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INTEGRATION OF SCIENCE AND RELIGION

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Abstract: The integration of science and religion means the fusion of science and religion. But it is not completely mixed because it has its characteristics. The integration of science and religion is likely to happen in the Islamic paradigm because it is based on the concept of tawhid. Science and religion need to cultivate awareness of holistic and comprehensive education. This study aims to explain and analyze the integration of science and religion, especially in the Islamic education system, using library research, which collects data by understanding and studying theories from various literature related to research. The results of the study concluded that the integration of science and technology has implications for Islamic education, among others: first, it has implications in terms of curriculum, delivering students the desire and ability to conduct research (research) in the fields of science to find then the "connection point" with the objective reality that occurs in religious areas. Second, implications in the teaching and learning process, teachers develop creative imagination. The role of teachers with the power of creative imagination is to create certain methods so that students can absorb lessons quickly and completely. And third, implications in the aspect of religious social education. With an integrative paradigm, students will be invited to think holistically and impartially in living the plurality of beliefs and religions to foster mutual respect and respect for differences in religious beliefs.

Keywords: Science, Religion, Integration, Holistic, Tauhid

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INTRODUCTION

Discourse on integrating science and religion has been discussed again later this year, along with the opening of Public/Non-Religious Faculties at several State Islamic Universities (UIN) in Indonesia. In discussing the issue of science and religion, this paper will discuss the interaction of science and religion at the symbolic and meaningful level. Genealogically, we can see the complexity of the interaction of science and religion in the debate between the dimension of faith that is understood textually and the understanding of science that marginalizes religious doctrine because it is often considered incompatible with the postulates of common sense. Though science and religion are born from the same womb, that is the area of human "experience." The experience can be hushuli or huzoor (Abdullah, 2004).

Until now, there is still a strong assumption in the wider community that "religion" and "science" are two entities that cannot be met. Both have their areas, separated from one another regarding formal material objects, research methods, truth criteria, and scientists' roles. In other words, science does not care about religion, and religion does not care about science (Abdullah, 2004). This is because of the assumption that science and religion have different ways of approaching and experiencing, and these differences are a source of debate. Science is closely related to very abstract experiences, for example, mathematics, whereas religion is more closely related to ordinary life experiences. Some view that science and religion stand in their respective positions because science relies on empirically supported data to ascertain what is "real" and what is not.

On the contrary, religion is ready to accept the supernatural and uncertainty based only on the tangible variables of "faith" and belief (Abdullah, 2000a). Religion and science should coexist independently of each other, for despite similarities in their missions, the fundamental differences present a conflict that will resonate at each other's core. So, the integration between science and religion is hardly feasible, as the scientific criterion for identifying such assumptions becomes real because it is certain that there is a process of collaboration between the two. In contrast, religion is essential for the individual's well-being and aims to create harmony.

M. Amin Abdullah, “Tawhidic Ethics as the Basis for the Unity of General Scientific Epistemology and Religion (From Positivistic-Secularistic Paradigm to Theoantropostric-Integralistic)", in M. Amin Abdullah dkk., The Integration of Islamic Science Combines Islamic Epistemology and Science (Abdullah, 2004). On the other hand, many philosophers of science think otherwise. Thomas S. Kuhn asserts that science consists of paradigms emerging from cultural tradition similar to secular perspectives on religion (Barbour, 2000a). Michael Polanyi asserts that all knowledge is personal, and scientists must do very personally; otherwise, they must play a subjective

role when doing science (Barbour, 2006a). Polanyi added that scientists often believe in "symmetrical, intellectual, and empirical agreement beauty." For Polanyi, it is necessary to establish a science that requires the same moral commitment found in religion. Two physicists, Charles A. Coulson and Harold K. Schilling, affirmed the same. Both claim that "the methods of science and religion have much in common"(Leahy, 2006a). Schilling asserts that both fields of science and religion have three structures: experience, theoretical interpretation, and practical application. Coulson asserts that science, like religion, is "advance money for creative imagination" and not "just gathering facts," while stating religion must inevitably "involve critical reflection on experiences not dissimilar to those in science." The language of religion and science also show parallels (Barbour, 2006a).

