

Research Article

Relations Between Religion And Science: A Critical Study Of Ahmad Baiquni's Interconnections In Educational Institutions

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Abstract: Maintaining scientific traditions is part of civilization that must be maintained for generations. The relationship between religion and science is very close. Interestingly, Ahmad Baiquni was able to integrate and interconnect religion (Islam) with science. The purpose of this study is to critically analyze Ahmad Baiquni's views on the integration-interconnection of religion with science. The research method used is library research. The results showed that the integration and interaction of religion with science known as Islamic science is by linking the verses of the Qur'an to science and technology, especially science with the pattern of Islamization of science, the pattern of justification and sacralization. Ahmad Baiquni certainly views the relationship between religion and science as an Islamization that must always be massive. This is viewed as the thought of Islamization of knowledge that he synthesized is the Islamization of knowledge into two variants, namely the justification variant and the sacralization variant. Although the above-mentioned integrations have been completed, the facts on the ground are still needed and in reality, there are only a few who apply interconnections in various aspects. The interconnections of religion and science are part of the complex of educational problem solvers of yesterday, today, and the future.

Keywords: Integration, interconnection, religion, Science.

INTRODUCTION

Science is developing rapidly and is constantly evolving and unconditional on novelty. One of the proofs is that around 700-600 BC the Babylonians had a heated discussion about the universe (Rosyadi, 2005). According to the Babylonians, this earth has a hemispherical shape, the terrain is in the form of data as long as the distant eye sees, this perception is almost similar to QS. Al-Baqarah verse 22.

The process of occurrence of the universe according to the Qur'an only provides brief and global information, it does not mean that Allah created the universe in one go, but *kun fa yakûn* it went through a long process, although a more detailed description of this process is not mentioned in the Qur'an. This detailed explanation of the process of the beginning of the universe could enlist the help of the findings of the latest scientists, especially modern astronomers and physicists to explain in detail the beginning of the creation of the universe. According to the author, the Qur'anic verse and the *kauniyah* verse are also verses of Allah, therefore they should have a synergistic relationship that complements each other. In other words, the discoveries made by astronomers and physicists about the beginning of the universe can serve as *bayan tafsîl* (detailed explanation) of the Qur'anic information about the beginning of the global universe. Interpretations based on these scientific findings must be more appropriate than linguistic approaches, as some Muslim commentators and theologians have done (Rosyadi, 2005).

The Qur'an gives many indications about the universe with all its parts (heaven, earth, and various other ferments of the universe). Since human knowledge of the earth has not been able to fully explain many mysteries, Allah revealed the Qur'an to man as a guide. All related verses are collected, and then studied in depth and thoroughly from various aspects related to them. All are carefully and fully explained, and they are all backed up by reasons or verifiable facts. The results of this study are. First, in interpreting the verse about the expanse of the earth, there is a difference of opinion between the *mufassir*. However, there is no difference of opinion on the *mufassir*'s thoughts in discussing the verse about walking mountains and natural disasters. Second, Achmad Baiquni in interpreting the verse about the expanse of the earth, mountains running, and natural disasters purely uses a scientific approach without finding out what the wisdom or cause of the descent of the verse is. In interpreting the verse about natural disasters, he explained that disasters that occur today also occurred centuries ago in prophetic times (Zen, 2022).

Maintaining scientific traditions is part of civilization that must be maintained for generations. Muslims today certainly have to keep pace with the development of science and technology that develops, as well as scientific developments in the golden age of Islam (Retna, 2019). The relationship between religion and science is very close. Interestingly, from the various problems above, Ahmad Baiquni was able to integrate and interconnect between religion (Islam) and science. The integration and interconnection of religion with science or what is known as Islamic science is by linking the verses of the Qur'an to science and technology, especially science with the pattern of Islamization of science, the pattern of justification and sacralization (Muis, 2020). This is an interesting and important concern to be raised to the forefront of research. So this

research focuses on the integration and interconnection of religion with the perspective of science Achmad Baiquni.

