Comparative Typology of Science and Religion Integration of Syed Muhammad Naquib Al-Attas and Amin Abdullah and its Implications for Islamic Education

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Abstract

This The main aim of this study is to analyze and clarify the implementation of the integration of science and religion, as suggested by Islamic scholars from Southeast Asia, in educational settings, particularly in State Islamic Universities and high schools in Indonesia. This research uses library research methodology to investigate the Comparative Typology of Integration of Science and Religion proposed by Syed Muhammad Naquib Al-Attas and Amin Abdullah and its consequences for Islamic education. Al-Attas emphasized the importance of balancing spiritual and practical knowledge, recognizing both personal religious experience and objective religious elements. It supports the advancement of scientific knowledge through observation and experimentation and encourages the development of creative thinking and imagination in acquiring knowledge. On the other hand, Amin Abdullah advocates a relationship between science and religion that allows some information to flow, emphasizing the importance of mutual understanding and the integration of imaginative thinking into Islamic education to make it more relevant to today's times. To improve Islamic education, it is essential to achieve a balance between spiritual and practical knowledge, promote understanding of the simultaneous existence of subjective and objective aspects in religion, encourage scientific enlightenment and critical thinking, stimulate creativity and innovation in learning, facilitate viable connections between sciences and religion, recognizing the duality of objective and subjective components in religious studies, and integrating creative thinking to make religious education relevant and interesting in contemporary cultural contexts. These approaches can improve the quality of Islamic education and equip students to face the complexities of faith, science, and culture in the modern world.

1.   Introduction

The difference between science and religion creates a paradigm shift because they both have different approaches to searching for truth (Nasir, Mulyono, and Nastiti, 2020). Scientists believe that truth is obtained through empirical logical methods (Popper, 2005 Popper, 2013), while religionists believe that truth comes from revelation and is normative (Dougherty and Tweedt, 2015 Forsthoefel, 2020). This view of truth makes scientists consider religion to be a delusion, because it cannot be proven through scientific methods (Clark, 2010; Evans, 2011). On the other hand, religionists view science as lacking emotional depth and ultimate happiness (Whitehead, 2011). However, the idea is growing that science and religion should not be separated from each other and that an integrated discourse is needed to fully capture the essence of both (Abdullah, 2014; Sollereder, 2019).

As the dichotomy between science and religion persisted, rationalists realized that the scientific method was limited to examining physical phenomena and could not explain metaphysical problems (Fuller, 2007; Gould, 2011). These limitations make it challenging to discuss the essential truths of any metaphysical material. On the other hand, religionists began to realize that science and technology were not enough to bring happiness to the world (Rusydi, 2012). Therefore, scientists and religionists now seek to integrate science and religion into comprehensive studies that can address physical and metaphysical problems (Esbjörn-Hargens and Wilber, 2008; Nasir, Mulyono, and Nastiti, 2020; Wathoni et al., 2018). This integration allows humans to verify truth through scientific methods, while religion provides the means to generate meaning. The scientific method suits physical studies because its parameters can be tested and generalized for truth. However, metaphysical parameters cannot be tested by scientific methods and can only be felt by the heart. When physical and metaphysical studies are combined, they create actual knowledge. Ultimately, all knowledge aims to understand the existence of God (Halstead, 2004; Hashim and Rossidy, 2000; Zaidi, 2011).

Integrating science and religion is essential today because of the need to face various global challenges. Integrating science and religion helps develop a more comprehensive and holistic understanding of the world and humans themselves (Wilber, 2001). In addition, the integration of science and religion also helps understand how to apply the principles and values contained in religion to ethical and sustainable scientific practices and development (Fischer et al., 2012; Hitzhusen and Tucker, 2013).

The discourse regarding the relationship between Islam and science requires several important considerations to have a deeper meaning. These considerations include epistemological considerations related to the status of the Koran with modern science. This relates to how the Koran is viewed in the context of developing scientific knowledge. Second, consider the concept of God, God's actions, and His relationship with His creatures. This includes an understanding of God's role in the creation of the universe and how the Islamic religion views the interaction between God and the universe. Third, considerations involve the concept of the cosmos in Islam, including the plurality of the natural and unseen worlds. It includes an understanding of the invisible dimensions of existence and their relationship to the understanding of modern science. Fourth, consid-

erations involve the concept of nature in Islam and various natural concepts in modern science. Differences in understanding and epistemological concepts between Islamic and Western science must be considered. Lastly, consideration involves understanding the verses that have a scientific aspect in the exegetical literature and their relationship to the central message of the Koran (Muzaffar Iqbal, 2000). In the history of the development of science, Islamic science has had an essential role in influencing the development of Western science. However, Islamic science significantly differs from Western science, which developed in the scientific revolution of the 17th century. This difference is related to the understanding of nature and the role of natural science in the knowledge system (Nasr, 2003).

Efforts to unite science with Islam or Islamic sciences are a response to secularism, creating a sharp separation between science and religion (Euben, 2002). Secularism holds that science and religion have fundamentally different approaches to explaining truth (Hidayat, 2015). Scientific methods are objective and rely on observation, data analysis, interpretation, verification, and conclusions. In contrast, religious methods are generally subjective and rely on intuition, personal experience, and the authority of holy books or prophets (McPhetres and Zuckerman, 2017).