In response to this, Ian G. Barbour, a physicist-religionist, proposed 4 (four) models of science-religion relations: Independence, Dialogue, and Integration (Barbour, 2006b). For Barbour, it seems necessary to advocate integration on the assumption that both disciplines and religion can benefit from certain approaches. Furthermore, this study aims to explain the integration between science and religion and its implications for Islamic education.

METHODS

This research method uses library research, which collects data by understanding and studying theories from various literature related to research. According to Zed (2004), there are four stages of literature study: preparing the necessary tools, preparing a work bibliography, organizing time, and reading and recording research materials. Data collection is finding sources and reconstructing from various sources such as books, journals, and existing research. The analysis method uses content analysis and descriptive analysis. Literature materials from various references are analyzed critically and in-depth to support propositions and ideas.

RESULTS AND DISCUSSIONS

Findings

Definition and Typology of Integration of Science and Religion

In the discourse of science and religion, integration in its generic sense is an attempt to blend science and religion. J. Sudarminta, SJ., once proposed what he called "valid integration" but on another occasion criticized "naïve integration" (a term he used to describe the tendency to match

scripture verses with scientific findings superficially). This phenomenon is almost similar to the term Bucaillism, which is the defensive-apologetic attitude of some Muslim intellectuals.

Thus, the attempt to link and integrate science and religion does not necessarily mean uniting or mixing because the identity or character of each of the two entities does not have to be lost, or some would even say, must be maintained. If not, it is possible that what is obtained from the relationship is "neither this nor that, "and it is no longer clear what its functions and benefits are. The desired integration is "constructive" integration. This can be interpreted as an integration effort that produces new contributions to science and religion that can be obtained if the two are inseparable. In the case of the Islamic epistemological paradigm, the integration between religion and science is possible since it is based on the idea of Oneness (tawhid). In this case, science, the study of nature, is related to the concept of Tawhid (Oneness of God), as are all other branches of knowledge (Zhulfarani, 2022).

In Islam, nature is not seen as a separate entity but as an integral part of Islam's holistic view of God, humanity, and the world. In the Islamic view, science and nature are continuous with religion and God. This relationship implies a sacred aspect to Muslims' pursuit of scientific knowledge since its nature is seen in the Qur'an as a collection of signs pointing to God. Normatively, from the beginning of its revelation, the Qur'an, through surah al-Alaq 1-5, has illustrated that the construction of knowledge in Islam is built on the values of tawhid. From the first verses, it can be seen that there is a command to "read," which is the process of attaining science with signs "in the name of God." So, the process of attaining knowledge must have value, with the process of knowledge obtained through reason from God.

The idea of integrating science and religion in the context of Islamic civilization was identified by S. H. Nasr with traditional scientific terminology to distinguish, in general, from the positivistic and reductionistic science of the modern era (Peters & Nasr, 1969). Science in the context of Islamic civilization is seen as a scientific and intellectual tradition that constantly seeks to apply different methods according to the nature of the subject being studied and the ways of understanding the subject. In teaching and developing a wide variety of sciences, Muslim scientists have used every avenue of knowledge open to man, from the racialization and interpretation of Scripture to observation and experimentation.

According to Osman Bakar, traditional science lived in almost every pre-modern civilization. However, this science contains certain difficulties for the modern scientific mind due to its nature. This is because science requires recognizing divine revelation and intellectual intuition as two fundamental sources of objective knowledge. It also requires acceptance of another level of existence

of physical existence and the hierarchical reality of the universe. These conditions contradict many of the basic assumptions of modern science (Osman Bakar, 1994).