The formulation of the problem proposed in this study is how is the typology of integration and interconnection of religion with science from the perspective of Achmad Baiquni?. Usually, scientific work has pedagogist implications for readers. The implication of this research is to provide a synthesis of the pattern of integration and interconnection of religion with science, so that the educational, socio-cultural, economic and political paradigms have paradigms that are not much different in understanding and living the interconnection and integration of religion with science.

RESEARCH METHOD

The research conducted is qualitative research with research methods used by library research (Sugiono, 2015). The primary data sources are Ahmad Baiquni's works dealing with integrations. Meanwhile, secondary data sources are books, journals, mass media related to the concept of interconnection of religion with science. The data collection techniques carried out are observation and documentation. These two techniques are considered quite representative in literature research in nature. Meanwhile, the data analysis carried out is qualitative data analysis. The initial data is collected, then selected and selected and then interpreted so as to produce the required research synthesis.

RESULTS AND DISCUSSION

Ahmad Baiquni and the Typology of the Relationship between Religion and Science. Ahmad Baiquni was born in Solo on August 31, 1923 to a devout Muslim family. Married on October 17, 1948 to Sri Hartati and blessed with five sons and one daughter. Ahmad Baiquni was known as a very intelligent man and always idolized the Messenger of Allah. He completed his S1 program at the University of Indonesia in just two years with laude predicate. Then proceed to the School of Nuclear Science and Engineering, Argonne. In 1956 he earned a M.Sc. degree from the Department of Physics of the University of Chicago. From 1960-1964 completed a Ph.D. program at the same University. As one of the greatest atomic and nuclear experts in Indonesia, Ahmad Baiquni has held several important positions such as Permanent Assistant in Physics and Mathematics FIPIA, UI Bandung and FIPIA UGM Yogyakarta, Professor in Physics FIPIA-UGM, GAMABatan Project Director, Director General of Batan, Indonesian Ambassador in Sweden, Senior Scientist BPPT, and Rector of Unas-Jakarta. In addition to having held several important positions, Ahmad Baiquni has also been a member of various scientific associations both at home and abroad (Baiquni, 1997).

Islam and science are one cohesive entity. Islam is a religion that promotes knowledge, and knowledge is a tool for putting all of the Islamic teachings into practise. There are over 750 verses in the Qur'an that deal with science. This demonstrates the importance Islam accords to the advancement of science. However, as a result of the two being pitted against one another, science began to appear as a dichotomy in all spheres of existence. Muslim scholars started reintroducing the knowledge of the need to integrate science and Islam in order to restore their respective positions. In educational institutions, a "integrated curriculum" that "unites several disciplines in a learning design to obtain better learning outcomes with the ability of students to relate one

subject to another" strengthens the integration of Islamic principles and science. The integration ideas include "shared, webbed, and integrated." The element that must be taken into consideration, in addition to curriculum integration, is raising the standard of human resources and educational infrastructure. (Wahyuni, 2020).

Ahmad Baiquni used the source of *bi ra'yi tafsir*, which is not to rely on the interpretation of Qur'anic verses from existing narrations, but on the intellect of the author of the tafsir himself. As a nuclear expert and cosmologist, it is not strange that Baiquni uses scientific analysis to reveal the relevance of the Qur'an to the development of science and science (Hamiyatun, 2018). In theory, the *ilmi tafsir* written by Ahmad Baiquni in the 20th century, should have the same characteristics as other *ilmi tafsir* written at the same time. a time frame connected to a more nuanced pragmatic understanding of the verses of the *kauniyyah*. However, Ahmad Baiquni's *ilmi tafsir* has characteristics that are more similar to the first period of *ilmi tafsir*, such as the tafsir written by Fakhruddin ar-Razi. Both emphasize the dimension of ideological importance rather than pragmatic necessity. However, the ideological dimension that Baiquni wants to highlight is more or less different from what ar-Razi wants to show. If Muslims controlled the development of science and technology in the time of ar-Razi, then the ideological focus would have been on how to persuade people that the universe alluded to in the *kauniyyah* verse, when interpreted using the methods of science, is capable of supporting the belief that Allah exists.