Debates between science and religion tend to be more intense and heated than those between religion and other fields because of several factors that influence it. Science and religion have the same goal: to seek the truth about nature and human existence (Coyne, 2016). Therefore, the two tend to compete to find the truth. Science has succeeded in refuting some of the truth claims of religion in many ways, while religion has found it difficult to refute the truth claims of science. This creates conflict and tension between the two fields. Science and religion have truth claims that overlap in several aspects. For example, questions about the universe's origins, human evolution, or moral ethics can be the subject of debate between science and religion (Dixon and Shapiro, 2022). This overlap causes more intense conflict and debate.

In the West, especially in the early modern century, debates between science and religion became more frequent and widespread. However, this debate is less common in the Muslim context because Muslim intellectuals are generally reluctant to engage in science and religion debates. Muslim thinkers tend to focus debates on issues such as the Islamization of science, Islamic science, and the integration of science and religion (Akkach, 2019). Modern science that developed in the West has a different philosophical basis from the science that developed during the heyday of Islam (Guessoum, 2010). In Islamic epistemology, science and religion have a harmonious relationship. Therefore, the conflict between science and religion in the West is only sometimes relevant when applied in an Islamic context. The rapid development of modern science in the West has resulted in a more value-free science (Wilber, 2001). Science provides truth without providing guidance on values, morality, or wisdom in using it. Conversely, religion can fill this void with deeper values, meaning, and attention to science. Despite these differences, science and religion are committed to the search for truth. Integrating science and religion helps religions better understand natural phenomena and allows religious values to be used to develop science (Rediehs, 2022).

In the Indonesian context, the integration of science and religion influences the transformation from IAIN (State Islamic Religious Institute) to UIN (State Islamic University) (Moch Iqbal and Adisel, 2021). The main objective of this phase is to reconcile

science and religion, improve the standard of education, and expand the range of research in Islamic higher education. Each UIN has a unique philosophy that reflects its institution's vision, mission, and values. However, the main goal is to achieve a harmonious integration of religious understanding and modern knowledge.

Integrating science and religion at UIN is expected to emerge as a prominent phenomenon among students, teachers, and researchers (Nasir, Mulyono, and Nastiti, 2020). They are encouraged to engage in educational and research activities that combine elements of religion and science, aiming to promote a more comprehensive and enlightening understanding. In addition, UIN prioritizes the progress of science and technology. Using scientific research and modern technology is widely acknowledged as crucial instruments for advancement in diverse fields. The utilization of technology to spread religious teachings and ideals has a beneficial impact on society.

Thinkers and philosophers of Islamic education in Southeast Asia have articulated several concepts of integrating science and religion that depart from the region's unique characteristics. Individuals like Syed Muhammad Naquib Al-Attas and Amin Abdullah have played significant roles in shaping these perspectives. Al-Attas, for instance, maintains that contemporary intellectual challenges stem from a fundamental confusion of thought attributed to the influence of Western secular thinking and culture (Mahmudin, Ahmad, and Basit, 2021). He suggests that Islamization involves liberating individuals from the grip of magical, mythological, animistic, and national cultural traditions contrary to Islam and secular dominance over reason and language (Al Migdadi, 2012). A person in the Islamic tradition is one whose reasoning and language are no longer shaped by magical beliefs, mythologies, animism, or culturally conflicting traditions but rather by Islamic principles.

On the other hand, Amin Abdullah introduces a paradigm of integration interconnection, a concept embraced by UIN Sunan Kalijaga to advance scientific development (Suyadi and Sutrisno, 2018). This paradigm emphasizes the interconnectedness between religion and science, emphasizing the relevance of both to university education. By integrating the three facets of the scientific triangle - hadlarah an-nash (textual knowledge), hadlarah al-ilm (empirical knowledge), and hadlarah al-falsafah (philosophical knowledge) - Abdullah establishes a framework where religion and science share a meaningful relationship that enriches educational endeavors at the university level (Siswanto, 2013). This integrated approach underscores the importance of bridging the gap between religious principles and scientific knowledge in education.

Prior studies have primarily concentrated on performing a philosophical examination of the concepts put out by two education philosophers, specifically Al-Attas and Amin Abdullah, regarding the amalgamation of science and religion. Nevertheless, there has been a conspicuous lack of a comparative examination of these two notions within the framework of education in Indonesia. Both thinkers originated from the educational environment of South-east Asia. Moreover, there has been a lack of investigation into the practical ramifications of applying these concepts in Islamic education.

The main aim of this study is to analyse and clarify the implementation of the integration of science and religion, as suggested by Islamic scholars from South-east Asia, in educational settings, particularly in State Islamic Universities and high schools in Indonesia. This research aims to offer a thorough comprehension of the practical consequences of integrating this technology into the field of education, elucidating its actual application

and influence in the real world.

2. Methods

The present study utilized a library research methodology to investigate the Comparative Typology of Science and Religion Integration proposed by Syed Muhammad Naquib Al-Attas and Amin Abdullah, and its potential implications for Islamic education. The research methodology employed in this study involved the collection and analysis of data derived from pre-existing literary sources.
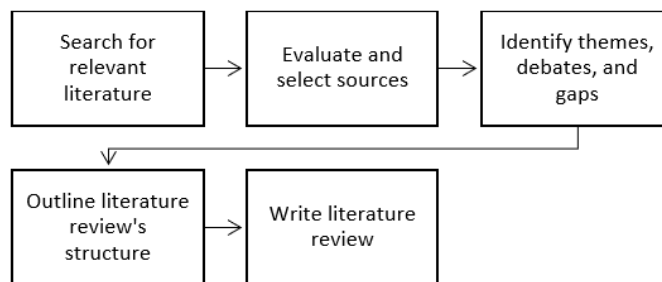

Figure 1. The Steps of Library Research

The initial phase of data collection entailed conducting an extensive review of the literature to identify pertinent sources pertaining to the integration of science and religion from diverse perspectives. This process additionally evaluated the potential impact of these perspectives on Islamic education. The researcher conducted a comprehensive search across academic databases and digital libraries in order to identify pertinent and substantial sources that would contribute to the attainment of the research objective.