Nevertheless, views on the plurality of methods in traditional science gained general recognition among contemporary historians and philosophers of science. Some have expanded it to accept Scripture as an inseparable component of a plurality of methodologies. As Paul Feyerabend reveals in his book Against the Method, in today's society, science occupies the same position as religion in the Middle Ages. Science has absolute power. Although a person may choose religion in society or not, he still inevitably has to choose science. So science does not perform its function to liberate man but instead enslaves him (Achmad Charris, Zubair 2002).

Similarly, several professional scientists, especially physicists, from R. Oppenheimer and E. Schrödinger to Fritjof Capra, have turned to Eastern doctrines to find solutions to some of the dilemmas and problems encountered at the far frontiers of modern physics. However, these figures do not intend to align modern science with the same epistemological status that traditional sciences bestow. If modern science does exactly that, according to S.H. Nasr, it means that there has been a process of spiritual transformation or rebirth of modern man (Seyyed Hossein Nasr, 1986)

In traditional science, aspects of cosmology can be "tools of conceptual integration" because their purpose is "to establish a science that shows the interconnectedness of everything and the relationship of levels with each other and ultimately with the highest principle. Thus, it becomes a knowledge that allows the integration of diversity into cohesiveness. Meanwhile, Ian G. Barbour formulated a conception of integrating religion and science, which can be pursued by departing from the side of science (Natural Theology) or religion (Theology of Nature). The alternative is to try to unite the two within the framework of a philosophical system, such as Process Philosophy. Barbour himself was thus personally inclined to support the unification effort through the Theology of Nature combined with the careful use of Process Philosophy. In addition, Barbour also agreed with the approach of dialogue or discussion. It is unclear, however, whether his support for unity or integration is stronger or whether his views are heavier on dialogue or conversation (Barbour, 2000).

The theological integration initiated by Barbour, namely the latest scientific theories, sought theological implications, and then a new theology was built with traditional theology as one of its sources. Thus, Barbour's "integration" has a very specific meaning, aimed at bringing about a theological reform in the form of a theology of nature. Barbour, however, distinguished it from natural theory, whose main purpose was to prove religious truths based on scientific findings. Regarding religion, Barbour's attention is almost limited to theology. And when it comes to science, the attention is mainly focused on what the content of the most up-to-date theories in the natural sciences convey.

There are at least five important issues that Barbour raises in concluding the importance of Natural Theology: First, the position of nature in Theology, namely that although theology must begin with historical revelation and personal experience, it must also include a theology of nature that does not minimize or ignore the order of the universe. This is to refute the neo-orthodoxy view that nature remains an unsalvageable stage in the drama of saving man. Also, the view of existentialism is that the world is an impersonal environment for human personal existence. Similarly, the view of linguistic analysis states that nature has no function in common with the discourse about God (Barbour, 2000b). Second, natural relations are a dynamic process, namely the view that nature has flexibility, structure, novelty, openness, and order. In this respect, Barbour follows the views of Neo-Thomism, Pollard, and Whitehead as a refutation of the Church's static view of the world with all creation in its present form (Meliani et al., 2021). Also, views of early physical conceptions of nature were deterministic and mechanical. So do existentialists, such as those of Bultmann, who regard the world as a rigid mechanical order, a completely closed system of laws of causality, including closed to God's intervention in it. Third, there is God's Supreme Power in Nature, namely continuous Creation. Fourth is the important role of metaphysics. In this case, Barbour proposed the Philosophy of Process in his theology. Fifth, there is God's action in nature, where God is the influence of creation.

This view was initiated by Robert M. Augros and George N. Stanciu in their book The New Story of Science (1985). The story here is interpreted as a new way of looking at today's world by a civilization, which is a framework for understanding and evaluating the universe and everything in it (Greg Sutomo, 1995). According to this view, successively, during the 17th, 18th, and 19th centuries, there was a gradual development in physics and science in the study of the structure and history of the universe, a large periodical that became increasingly materialistic and reductionist in the way of looking at the universe. This resulted in the gradual collapse of people's religious beliefs and spiritual values. The concepts of the mind and mental phenomena are no longer ignored, even denied their existence. This period was then called the Old Story.