One of Ahmad Baiquni's styles of interpretation was when he interpreted his conception of the universe. The discussion of the conception of the universe begins Baiquni by giving an introduction to science. He presented theories that were once believed to be the correct explanation of this conception of nature. Among these theories are ancient theories that were still agreed upon until the early twentieth century. The theory says that the sky is a giant ball with a certain radius length and revolves around its axis. This sphere is said to contain the entire natural space and everything in it. The earth and other objects are flat and locked up in the supergiant ball (Hamiyatun, 2018). From one of Ahmad Baiquni's interpretations above, the development of an interpretation oriented to the content of scientific development. Qur'anic verses that contain scientific values, are discussed with a scientific approach. According to Baiquni, there is no contradiction between the verses of the Qur'an and natural science. The postulates of scripture were made founding fathers or honorable and main positions compared to others, so that if there is a slight dissynchrony, then it is possible that there is a lag in the study of science that came later after the descent of the Qur'an. So it is not wrong if Baiquni gives a narrative that the words chemical elements, catalysts, biomolecules, cells and other terms did not exist before, because new science related to these terms was developed after the descent of the Qur'an.

Ahmad Baiquni certainly views the relationship between religion and science as an Islamization that must always be massive. This if viewed the thought of Islamization of knowledge that he synthesized is the Islamization of knowledge into two variants, namely the justification variant and the sacralization variant.

Critical Reasoning towards Integration-Interconnection Thinking in Educational Institutions

Religious science and general science have long been taught in opposition in Indonesian education. Because of this, it may result in educational dualism on a practical level, which will lower educational outcomes. Integrative-interconnective science is the multi- and interdisciplinary paradigm required to resolve the conflict between general science and religion in science. Three key principles must be taken into consideration when applying the integrative-interconnective model to the Islamic Religious Education curriculum: *hadarah al-nash*, which acts as a cultural buffer for religious texts; *hadarah al-'ilm* (science and technology); and *hadarah al-falsafah* (ethical-emancipation culture). This dictates that the Qur'an must serve as the primary source for all educational materials, making it the primary source in this context. It must also be supported by principles derived from conscience or intuition, as well as by scientific facts that have been objectively demonstrated, in order for its credibility to be accepted. It will be possible to develop thorough learning and understanding if these three ideas are incorporated into the learning materials. (Zahroh dkk., 2023).

Religion, social sciences, and culture can be used as instruments in Islamic education to shape the attitudes and behaviors of students without having to overestimate one another. However, in practice, there is inequality that has an impact on disharmony in public relations. Efforts to integrate religion with social sciences and cultural values can be done with an integration-interconnection approach. This effort is made to avoid feeling the most right or single entity, scientific arrogance or isolated entities. It would be good to be aware of the limitations of each stealth so that there is an effort to complement each other. The impact of these efforts is scientific objectification, which then enlightens points of view that are not religious an sich, but religion can blend into social and cultural life with the community (Setyowati, 2022). Ahmad Baiquni constructed the conception of the Islamic relationship of science with the method of *tafsir bil ilmi* because discussing the Qur'an from the side of science is based directly on his own view as a nuclear physicist who presents science. Baiquni's form of relations is more inclined to the Islamization of science by correlating Qur'anic verses with scientific formulations. Ahmad Baiquni's form of Islamization is certainly not more justification and sacralization. The form of justification is to position the Qur'an as a source of legitimacy for several scientific issues and content. While the form of sacralization is to position the Qur'an as an honorable source and reference to absolute truth.

One of the most significant distractions for scientists in recent centuries has been the interaction between science and religion. Since then, the Renaissance has taken this topic seriously and has expanded it to include all Islamic nations. As a philosopher and a western physicist, Ian Barbour selected the concept of compilation based on his foundation, including parallelism of science and religion methodologies, critical realism, acceptance of paradigms, which are ways of thinking, religious experience, religious pluralism, philosophical hermeneutics, and scanning philosophy. When it comes to the importance of working with relativity, Barbour takes knowledge to a different level (Esmaeeli dkk., 2021).