Table 1. Primary and Secondary Data

Type of Data	Author	Title	Year Published
Primary Data	Syed Muhammad Naquib Al-Attas	Islam: The Concept of Religion and the Foundation of Ethics and Morality	1976
		Islam and Secularism	1978
		Aims and Objectives of Islamic Education: Islamic Education Series	1979
		The Concept of Education in Islam	1980
		Islam and the Philosophy of Science	1989
	Amin Abdullah	Implementasi Pendekatan Integratif-Interkonektif dalam Kajian Pendidikan Islam	2006
		Islamic Studies di Perguruan Tinggi: Pendekatan Integratif-Interkonektif	2006

		Multidisiplin, interdisiplin dan transdisiplin: metode studi agama dan studi islam di era kontemporer	2020
		Religion, Science and Culture; An Integrated, Interconnected Paradigm of Science	2014
Secondary Data	Kamaruddin Sassi	Ontologi Pendidikan Islam Paradigma Tauhid Syed Muhammad Naquib Al-Attas: Revitalisasi Adab-Ta'dib dalam Pendidikan	2013
	Wan Mohd. Nor Wan Daud	Islamisasi Ilmu-Ilmu Kontemporer Dan Peran Universitas Islam Dalam Konteks Dewesternisasi dan Dekolonisasi	2013
	Wan Mohd. Nor Wan Daud	Filsafat dan praktik pendidikan Islam Syed M. Naquib al-Attas	1998
	Waryani Fajar Riyanto	Integrasi-interkoneksi keilmuan	2013
	Al Makin dkk	70 tahun Amin Abdullah, pemikir, guru dan pemimpin	2023

Once pertinent sources were identified, literature that aligned with the research topic was meticulously selected. The process entailed perusing succinct synopses, assessing the reliability of references, and choosing the most informative and pertinent scholarly works within the research framework. Following this, the investigator obtained pertinent information from the existing body of literature. Al-Attas and Amin Abdullah proposed that the data could have encompassed direct quotations, primary ideas, fundamental concepts, and discoveries pertaining to the typology of integrating science and religion.

The data analysis process involved the categorization of data based on primary themes and concepts that were derived from the existing literature. The researcher conducted a comparative analysis of the perspectives of Al-Attas and Amin Abdullah regarding the integration of science and religion. The researcher compared and contrasted various perspectives, emphasizing the underlying epistemological principles, educational objectives, and the interplay between science and religion.

The perspectives of Al-Attas and Amin Abdullah on Islamic education were also taken into account in the data analysis. The aforementioned had significant implications for various aspects of Islamic education, including the curriculum, instructional approaches, students' comprehension, and the dynamics between science and religion. The data was analyzed by the researcher in order to ascertain the similarities, differences, and implications of the perspectives on the typology of integrating science and religion. Ultimately, the researcher conducted a comparative analysis of the obtained results with the extant body of literature in order to evaluate the extent to which this research has effectively contributed to the comprehension of the subject matter.

3. Results and Discussion

3.1. The Roots of Dichotomy: Historical Perspectives

The distinction between science and religion is historically significant in Islamic intellectual discourse. Scholars like al-Ghazali and Ibn Khaldun categorize knowledge into religious and non-religious domains (Sappe, 2020). Despite this division, many eminent Islamic scholars advanced various fields of knowledge. But this dichotomy kept hindering scientific progress in Islamic societies.

Internal and external factors have slowed Islamic scientific progress. The Jabariyah ideology and al-Ghazali promoted predestination and contentment in the Islamic ummah. The above ideological framework hindered Islamic innovation and knowledge acquisition (Hidayaturrahman et al., 2021). Extrinsic factors, such as Mongol incursions that destroyed Baghdad, threatened Islamic civilizations. The transfer of scientific endeavors to Europe marginalized Islamic contributions and reduced their impact on global science (Lyons, 2010).

The divide between general and religious sciences has presented many challenges. The merging of religious and general sciences in Islamic education has created ambivalence and a rift between them. Furthermore, this dichotomy has caused a gap between the educational system and Islamic teachings (H. Nurdin, 2020). This phenomenon has fragmented the Islamic education system, allowing the Western and Islamic systems to retain their identities. Islamic educational institution management appears insufficient in the current situation. Western educational models are used to evaluate educational progress and success, despite their low emphasis on cultural and ethical values.

Imam al-Ghazali and other scholars' historical perspective on science's classification into fardhu ain (individually obligatory) and fardhu kifayah (collectively obligatory) is crucial. It's important to consider counterarguments. The classification did not aim to separate religious and secular knowledge. This initiative sought to preserve fardhu ain, essential religious knowledge, and allow people to study other fields, fardhu kifayah. Having a clear distinction is not necessary here.

Al-Ghazali stresses the importance of knowledge integration in ontology, epistemology, and axiology (Azam, 2011). These three knowledge dimensions converge like triangle vertices. Ontology holds that knowledge comes from a higher power. Thus, all academic fields are laudable. Science derives knowledge from divine illumination, according to epistemology. Optimizing rationality and adding revelation or inspiration can lead to knowledge. Methodology and sources determine scientific discovery credibility. Knowledge enhances human well-being, not is an end in itself.