But in the 20th century, there was a New Story, with a revolution in physics and cosmology that was so dramatic since 1903. At first, physics was started by Einstein, Bohr, and Heisenberg; then neuroscience with experts such as Sherrington, Eccles, Sperry, and Penfield; continued in the discipline of psychology with Frankl, Maslow, and May; and finally, cosmology appeared to be the Big Bang theory. Thus emerged a concept known as The Anthropic Principle, which championed major themes synonymous with the great themes of religion: "purpose in this life," the existence of the Godhead, aesthetic views in life, spiritual factors, and human dignity.

If in the Old Story of science, such as the view of Galilei and Descartes that the world is objectively stripped of all the qualities of the senses and thoughts or otherwise the subjective world alone as expressed by Berkeley, Hume, Kant, or Sartre, then in the new understanding of the New Story the world has been returned to its central role of man. In The New Story, his view of the world proposes three important dimensions: vastness, unity, and light. This new tradition sought to distance itself from all forms of materialism and scientism. One of the phenomenal trends in the New Story of Science is the proliferation of science with a holistic vision. With a holistic vision, this science creates and enriches philosophical questions – which are classical but with new nuances – about the existence of God, creation, and finality, among others(Baqir, 2005).

The holistic vision of the New Story of Science finds momentum with cutting-edge research on the link of religion to science and the study of the correlation between religiosity and intelligence (often IQ, but also other factors). A new study on Yemeni feelings, joy, and religiosity shows a link between the two intense religious experiences. Also of popular interest is the study of prayer and medicine, specifically whether there is a causal relationship or correlation between spiritual prayer and improved health. The survey by Gallup, the National Opinion Research Center, and the Pew Organization concluded that people with spiritual commitment were twice as likely to report being "very happy" than those without religious commitment. In addition, an analysis of more than 200 social studies on "high religiosity predicts a mildly lowered risk of depression and drug abuse and suicide attempts and reports of satisfaction with life and a sense of well-being." Also, more than 498 journal studies concluded that most showed a positive correlation between religious commitment, higher levels of perceived well-being and self-esteem, and lower rates of hypertension, depression, and clinical delinquency. Other surveys have also shown a strong link between faith and altruism. Studies conducted by Keith Ward show that religion as a whole is a positive contributor to mental health (Soetomo, 1995). Michael Argyle and others claim that there is little or no evidence that religion ever causes mental disorders.

Integration of Science and Religion in the Context of Islamic Education

According to al-Kailani, if we look at the existing studies of Islamic education, most of them seem to be descriptive, normative, and adoptive in the shadow of "West-centric" or vice versa, "Salaf-centric" The thousand-year-old salaf tradition that has stalled in the last centuries has a rich and very sophisticated intellectual treasure. The output of the Islamic education system is original, highly synthetic, and creative figures in Islamic civilization. From these historical facts, there is a basic assumption that Islamic education has a special experience of organic unity between science and religion. Pre-modern sciences such as Chinese, Indian, and Islamic civilizations have fundamental

differences with modern sciences, for example, in terms of their goals, methodologies, sources of inspiration, and philosophical assumptions about people, knowledge, and the reality of the universe.

This fundamental difference reflects its complexity because the new education in Islam is grafted from other living organisms in the West, which have their own cultural background, internal structure, and consistency (Rahman, 1995). However, Islamic education of the past had experience in adopting Greek philosophy and science on its terms. However, Islamic education faces modern Western sciences at a disadvantage – psychologically and intellectually – because of Western political dominance, economic aggression, and intellectual hegemony. As a result, new education that brings the spirit of modern science that has a minus view of religion is not well integrated into the Islamic education system. At this point, there was a dichotomization between the fields of religion and modern science in the world of Islamic education. This ultimately causes losses between the two because there is no mutual integration, so Islamic education experiences various crises, including conceptual, institutional, methodological, or educational crises and orientation crises. In short, Islamic education is indeed experiencing functional degradation, which is considered far more acute than the same thing experienced by the general education system, which does not directly include a religious dimension (Arif, Mahmud, 2017).