According to Ian G Barbour, the relationship between religion and science can be met through the theology of nature (Barbour, 2012). In understanding religious

relations, Ian G Barbour understands the method of integration through natural theology (nature and its phenomena of order are symbols of the existence of God / bayani), theology of nature (belief in God must always be explained by scientific / rational / burhani patterns, and systematic synthesis (integration is carried out if it contributes to a more coherent worldview and elaborated in metaphysics / irfani. Theology of nature or theology (religion, in this case the Qur'an) explains about natural phenomena that gave rise to sciences extracted from the Qur'an. In this context, the Qur'an becomes a source of knowledge, not only normative sciences but also natural and social sciences. And this is what needs to be dialogued and at the same time if it is not said to be too late for the process of change in organizing Islamic studies, especially in Indonesia. As an example of what happened to Christianity about Reconciliation, about how about the experience and interpretation of religious people, so that the results can really be felt nuanced and breathable, even indeed the value and spirit of religion in the realization of a very broad world scientific study in Islamic studies (Junaedi, 2018). so that there can be a relationship of integration between science and religion. Religion can serve as a foundation for thought and an orbit for the advancement of science, while science can be utilised as a tool to prove revelation to strengthen one's faith in God (Warisin, 2018).

In the reality of the development of the philosophy of Islamic sciences, the concept of integration-interconnection emerged. Scientific integrations or what is called "takamul al-ulum wa izdiwaj al-ma'arif" is a scientific pattern that seeks to connect, associate, and even unite the combination of religious reason and modern science (Suftratman, 2022). With the transition from IAIN to UIN in higher education, the conversation about the integration of science gained steam. With a global mindset and the expansion of Islamic universities' contributions to science, universities that had previously held university status started to openly debate various conceptual proposals. These discussions eventually led to the formulation of the integration of religion and science. Although the beginning of academic concern at UIN was the integration of information, there were differences in its perception and articulation. The integration-interconnection paradigm is used by UIN Yogyakarta, while the reintegration of science is a concept used by UIN Jakarta, the integration of knowledge is used by UIN Malang, revelation-guiding knowledge is used by UIN Bandung, and the transintegration of science is used by UIN Jambi. It is stated that this paradigm variety has its own differences (Nugraha & Rafii, 2021). But it all comes down to integrations.

According to Abdullah, the reintegration of general scientific epistemology and religion is a major project that has the meaning of dialogue and cooperation between disciplines. The form of epithemology is to put forward an interdisciplinary approach, prioritizing interconnectivity and sensitivity between various disciplines (Abdullah, 2010). According to Masruri, it is very important to realize integrative-interconnective, because it is part of inevitability and reaching for the future. Strata levels from S-1 (taaruf/knowing), S-2 (taawun/cooperating) to S-3 (ikhtira'/new findings/novelty) are important to do this, as long as they meet the requirements and are able (Masruri, 2018). The integration and interconnection of Islam with Science is complete, although the current forms of language differ into ayatization, sunahization, hadith, all remain symbols. However, the symbol is very important to accompany the processes. By considering various experts about the importance of symbols, a symbolic system is

impossible to avoid, because thinking about society itself must use the knife of symbol system analysis.

Although the above-mentioned integrations have been completed, the facts on the ground are still needed and in reality there are only a few who apply interconnections in various aspects. This reality does not mean that integration-interconnection must be completed, but with the presence of various educational problems, the concept of integration-interconnection must be applied from family education, elementary school to college, of course, with the level of ability of the level of thinking. That is, this concept can not only solve thinking problems among academics, but has become a complex problem solving.