Al-Ghazali's systematic categorization of scientific disciplines shows his robust structural framework for studying scientific knowledge integration (Özkan, 2014). This field focuses on connecting knowledge classifications. It examines how one classification interacts with others and how they improve each other. Al-Ghazali introduced two types of scientific integration: intra-Islamic, which harmonizes Islamic disciplines, and inter-Islamic, which synthesizes Islamic sciences with those outside the Islamic tradition (Gilani and Islam, 2018).

Al-Ghazali's many works classify knowledge differently. In Ihya Ulumuddin, Al-Ghazali classified Islamic knowledge into ushul (main) and furu' (branch). The main categorization includes Koran, hadith, ijma, and Companions' traditions. Branch clas-

sification includes all subsidiary disciplines that arise from the primary field of study. In Arisala Alladuniyah, Al-Ghazali's other work, references that subsidiary disciplines included Religious Rites, Jurisprudence, and Ethics and Morals.

In al-Mustasfa, al-Ghazali proposed a scientific framework that links pure and religious science. Al-Ghazali describes the classification of pure rationality within the sharia framework, which does not endorse or promote scientific disciplines like arithmetic, geometry, and astronomy. Integration's ability to blend rationality and traditional wisdom makes it a highly esteemed form of knowledge. Harmonious integration of rational thought and sharia principles (Bolandhematan, 2019). The convergence of revealed and rational knowledge depends on student aptitude. Al-Ghazali believes that most revealed knowledge is accessible to those with intellectual understanding from rigorous study. Similarly, intuitive knowledge reveals much rational knowledge.

3.2. Tauhid Paradigm in Islamization of Science Syed Muhammad Naquib Al-Attas

Syed Muhammad Naquib Al-Attas underlined the difference between God's knowledge and human knowledge about God, and religion, and the world. Knowledge can be understood as a gift from Allah which is called wisdom or nur; and it can also be something that humans obtain based on their aqliyah efforts, either through investigation, study or experience which is called science. It is generally understood that knowledge can be classified into essential elements, just as humans have two elements spiritual and physical, so knowledge is divided into these two elements: one is food and life for the soul, and the other is provisions with which it can equipped people of the world in pursuing pragmatic goals (Sassi, 2020).

Al-Qur'an, sunnah, shari'ah, ilm al-ladunniyy and hikmah are important elements of the first type of knowledge. Man can only receive this type of knowledge through his acts of worship and devotion, relying on God's Grace and spiritual power and capacity, in the form of spiritual insight (dhawq) and revelation of his spiritual vision (kashf). The second type of knowledge refers to knowledge gained through experience and observation and research; is discursive and deductive and refers to objects of pragmatic value. This second type of knowledge is given by God to humans through speculation and rational inquiry. From the human point of view, both types of knowledge must be acquired through conscious action ('amal), for no knowledge is useful without action resulting from it; and no action is beneficial without knowledge. The first type of knowledge reveals human Existential wisdom and the true relationship between humans and their God. This type of knowledge becomes an important basis for the second type of science. If humans only pursue knowledge of the second type, without the guiding spirit of the first type, humans will lose direction, get caught in paths that confuse and confuse them and entangle them in a labyrinth of endless and aimless search (Hamid, 2018).

Syed Muhammad Naquib Al-Attas sees that there are limits for humans in exploring the first and highest type of knowledge; whereas no boundaries obtain in the second type, so the possibility of perpetual wandering fueled by self-delusion in doubt and curiosity is limitless. Man must limit his individual search for knowledge of the second kind to his own practical needs, so that he can place both knowledge and himself in defense of the requirements of justice. For this reason, Islam differentiates the search for two types of knowledge, fardhu ain and fardhu kifayah. The division of the search for obligatory

knowledge into two categories itself is a procedure for doing justice to knowledge and to the humans who seek it, because all fardhu ain knowledge is good for humans (Hassan, 2013).

Islamic education according to the concept of ta'dib is not just a process of learning to know oneself and God, but is broader than that, because all forms exist, and the existence of things is because of God, including the universe and everything in it. So education with the terminology of ta'dib is like a clarification medium to remind (re-recognize) each person's recognition and self-recognition of His Khaliq which has been previously agreed upon (preexistent) (Zein, 1999). This thinking is in line with what his predecessors such as Ibn Miskawaih and al-Ghazali had done. According to Ibnu Miskawaihi, the various sciences taught should not be taught solely because of the science itself, or solely for academic purposes, but for other, more substantial, fundamental and essential purposes, namely noble morals. Every science carries a noble moral mission, and is not just science (Adawiyah, 2017). Thus, the higher a person's knowledge, the higher his character will be. In this regard, al-Ghazali emphasized the importance of the issue of adab in Islamic education, such as his statement that a pious person must pursue knowledge continuously but also put his knowledge into practice. According to him, knowledge is the path that will lead humans to happiness in this world and the hereafter, but happiness cannot be achieved except through charity (Dahlia, 2018).

Traditional Islamic education always makes individual success and happiness in life in this world and the hereafter the most important educational ideals and goals. However, this individual educational philosophy has slowly changed to a form that focuses more on fulfilling the needs and interests of society since Muslims have been under the influence of Western thought and institutions.(Sahin, 2018). Nowadays, education has become a tool for socio-economic mobilization of individuals or countries. The dominance of attitudes like this in the world of education has given rise to psycho-social pathology, especially among students and parents, which is known as diploma disease, namely efforts to obtain an educational degree not because of the interests of education itself, but because of economic values. and social. This phenomenon has never hit Muslims before and is very dangerous for the basic principles of Islamic educational philosophy, namely seeking Allah's pleasure (Zein, 1999).