The objective reality of anomalies and degradation in Islamic education is also because Islamic educational institutions producing professional teaching staff are experiencing a crisis. As M. Amin Abdullah suggested, transforming education at the Faculty of Tarbiyah became normative, not to say dogmatic. If traced into it, this faculty has not based the epistemology of its implementation on a critical and enlightening basis (Abdullah, 2008). Regarding the integration of religion and science, an education system called Interdisciplinary Sciences in Islam is needed for Islamic education today. This integrative paradigm is time to be developed in this modern century as a prototype of the rise of a new civilization that will shift the current civilization, which, according to the author, is already on the verge of bankruptcy, as seen from various physical and non-physical indicators. With the new education system, the curriculum is a complete union between the value of revelation and science. So it is hoped that alumni of Islamic educational institutions will be able to describe the methods of science and religion in the form of ways of thinking and behavior (akhlaq) in an integrated and comprehensive (holistic) manner in society so that in the future a better community order will be created.

Thus, in the future, Islamic education should prioritize learning materials that will help produce scientists, technologists, engineers, and other professional groups whose roles and contributions are essential to economic progress. But it also means that an Islamic educational institution is not merely

interested in producing some scientist, technologist, or engineer who speaks religion qualitatively, no different from those produced by most general education. However, it must be in the interest of educating "new kind" scientists, engineers, and technologists internalized in themselves policy and knowledge, spiritual faith and rational mind, creativity, and moral insight, innovative power and ethical goodness, and ecological sensitivity to develop fully harmoniously without undermining the possibility for them to achieve excellence and glory in their respective fields and specialties.

From such a basic framework, Islamic education is placed in an anthropocentric-integralist scientific classification system, namely a classification system that integrally integrates transmitted knowledge and acquired knowledge through interdisciplinary scientific approaches and methodologies (integration and interconnection). Thus, Islamic education is no longer an exclusive and isolated entity but instead a discipline responsive to various actual problems (current issues) (Abdulla, 2010.).

Discussion

Integration of Science and Religion and Its Implications for Islamic Education

The relationship between existing Islamic education, whether in Hadhrat an-nash, Hadhrat al-ilm, or Hadhrat al-falsafah, needs to be seen from the perspective of dialogue or integration. Therefore, Islamic education, as emphasized by M. Amin Abdullah, must have a close relationship with the praxis-social dimension because it always has a social impact and is required to be responsive to social reality so that it is not limited to the scope of theoretical-conceptual thinking as understood so far In addition, education should be used to introduce students to traditions, culture, social and cultural conditions, which in the same time have been reduced by modern science, technology, and industrialization. Thus, education must be directed at positive forces to build a new cultural culture and eliminate social pathologies (Abdullah, 2000).

George S. Counts emphasized that education must have a vision and prospects for radical social change, and implementing the project with an integrative paradigm in the scientific context between transmitted knowledge and acquired knowledge is expected to create a holistic and impartial academic atmosphere. So, the barriers to specialization of certain fields of knowledge do not result in the formation of insight and reach of knowledge, nor do they limit themselves to facts or the introduction of subjective finality, in which everything is only seen in its "pragmatic" meaning. However, there is also the existence of the meaning or finality of science that is transcendent, that is, something that is beyond science, which is the significance and direction of something in its "teleological" sense(Leahy, 2006)

Thus, an integrative paradigm will be able to bridge the sharp gap between general education and religious education (Nuriyati, 2020) because the madrasah as a form of renewal of the Islamic education system (pesantren) in the modern period still faces institutional-scientific and methodological problems. As a result, this institution has not completely solved the problem of scientific dichotomous dualism, the functional problem of "cultural heritage," and the dominance of justificative-indoctrination methodology in academic activities. In addition, the paradigm of integrative Islamic education will give birth to an inclusive attitude so that it does not respond to developments only in reactionary ways, let alone make itself the living ground of radicalism (Azra, 2005).