In modern times, it is urgently needed, especially in Islamic education to combine faith-based and general lessons. Educational institutions that are qualified and able to accommodate the integration of knowledge must also be considered and can be realized through the application of the Integration of Religion and Science to Islamic Education in this Modern Era. In order to realise this scientific unification, a number of concepts—including philosophical, material, methodological, and strategy concepts—have been put out by specialists. The teaching and learning process, social education features, and the curriculum are only a few areas where the ramifications can be seen. From here, competent educational institutions that can meet needs for combining religion and science, not a scientific dualism, can be born (Daulay, 2022).

Ahmad Baiquni's pattern of religion and science relations seems to be actualized in answering today's educational problems. The term relation between religion and science Ahmad Baiquni if spoken of integration-interconnection. The same is true of Amin Abdullah, Siswanto Masruri, and the experts who came up with the concept of integration-interconnection. In today's context, the problem of education seems to be endless. Problems are more complex and require complex problem solving. The dominance of modern science and technology contributed considerably in bringing humanity into various multi-dimensional crises. Humanity has lost its sense of self due to the domination of contemporary science and technology combined with the dogma of capitalism. Inhumane competition destroys ecosystems, broken families, rituals, and traditions are also broken, and religion has long since vanished from human hearts. There is discord and wisdom in man's relationships with himself, others, nature, and their God. Man is cut off from their surroundings and from their God (Kasim, 2021). Likewise with educational problems that blow from free behavior, immorality, lack of attitude, etc.

According to the authors, integration-interconnection is the right analytical knife to dissect such complex problems. This is in line with Kasim, Islam and science integration as a paradigm. Consistency, rejuvenation, and sustainability are required as efforts to realise the splendour of global Islamic civilization (Kasim, 2021). The form of embodiment of integration-interconnection as a complex problem solver is to include integrations to various aspects of educational practice.

The ummah must understand a few key points in order to tackle the challenging issue of education in light of the development of contemporary science and technology as well as the effects of globalisation. First, Instead of sleeping while praising the Muslims' golden apogee, learn from it. Second, To counteract the multiple detrimental effects of contemporary science, technology, and globalisation, an epistemological

formula is required. Third, selectively adjust to the different modern science and technology advancements and beneficial globalisation. Fourth, By respecting the principles of transcendentalism, divinity, and sanctity always, one can construct an inclusive Islamic epistemology, axiology, and ontology. Fifth, The epistemology that has to be created is one that ensures the moral, social, and spiritual integrity of people. Sixth, Israqi epistemology, which manages spiritual potential to assure the development and empowerment of noble values geared towards human wholeness as worshippers of God and caliphs on earth, must be combined with Burhani epistemology, which employs the Burhani approach through research and engineering.

In the end, the relationship between religion and science is no longer a matter of debate. The scientific paradigm of theanthropocentrism is a necessity. The relationship between religion and science is no longer the face of a dichotomous form, so it should be reduced because it hinders the development of Islamic scholarship. The relationship between religion and science should be carried out with an integration pattern that continues to dialogue, communication, clarification and collaboration. Moreover, the interconnections of religion and science are part of the complex of educational problem solvers of yesterday, today and the future.

CONCLUSION

By connecting Qur'anic verses to science and technology, particularly science, with the pattern of Islamization of science, the pattern of justification and sacralization, or what is known as Islam, science, religion and science are integrated and interconnected. Ahmad Baiquni used the source of *bi ra'yi tafsir*, which is not to rely on the interpretation of Qur'anic verses from existing narrations, but on the intellect of the author of the tafsir himself. Ahmad Baiquni certainly views the relationship between religion and science as an Islamization that must always be massive. This if viewed the thought of Islamization of knowledge that he synthesized is the Islamization of knowledge into two variants, namely the justification variant and the sacralization variant. Although the above-mentioned integrations have been completed, the facts on the ground are still needed and in reality there are only a few who apply interconnections in various aspects. This reality does not mean that integrations must be completed, but with the presence of various educational problems, the concept of integration-interconnection must be applied from family education, elementary school to college, of course, with the level of ability of the level of thinking. The scientific paradigm of theanthropocentrism is a necessity. Moreover, the interconnections of religion and science are part of the complex of educational problem solvers yesterday, today and the future.

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