Syed Muhammad Naquib Al-Attas emphasized and explained that the aim of education according to Islam is not to produce good citizens and workers. Rather, the goal is to create good humans (Al-Attas, 1993; Yasin Jani, 2013). What needs to be emphasized in education is the value of humans as true humans, as citizens of cities, as citizens in their micro kingdoms, as something spiritual, (thus what is emphasized) not the value of humans as physical entities measured in a pragmatic context and utilitarian based on its usefulness for the country, society and the world.

Syed Muhammad Naquib Al-Attas argues that a good citizen or worker in a secular state is not the same as a good human being; On the contrary, a good human being is definitely a good worker and citizen (Syahidin, 2016). It is very clear that if the employer or the state is good, as defined within the framework of Islamic teachings, being a worker or citizen is the same as being a good human being. However, an Islamic state requires the active participation of critical Muslims. Syed Muhammad Naquib Al-Attas emphasized that emphasizing the individual is not only a principal thing, but also an effective strategy today. According to him, the emphasis on the individual implies knowledge of reason,

values, soul, goals and the true purpose of this life; because reason, values, and soul are inherent elements of every individual. Meanwhile, the emphasis on society and the state opens the door to secularism, including secular ideology and education (Al-Attas, 1993).

3.3.   Amin Abdullah Integration Interconnection

The current situation where religion and science are in conflict or independent of each other is undesirable in Indonesia's complex society. This can cause potential problems and risks. In contrast, a relationship between religion and science that leads to dialogue and integration is more ideal. To achieve this, three key words have been identified: semipermeable, intersubjective testability, and creative imagination (Abdullah, 2014).

The concept of semi permeability originates from biology where survival of the fittest is prominent. In the causality-based relationship between science and religion, some can penetrate each other. There are lines that divide scientific disciplines, but scientists can communicate, be open with each other, and accept input from outside their field. The interpenetrating relationship between science and religion can be clarifying, complementary, affirmative, corrective, verification and transformative.

Amin Abdullah uses the metaphor of a spider's web to describe the mutual linkages and active interactions between various scientific disciplines, highlighting the concept of integrative relationships and interconnections between scientific methods and various scientific disciplines (Wirman et al., 2019). The metaphor also contains dotted lines, resembling pores, which are attached to the dividing walls between scientific disciplines, which are open spaces for dialogue, communication and discussion between scientific disciplines. This open space allows for a free and comfortable exchange of scientific information, where each scientific discipline can maintain its own identity while engaging in discussions with other scientific disciplines. The author emphasizes that Islamic religious sciences cannot be separated from this open space for dialogue and communication, and scholars must be willing to synergize with natural sciences, social sciences and humanities. The importance of communication, feedback, and criticism is emphasized to ensure a more fruitful and effective integration between religious and non-religious disciplines (Abdullah, 2014).

Disciplinary boundaries are not absolute and are not intended to limit the exchange of information and ideas between scientific disciplines. While the boundaries are still visible, they are not completely impermeable and have small openings or pores that allow for cross-disciplinary interaction and collaboration. Today's scientific community is more open to collecting and combining information from various disciplines, rather than relying solely on expertise in one area. The traditional linear view of science, which prioritizes strict adherence to disciplinary boundaries, has been challenged by many scientists. Amin Abdullah based his thoughts on Holmes Roston's opinion which stated that religion and science must have a balanced relationship. Religion cannot fully adapt to science because science is constantly changing (Rolston, 2006). However, religion also cannot completely reject science because it needs to adapt to the intellectual world around it. Just as a biological species must adapt to survive in its environment without over-specialization, religion must maintain its autonomy and integrity while also being open to knowledge and change within the scientific community. This passage shows that religion separated from science will not be able to reproduce itself in subsequent generations and will become

obsolete. Therefore, religion must have a relationship with science that allows both to coexist and develop.

The second indication is that the relationship between science and religion is dialogical and integrative, known as intersubjective subjectivity. This term was originally coined by Ian G. Barbour in connection with the workings of the natural sciences and humanities. Amin Abdullah expanded the term by using examples from the phenomenological approach to religion. Barbour emphasized that objects and subjects are both important in scientific activities, and that data cannot be separated from the observer, because scientists always act as experimental agents. Consequently, concepts are not given by nature but are constructed by scientists as creative thinkers. Therefore, these objectives must be refined or perfected through intersubjective testability (Makbuloh et al., 2020), which occurs when the scientific community collaborates to test the correct meaning and interpretation of data obtained by researchers in the field.

In contemporary discussions around science and religion, technical terms such as subjective, objective, and intersubjective are often used (Wiebe, 2019). In the field of religious studies, especially in the context of religious phenomenology and anthropological research conducted through grounded research or ethnography, observers and researchers can document their encounters with everyday life and describe them objectively. Anthropologists of religion have identified several basic elements assumed by religion, including doctrine (belief in certain things), ritual (participation in certain activities), leadership (authority invested in certain figures), scripture (certain texts considered sacred), history (various stories are told), morality (formation of moral principles), and tools (Eller, 2015). While the seventh element, tools, is present objectively in people's lives and is entrusted to religious followers, the role of observers, researchers and scientists (subjects) is to construct and document the basic structure of religion by observing and recording these basic elements.

