islamic culture and civilization. The two definitions above are explanations of Islamic science from a traditional perspective. Meanwhile, Islamic science from a philosophical perspective means that these Islamic sciences philosophically have their own foundations and buildings in terms of epistemology, ontology and axiology. In terms of epistemology, for example, Islamic science uses rationalism and empiricism as sources of knowledge and revelation as one of the sources. From an ontological perspective, Islamic science has a broader scope of study objects than science in general or what is popularly known as modern science. If modern science limits its objects of study to problems of a physical-empirical-rational nature, then Islamic science, apart from physical-empirical-rational ones, also discusses objects of a metaphysical-meta-empirical and meta-rational nature (Bakar, 1994).

Discussing models of integration of general science and religion cannot be separated from the view of the relationship between religion and science, which has experienced ups and downs throughout history. In the context of the integration relationship, Barbour divides the integration models into three: the integration model of natural theology, the theology of nature and the systematic synthesis integration model. Apart from Barbour, John F. Haught also describes the relationship between science and religion in four typologies, namely conflict, contact, contrast, and confirmation. In general, the two figures describe that religion and science are entirely different and have no connection (independent, contrasting) but are also not opposites so that there will be no conflict between the two because they both have different spaces, methods, approaches, models and areas. However, sometimes science and religion have space and address the same issues, so conflicts often occur between the two. However, Barbour and Haught also believe that religion and science can still be dialogued and mutually confirmed or integrated into viewing a problem (Bahri, 2022).

UIN Malang is one example of several Indonesian Islamic Universities that have implemented this concept of integration. UIN Malang uses the knowledge tree as a metaphor for its scientific integration paradigm. With this model, UIN Malang appears strong at the level of scientific ontology integration (Muhyi, 2018). While UIN Malang uses the knowledge tree as a metaphor for its scientific integration paradigm, UIN

Surabaya uses twin towers and interconnecting bridges to manifest its scientific paradigm. Although the concepts used are the same, namely, the integration of science, the philosophical conception, methodology, and implementation of scientific integration contain many differences despite the similarities. Thus, as far as the author's understanding of the existing data is concerned, the concepts and integration models offered by the two universities are still imperfect from a philosophical aspect. Meanwhile, in the Islamization discourse, the science integration methodology in the two universities is still categorized as the Islamization of science.

The model and methodology for integrating science developed by UIN Malang with the tree of knowledge metaphor include the following: first, the model of verse or justification using deductive thinking methods; second, the verification model uses inductive thinking methods. Given the first methodological model for developing science, the Quran is believed to be a source of knowledge. The Quran contains various theories and concepts that can be used to develop science. Meanwhile, in the second methodology, it is believed that all theories constructed by science are explained in the Quran. This kind of scientific development methodology was previously popularized by Maurice Buchaille, a surgeon from France, and was the same as Harun Yahya's method of compiling each of his theories. These two scientists consistently refer to the Quran in the development of science, of course, using various methods (Permata, 2020).

By making the Quran a source of knowledge or believing that the Quran contains specific theories or concepts about science, the concepts or theories contained in the Quran were developed through a process of experimentation, observation and logical reasoning. In this case, UIN Malang is doing two overlapping things, namely sacralizing science on the one hand and de-sacralizing the Quran on the other. This can happen because if the concepts or theories in the Quran can be proven true by science, then science will be on the same level as the Quran. In other words, science can strengthen the divine nature of the Quran, and immediately, science will rise to the rank of dogma or doctrine because its position is the same as the Quran. When science becomes dogma, science will be anti-critical and tend to be static. This denies the characteristics of science itself, which tends to be dynamic, relative, and possibly temporal. In the Tree of Knowledge metaphor, the dynamic nature of knowledge is depicted in the branches and twigs of a tree that continues to grow (Nurohman, 2022).