In terms of curriculum, implications can be in the form of preparing a syllabus around two fundamental issues, namely (1) epistemology and (2) ethics. The topics included in epistemology speak primarily of the epistemological status of applied and engineering sciences, their conceptual relationship with the principles of monotheism (i.e., metaphysical knowledge and cosmology) governing the physical (natural) world, with scientific methodology and creative thinking (including mathematical inspiration) and with the epistemological implications of certain aspects of human creativity in contemporary applied science and engineering, especially in genetic engineering, which is no less important is how the existing curriculum will deliver students to have the desire and ability to conduct research (research) in the fields of science to find then the "connection point" with the objective reality that occurs in religious areas.

The implications in the teaching and learning process were one of the interesting ideas about the important role of creative imagination as an alternative method to deductive and inductive methods because creative imagination goes beyond a very logical reasoning process in the formulation of theory. Namely, many phenomena have emerged about the role of certain teachers with the power of creative imagination. They have been able to create certain methods so that students can absorb lessons quickly and completely. Similarly, the role of a teacher is to create an applicable learning design, for example, by changing the layout and adding a classroom display to stimulate the student's passion for learning. All of them require a teacher's creativity so that the teaching and learning process becomes more effective.

Meanwhile, the implications of religious, social education with an integrative paradigm are that students will be invited to think holistically and not partially in living the plurality of beliefs and religions, for example, making regular visits to places of worship of different religions and getting explanations about the ethical principles shared by all religions. With that, students are also taught that one thing unites all religions in a bond called "oneness experience," where each religion has a

different interpretation according to the perspective of their respective scriptures. In addition, it is taught that peace in the world can be achieved by the experience of Oneness by each individual.

In this process, education plays a decisive role in integrating science and religion, a process that will appreciate the theoretical results of knowledge and eternal practical experience—the divine nature extracted from each other's personal experience. From here, creative imagination naturally grows to live a pattern of plural beliefs, so that creative awareness grows to respect others with different beliefs and religions. In another form, it can be by inviting students to look for harmonized symbols that unfold in the universe, then interpreted into models of integration between science and religion. For example, in horticultural studies, it is used to integrate science and religion with the sunflower model. For example, students are trained to develop their creative imagination by explaining sunflowers, where students explain their petals that represent various cultures, mythologies, sciences, spiritual approaches, and philosophies, all centered on the head of the flower. The flowers grow based on human experience, petals are models and thought systems built from human experience, and students are invited to understand that experience. From there, we will grow thinking about the basic assumption that science and religion can and should work together to produce a richer understanding of our world. We teach students to learn to integrate science and religion in field activities even while playing. With this, it is possible to grow in students' understanding that science and religion will grow together to adapt to each other. Moreover, this process will teach students that any model of integration of science and religion must reflect reality, not theoretical ties.

CONCLUSION

Integrating science and technology has implications for Islamic education, among others. First, it has implications regarding curriculum, delivering students the desire and ability to conduct research (research) in scientific fields to find "connecting points" with the objective reality that occurs in religious areas. Second, implications in the teaching and learning process, teachers develop creative imagination. The role of teachers with the power of creative imagination is to create certain methods so that students can absorb lessons quickly and completely. And third, implications in the aspect of religious social education. With an integrative paradigm, students will be invited to think holistically and impartially in living the plurality of beliefs and religions to foster mutual respect and respect for differences in religious beliefs.

The presence of an integrative paradigm in the scientific context between transmitted knowledge and acquired knowledge is expected to create a holistic and impartial academic atmosphere. So, the barriers to specialization of certain fields of knowledge do not result in the

formation of myopic-narcissistic insights, nor does the reach of knowledge limit itself to facts or the introduction of intrinsic finality, which is only seen in its "pragmatic" meaning. However, there is also the existence of the meaning or finality of science that is transcendent, something that is beyond science, which is the significance and direction of something in its teleological sense.

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