However, when the basic elements of religion are identified, interpreted, practiced, and performed by individuals and groups in specific cultural and linguistic contexts, what was once considered objective by observers and researchers becomes subjective in the interpretations and experiences of its followers (Abdullah, 2014). Communities of believers may struggle to understand the objectivity of their religiosity because of the vested interests in the world of subjects and actors on the ground. This sociological process results in a shift from objectivity to subjectivity, with beliefs, interpretations, and practices becoming unfalsifiable and incommensurable. When such a shift occurs, a group of people may lose direction and struggle to find a way forward. While religious observers and scholars view diversity and pluralism in the interpretation of religion as a natural thing and try to find the nature of diversity, for religious believers, their own beliefs are considered correct and unquestionable, and differences in beliefs held by other groups must not be challenged (Johnstone, 2007).

Amin Abdullah argues that although there are objective elements in religion, such as doctrine, ritual, leadership, scriptures, history, morality, and tools, religion is ultimately a subjective experience for its adherents. Individuals and groups interpret and practice religion within the context of their culture and language, leading to a diversity of beliefs and practices within each religion. Amin suggests that from a scientific or scholarly perspective, it is important to seek the "essence" of various religions, even in their diverse manifestations. This involves identifying the fundamental principles and beliefs that are

important to each religion. However, from the perspective of religious believers, their own interpretation of their religion is often seen as the only correct one, giving rise to tensions between different groups. Amin emphasized the importance of religious and community leaders in managing and bridging these differences in interpretation and tension. They argue that the study and understanding of religion is unique, involves objective and subjective elements, and cannot be equated with research in other fields.

Amin argued that religion is basically conceptual subjectivism, but blind fanaticism and rejection of other beliefs can lead to absurdities. To avoid this, religious leaders must recognize the objective elements of religion and promote scientific enlightenment through empirical research. The struggle between the objective world and the subjective world in the study of religion has given birth to the concept of "intersubjectivity", namely the ability of scientists to intelligently bring the subjective world and the objective world into dialogue in dealing with the complexity of life. This approach applies not only to religion but also to science in general. Collaboration between various disciplines is necessary to solve complex problems, and the over-specialization and linearity of science are hotly debated topics. Creative imagination is critical to the engagement between religion and science, as scientists tend to rely too much on inductive and deductive thinking and neglect creativity and imagination in their work. While there is logic to testing theories, there is no logic to creating them, and there is no surefire recipe for making original discoveries.

In pursuing their academic careers, scientists strive to create new theories, and doctoral students are encouraged by their supervisors to contribute to the advancement of science. But how exactly do new theories emerge? Usually, they are the result of a scientist or researcher's courage to combine various existing ideas that were previously considered unrelated. The process of creative imagination often involves connecting two different concepts to form a new framework. By synthesizing these two previously unrelated matters, a new theory emerges from the rearrangement of the old configuration into a new one.

Amin suggested the importance of incorporating creative imagination into Islamic religious education to make it more relevant to contemporary culture (Anwar et al., 2023). This means that Islamic religious studies should not be separated from other scientific disciplines and should instead be in dialogue with them. Educators and lecturers must be willing to collaborate and think creatively to develop new ideas and perspectives. If Islamic education remains isolated from other disciplines, it will lose its relevance and become less meaningful for students. Therefore, it is important to rethink and revise the content and practices of Islamic education to make it more attractive and effective in today's world.

3.4. Comparative Analysis of Al-Attas and Amin Abdullah's Typologies of Religion and Science Integration

The concept of knowledge integration, as presented by Syed Muhammad Naquib al-Attas, has been analysed by Puspitasari, Yuliana, et al., 2022 in their previous research. Al-Attas argues that the process of Islamicizing science involves freeing individuals from the influences of magical, mythological, animistic, and cultural-national traditions that are not in line with Islamic principles. This process also entails liberating oneself from secular conceptions of cognition and communication, as well as emancipating oneself

from the hegemony of worldly cravings that frequently result in a secular and inequitable way of existence.

According to Al-Attas, as stated in the paper by Maryam Shamsaei and Mohd Hazim Shah (2022), Islamic education is intricately connected to the fundamental aspects of human beings, encompassing their physical, spiritual, and cognitive dimensions. The objective of Islamic education is to cultivate these three components, facilitating the growth of a well-rounded and integrated individual who is capable of fulfilling their duty as a servant and caretaker of the Earth. In addition, al-Attas classifies science into two distinct categories: sacred knowledge, which is focused on discovering the road to ultimate bliss, and acquired knowledge, which is intended to fulfil earthly necessities. He contends that current science, with its secular and materialistic orientation, should be dissociated from its capacity to facilitate spiritual connection with God, thereby challenging its status as the ultimate achievement of human civilisation. This viewpoint highlights the importance of the Islamicization of science in relation to the aims of Islamic education, emphasising the alignment between al-Attas's theories and the purposes of physical, logical, and moral education

The inclusion of both spiritual and pragmatic knowledge in the curriculum, as emphasized by Al-Attas, exemplifies a comprehensive approach to education. This approach acknowledges the importance of expanding the scope of education beyond religious texts, emphasizing the inclusion of diverse disciplines and knowledge domains. The educational approach fosters the cultivation of a holistic viewpoint among students, wherein religious and secular knowledge are harmoniously integrated, thereby facilitating the development of a more inclusive and comprehensive outlook on the world (Fouz Mohamed Zacky and Moniruzzaman, 2023).

The emphasis placed by Al-Attas on primary sources of spiritual knowledge, namely the Quran and Hadith, alongside the acquisition of pragmatic knowledge through reason and experience, serves to advocate for a well-rounded approach to education (Sahin, 2018). The curriculum guarantees that students acquire a robust understanding of Islamic teachings, while simultaneously fostering an environment that encourages critical thinking and empirical investigation across diverse academic disciplines.