UIN Malang then submitted two offers regarding the reconstruction of an integrative scientific paradigm. First is positioning the Quran and hadith as the primary sources in the development of science, then developing the verses from the Quran using experimental activities, observation and logical reasoning. Second is placing the Quran, hadith, and other sources (observation, experiment, and logical reasoning) on an equal footing. From the conception above, UIN Malang then formulated the concept of scientific integration in the curriculum with the metaphor of a strong tree with shady branches and leaves and abundant fruit because strong roots support it and grow on fertile soil. Roots function as tree supports and absorb soil content for tree growth and development.

Therefore, in this UIN Malang scientific metaphor, tree roots are illustrated as the basic foundation of science. In this case, someone who wants to study science must start from the most essential components. The tree, used as a scientific metaphor, can be explained as follows. The tree's roots describe basic science or tool science, including Arabic and English, philosophy, natural sciences, social sciences, and Pancasila and citizenship education. Students must master this basic knowledge

before studying other knowledge such as the Quran and Sunnah, *Sirah nabawiyah*, Islamic thought, and insight into Islamic society. This knowledge is depicted as existing in tree trunks as the subject of knowledge. Studying the knowledge clusters in this tree trunk is fardu 'ain for every student. Meanwhile, the branches, twigs and leaves in the tree of knowledge metaphor above represent the scientific fields of the university, which are then segmented into faculties. The essential nature of knowledge contained in the branches and twigs in the tree picture above is always dynamic. The types of knowledge described in the positions of branches, twigs and leaves above, for example, include *tarbiyah*, shariah, humanities, culture, psychology, economics, science and technology. Meanwhile, the tree represents an academic building that will produce healthy and fresh fruit. Flowers and fruit depict the output or product of an educational process with a tree of knowledge curriculum such as faith, piety, knowledge and morals. In scientific terminology, UIN Malang is called ulul al-bab, that is, graduates with the title of ulama with professional intellect and professional intellect with ulama (Rasmianto, 2004).

Meanwhile, the land where trees grow is an illustration that illustrates the importance of cultural foundations in the development of science. The culture development is a campus life culture with an Islamic face, such as a life filled with an atmosphere of faith, noble morals and spiritual activities. Imam Suprayogo Rasmianto believes that academics, without being accompanied by cultural development, especially Islamic studies, will not gain the strength they should (Rasmianto, 2004).

However, if scientific theories originating from the Quran cannot be proven true by science and the experimental methods, observations and logical reasoning it uses, then the divine nature of the Quran can be reduced, and the truth of the Quran will be relative or its divine value will be questioned. This is where the de-sacralization of the Quran will occur. Meanwhile, philosophically, the tree of knowledge as a scientific metaphor at UIN Malang still has many weaknesses. As a product of human thought, science will continue to develop. In the Tree of Knowledge metaphor, the development of knowledge is like the branches and twigs of a tree, which will continue to grow and spread. By using this imagery, the more knowledge develops, like the branches and twigs of a tree, the further the branches, twigs and even leaves of the tree are from the roots and trunk. Even between one branch and another branch or one branch and another branch will not meet each other, or even the leaves of the branches will be in their own space. Each branch, twig, and twig that grows from the trunk will appear in a different direction, some to the right and the left, and some also grow towards the west, east, north, and south. For example, branches and twigs that grow towards the south are natural sciences, while those that grow towards the north are social sciences. In contrast, the branches of the tree that lean more towards the south are called humanities sciences. The tree branch and its twigs that grow towards the west are positioned as religious knowledge, so from here, it will be seen that the knowledge that emerges from the tree trunk will operate independently. The four groups of knowledge are social sciences, natural sciences, humanities sciences, and religious sciences, which are born from the same womb and sourced or extracted from the Quran and hadith.

But then the four of them will run independently without any ties connecting them except in the name of one source. Thus, scientific integration with the knowledge tree model only occurs at the level of source ontology, namely, that all knowledge comes from the Quran. However, it is weak at the level of epistemological

or methodological integration. Conceptually, scientific integration with the tree of knowledge model developed by UIN Malang is the same as the concept of natural theological integration introduced by Barbour in explaining the relationship between science and religion. Meanwhile, Armahedi Mahzar portrays a model like this as a dialogic dyadic model; in general, science and religion both contain truth. This means that in religion, there is an explanation of science, and in science, there is truth, as stated in religion. Borrowing the concept of Islamization of science introduced by Sofyan Sauri, the scientific integration methodology proposed by UIN Malang is included in the category of similarity or parallelization (Sauri, 2004).