The purpose of education, as emphasized by Al-Attas, is centered around the development of character, moral values, and holistic growth (Kasim and Yusoff, 2014). These objectives are in accordance with the broader aims of Islamic education. This highlights the significance of inculcating ethical principles and fostering a sense of accountability among students, thereby enhancing their capacity to assume responsible and ethical roles within society.

The topic of discussion revolves around the dichotomy between the individual and society, with specific reference to Al-Attas's perspective. The emphasis on fostering the growth of morally upright individuals who can make constructive contributions to society highlights the significance of personal agency in influencing the collective. This approach is in accordance with the Islamic principle of individual accountability and underscores the significance of ethical conduct and personal attributes in fostering societal improvement.

Prior studies have investigated the integration of science and religion, with specific emphasis on the ideas of Amin Abdullah, carried out by Agung Ilham Prastowo, Toto Suharto, and Sembodo Ardi Widodo (2023). Abdullah's framework for knowledge inte-

gration encompasses three fundamental approaches: multidisciplinary, interdisciplinary, and transdisciplinary. The primary objective of the multidisciplinary approach is to establish connections or integration between two or more scientific fields, while making use of the unique methods and approaches associated with each subject. By adopting a multidisciplinary approach, the unique traits and methodologies of each scientific field are preserved, leading to solutions that accurately represent the attributes of the sciences involved. The interdisciplinary method utilises various viewpoints from pertinent or integrated scientific fields to tackle specific difficulties or problems. This approach promotes extensive collaboration among one or more fields, either directly or indirectly through educational and research initiatives, in order to incorporate ideas, techniques, and evaluations. Furthermore, the transdisciplinary method aims to generate novel theories or axioms by integrating several disciplines and engaging individuals who lack expertise in order to arrive at conclusions and policy suggestions. This strategy is utilised to accomplish several aims, including addressing the intricacy of reality, understanding complicated global concerns, developing interdisciplinary synergy, and boosting collaboration among specialists from different areas.

Siswanto's (2013) research highlights the importance of integrating and interconnecting secular and religious subjects, as this will establish a reciprocal relationship that enables them to mutually enhance each other. Under this paradigm, the field of religious studies, namely Islamic sciences, expands its scope beyond traditional texts to include modern social sciences. As a result, the three primary areas of knowledge, namely natural sciences, social sciences, and humanities, are no longer separate but instead interwoven. Although they may not fully integrate, their relationships become more flexible, eliminating any assertions of superiority or inferiority in knowledge. This paradigm proposes the integration and connectivity of qawliyah/hadharah nash sciences and kawniyah/hadharah ilm sciences, together with hadharah falsafah, to establish a harmonic relationship among them.

The recognition of the differentiation between spiritual and pragmatic knowledge underscores the mutually supportive functions of religious teachings and secular sciences. The educational approach fosters an appreciation for the interconnectedness of religious and scientific knowledge, thereby cultivating a more harmonized and comprehensive perspective. Acknowledging the significance of creativity and imagination in the acquisition of knowledge fosters a mindset among students that promotes critical and innovative thinking across diverse fields of study. It fosters a pedagogical approach that emphasizes dynamism and innovation, thereby cultivating an environment in which students are motivated to engage in the exploration of novel ideas and diverse perspectives.

The recognition by Amin Abdullah of the presence of subjectivity in religious experiences, while simultaneously upholding objectivity, underscores the significance of employing critical thinking within the field of religious studies (Asrori, 2016). This particular viewpoint promotes the inclination of students to inquire and engage in critical analysis of their religious beliefs and interpretations, thereby facilitating a more profound and significant involvement with religious knowledge.

Amin Abdullah's work Encouraging students to engage in dialogue and discussion is facilitated by acknowledging both the objective elements of religion and the subjective interpretations inherent within it. This approach facilitates the cultivation of a comprehensive and varied comprehension of Islamic knowledge, thereby enabling students to

develop an appreciation for the diverse range of perspectives and interpretations that exist within the Islamic tradition (Abbas, 2021).

Amin Abdullah posits that education should encompass more than the mere acquisition of knowledge, advocating for the cultivation of creativity and relevance in the educational process (I. F. Nurdin et al., 2017). The significance of incorporating Islamic religious education with other scientific disciplines is underscored as a means to equip students with the necessary skills and knowledge to make meaningful contributions to society.

Amin Abdullah's work Promoting discourse and cooperation across diverse scientific domains underscores the significance of individuals in facilitating the integration of perspectives and cultivating a symbiotic rapport between the realms of science and religion. It acknowledges the significant impact that individuals, particularly religious leaders, can have in fostering comprehension and collaboration.

Amin Abdullah's work Recognizing the inherent subjectivity of religious experiences and advocating for intersubjectivity within the field of religious studies implies that religious education ought to embrace a range of interpretations and actively pursue empirical investigation. This methodology promotes a broader and more receptive viewpoint, enabling students to delve into the convergence of scientific and religious domains. The integration of creative imagination within the context of Islamic religious education enhances its relevance and fosters greater engagement. This approach posits the necessity of implementing innovative pedagogical techniques and strategies that cultivate creativity and critical thinking within the realm of religious studies (Abdullah, 2014). This educational program equips students with the necessary skills and knowledge to effectively navigate and respond to the dynamic and evolving nature of contemporary society.