Islamic science is all knowledge that can lead its observers to know Allah, whatever the field of knowledge. Every Islamic university worldwide carries this integration train without being separated from their respective specificities. Discourse on the integration of general knowledge and religious knowledge has become a trending topic in Indonesian Islamic universities. This is related to the policy of converting several Islamic universities from institutes or high schools to universities (Kurniawan, 2021). Several Islamic Universities previously took the form of Colleges and Institutes, which have changed to UIN. Among them are, UIN Sharif Hidayatullah Jakarta, UIN Sunan Kalijaga Yogyakarta, UIN Malang, UIN Sultan Sharif Qosim Pekan Baru, UIN Alaudin Makasar, UIN Sunan Gunung Djati Bandung and UIN Sunan Ampel Surabaya and UIN North Sumatra Medan.

The paradigm of unity of science developed by UIN Walisongo, namely by unifying all branches of science and providing a foundation of revelation as the background or binding force for unification. The idea of Islamization of science in the world of education in Indonesia was transformed into the realm of Islamic Religious Higher Education, which became central to the development of Islamic science with the hope of accelerating the ideals of Islamization of science in Indonesia. This has consequences for Islamic Religious Universities, both state and private, especially UIN Walisongo Semarang. One of the strategies for achieving unity of science or *wahdat al-ulum* is the transformation from IAIN to UIN (Supriani et al., 2021).

UIN is a transformation of IAIN, which was first established in 2002. The change from IAIN to UIN has three stages. First is the pioneering and exploration stage, carried out when Harun Nasution was Chancellor. Second is the continuation and maturation stage. This stage occurred when Quraish Shihab was rector; at this stage, a proposal for changing IAIN to UIN was prepared. Third is the maturation of ideas and implementation. Since 2002 (the first time UIN was founded) until now, UIN's development has progressed very rapidly. In terms of quantity, currently, there are 23 UINs out of a total of 58 PTKINs or around 40% of the total existing Islamic universities. The science integration models at UINs in Indonesia differ despite similar concepts. While UIN Malang has a tree of knowledge metaphor and UIN Sunan Ampel Surabaya has the integrated twin tower (ITT), UIN North Sumatra carries the Wahdatul Ulum concept, and UIN Sunan Kalijaga has the concept of Interconnection Integration (Lubis, 2021).

The Wahdatul Ulu concept comes from the idea that in biological knowledge, there are elements of ethics; in physical knowledge, there are elements of spiritual knowledge; and so on, in the social, economic, political and cultural fields. Even if there is a differentiation of knowledge, it is not in the sense of separateness but rather a type. Types arise because of special attention to specific segments or objects. To obtain holistic knowledge, a separate philosophy is needed without being subordinate to the philosophy of Western science. If the philosophy of science

emphasizes the reductionist approach, then Wahdatul 'Ulum's philosophy places greater emphasis on unification (Fridiyanto, 2020).

Wahdatul 'Ulum is the knowledge that comes from Allah SWT, where humans are given the potential to hope for His love, which is indeed in the context of devotion to Allah. Therefore, actual knowledge already exists among Muslims. Still, Muslims need to figure out how the knowledge can be applied to practical knowledge, such as Islamic banking, Islamic fashion, and Islamic economics. Ibn Rushd explained that Islam has no double truth but a single truth. This concept can be used as a basis for the Wahdatul 'Ulum conveyed by members of the Academic Working Group. Parluhutan explained that if it is true that Wahdatul 'Ulum's ideas are identical to those said by Ibn Rushd, then there is no problem using them. However, what needs to be explained is that Ibn Rushd's ideas were very far behind the development of science. So, using Western concepts cannot be avoided but is still based on the East, especially Islam. As the initiator of Wahdatul 'Ulum, Parluhutan has also offered the concept and held discussions with the Chancellor of UIN Sumatera Utara (Fridiyanto, 2020). So, Wahdatul 'Ulum is a whole body of knowledge that has joined together in a harmonious network in a whole that is related and complementary. The knowledge that has been integrated is not only between science and religious knowledge but includes all knowledge, starting from spiritual knowledge, religion, ethics, social, cultural, humanities, science, and philosophy, to applied knowledge at UIN Sumatera Utara.

Apart from Wahdatul 'Ulum of UIN Sumatera Utara, UIN Sunan Kalijaga Yogyakarta made the integrative-interconnective paradigm the basis for scientific development that integrates science and religion. The integrative-interconnective paradigm serves as a scientific umbrella for UIN Sunan Kalijaga Yogyakarta and the implementation of this paradigm in curriculum preparation. Epistemologically, the scientific paradigm of UIN Sunan Kalijaga is a development of the *bayãnî, 'irfãnî* and *burhãnî* epistemology initiated by al-Jãbirî. From another aspect, the integrative-interconnective paradigm includes a model of integration of science (*hadarãt al-'ilm*) and religion (*hadarãt alnass*) with a triadic typology. In this triadic model, a third element bridges science and religion: philosophy (*hadarãt al-falsafah*). At the practical level, many people consider that the interconnection integration paradigm built by UIN Sunan Kalijaga still has limitations because it tends to be more theoretical. The concept of this paradigm has not been explained in four main domains in implementing the curriculum, namely the philosophical, material, methodology and strategy domains (Fridiyanto, 2020).

The implementation of interdisciplinary and multidisciplinary science integration at the UIN Sunan Kalijaga Yogyakarta Postgraduate Program can be seen in the curriculum implemented on this campus, which then influences the learning process, both in the form of course titles that are integrated with other sciences, then thesis and dissertation studies of UIN Sunan Kalijaga Postgraduate students Yogyakarta is integrated with other sciences and uses a comprehensive approach (Sari & Amin, 2020).

Scientific integration-interconnection, or "*takamul al-ulum wa izdiwaj al-ma'arif*", is a scientific pattern that attempts to connect, link, and even integrate religious reasoning and modern science. Different from the style of scientific integration at other UINs, this integration-interconnection scientific paradigm uses a multidisciplinary, interdisciplinary and transdisciplinary approach, in which the scientific fields of religion and modern science are required to have a relationship

that is semipermeable, intersubjective testability, and creative imagination. Therefore, this scientific paradigm can be an alternative for scientific development at UIN throughout Indonesia (Sufratman, 2022).

E. Conclusion

Limitations in research on the integration of Islamic science in Indonesia, based on ontology, epistemology and axiology, can consist of several aspects. Research is often limited to one particular ontological tradition in Islam, such as the dominant Sunni tradition, without considering the ontological plurality in society and at the Indonesian Islamic University. Therefore, there is still a lack of research on alternative ontologies such as Sufi, Shia, or philosophical approaches to integrating Islamic science. This research also focuses on traditional textual or hermeneutic approaches to understanding religious texts, while more contemporary or interdisciplinary epistemological approaches may be underrepresented. This research may also have limitations in understanding and integrating Islamic axiological values with Indonesia's diverse social, cultural and political contexts. To overcome these limitations, further research can take an ontological and epistemological cross-tradition approach in Islam and explore the practical implementation of Islamic axiological values in the context of scholarship and social life. A more inclusive and comparative methodological approach is also needed to enrich the understanding of the integration of Islamic scholarship at the Indonesian Islamic University and in Indonesia in general. The implications of research results regarding the integration of Islamic science at the Indonesian Islamic University can have a significant impact, both for the Indonesian Islamic University itself and for the broader context of Islamic scholarship in Indonesia in the aspects of Curriculum and Teaching Development, Research Development and Community Service, Educational and Cultural Policy and Interreligious Dialogue and Tolerance. By paying attention to this meaning, the research results on the integration of Islamic scholarship at the Indonesian Islamic University can become a strong basis for directing further improvement and development in Islamic higher education in Indonesia and making a significant contribution to a global understanding of contemporary Islam.

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