Table 2. The Differences Between the Two Typologies

Aspect of Integration	Al-Attas's Tauhid Paradigm Islamization of Science	Amin Abdullah's Integration Interconnection
Nature of Knowledge	Two types: spiritual (revealed) and pragmatic (acquired through reason and experience).	Recognizes objectivity but acknowledges subjectivity in religious experiences.
Sources of Knowledge	Includes Quran, Sunnah, Shari'ah, ilm al-ladunniyy, and hikmah for spiritual knowledge. Pragmatic knowledge gained through observation and research.	Acknowledges both objective elements (doctrine, ritual, etc.) and subjective interpretations within religion.
Approach	Restorative, traditional, emphasizing a deep understanding of Islamic culture.	Critical, contextual, pursuing social justice and diversity.
Integration Style	More conservative, emphasizing the purification and restoration of authentic Islamic traditions.	More flexible, supporting a more responsive approach to change.
Purpose of Education	Emphasizes holistic education for character development and moral values in addition to acquiring knowledge.	Advocates for integrating Islamic religious education with other scientific disciplines to promote creativity and relevance.

Individual vs. Society	Prioritizes the development of good human beings, with the belief that good individuals contribute to a better society.	Encourages dialogue and collaboration among scientific disciplines, emphasizing the importance of religious leaders in bridging interpretations.
Relationship to Science	Distinguishes between spiritual and pragmatic knowledge. Highlights the need for both types of knowledge, with spiritual knowledge guiding pragmatic pursuits.	Advocates for a semipermeable relationship between science and religion, where they interpenetrate and complement each other.
	Acknowledges that the subjectivity of religious experiences can coexist with objective elements of religion. Calls for scientific enlightenment through empirical research.	Emphasizes the need for intersubjectivity in the study of religion, recognizing both objective and subjective elements.
	Recognizes the importance of creativity and imagination in the pursuit of knowledge. Encourages the synthesis of ideas to create new theories.	Advocates for incorporating creative imagination into Islamic religious education to make it relevant and engaging in contemporary culture.

Both the typologies proposed by Al-Attas and Amin Abdullah provide valuable insights that can contribute to the advancement of Islamic education curriculum. Al-Attas places significant emphasis on a comprehensive and interconnected methodology that effectively harmonizes spiritual and pragmatic knowledge. Conversely, Amin Abdullah advocates for the cultivation of critical thinking skills, the appreciation of diversity, and the fostering of creativity within the realm of religious studies. An Islamic education curriculum that is deemed effective may integrate components from both typologies in order to furnish students with a comprehensive education that prepares them for ethical and significant engagements within society.

An ability to create interdisciplinary collaboration is important, says Amin Abdullah. To understand the cosmos more fully, educators must actively encourage and facilitate multidisciplinary collaboration, including religious studies and the sciences. Credible teachers should be creative and original. Following Amin Abdullah's emphasis on creativity in religious education, educators should teach students critical thinking, innovation, and creativity. The research highlights the significance of fostering dialogue and comprehension among students, educators, and researchers regarding the complex interplay between science, religion, and other disciplines. This theoretical contribution establishes the groundwork for developing a more inclusive and unified educational setting, allowing students to participate in significant conversations regarding the convergence of science and religion.

According to Al-Attas and Amin Abdullah's typologies, a credible educator in integrating religion and science should have a variety of key attributes that enable them to understand and implement this integration. First, educators must understand science and religion from the aspects of ontology, epistemology and axiology. This requires a thorough understanding of science and religion's core beliefs and ideas. Being open to subjectivity in religious encounters is also important. According to Amin Abdullah, ed-

ucators must accept the subjective character of religious experience and be able to handle students' and others' interpretations and religious encounters. Also important is the ability to combine spirituality with knowledge. According to Al-Attas, credible educators must relate spiritual sources like the Quran and Hadith to rational and experienced knowledge. Additionally, instructors must understand holistic education. According to Al-Attas, education is more than just the transmission of knowledge; it also develops students' character, morality, and ethics.

Educators must fully grasp the significant consequences of incorporating religion and science into Islamic education, as indicated by the research. This comprehension can function as a pragmatic blueprint for the creation of pertinent and efficient curricula, instructional strategies, and pedagogical approaches. By incorporating the principles advocated by scholars such as Al-Attas and Amin Abdullah, educators can create curricula that foster critical thinking, interconnectedness, and a profound understanding of the integration of knowledge from different fields.

Educators are acknowledged as crucial figures in the incorporation of science and religion within Islamic education. This acknowledgment highlights the tangible impact of this research, emphasizing the crucial role that educators have in shaping the educational process. Their responsibility is to foster an environment that promotes the harmonious coexistence of these two areas of knowledge, while also encouraging mutual respect and a comprehensive understanding. The research empowers educators by providing them with the necessary knowledge and tools to facilitate the integration, enabling them to become influential agents of change within the educational system.

4. Conclusions

The Tauhid Paradigm developed by Al-Attas places significant emphasis on the process of Islamizing science and perceiving knowledge as possessing both spiritual and practical dimensions. The educational approach incorporates teachings from the Quran and Sunnah, prioritizing a comprehensive education and the cultivation of moral and ethical values. In contrast, Amin Abdullah's Integration Interconnection theory acknowledges the objective nature of religious aspects while also acknowledging the subjective nature of religious experiences. The proposition supports the amalgamation of Islamic religious education with scientific fields, hence fostering innovation and pertinence. This comparative analysis underscores the contrasting viewpoints about knowledge, the origins of knowledge, the objectives of education, the societal roles of individuals, the interplay between science and religion, and the significance of creativity in the realm of education. These disparities offer valuable perspectives for comprehending the intricacies of incorporating religion and science in the realm of Islamic education.

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