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THE DUALISM OF RELIGION AND SCIENCE IN ISLAMIC EDUCATION AT GENERAL HIGHER EDUCATION INSTITUTIONS: LECTURERS' PARADIGMS, CURRICULUM STRUCTURE AND PEDAGOGICAL ORIENTATION

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ABSTRAK

Dualisme agama dan sains dalam dunia pendidikan telah menimbulkan dampak serius berupa fragmentasi paradigma berpikir dosen ilmu agama dan sains, munculnya dikotomi dan kesenjangan dalam struktur kurikulum hingga perbedaan orientasi pembelajaran. Penelitian ini merupakan studi kasus yang bertujuan untuk mengkaji secara empiris dualisme agama dan sains dalam praktik pembelajaran. Pengumpulan datanya menggunakan pendekatan kualitatif yang dijalankan melalui wawancara, studi dokumen kurikulum dan bahan ajar (RPS), serta observasi di salah satu perguruan tinggi umum Indonesia. Hasil penelitian menunjukkan tiga temuan utama. Pertama, paradigma berpikir dosen agama dan sains dalam melihat integrasi keilmuan bervariasi dari yang sangat dikotomis hingga yang bersifat integratif. Kedua, dominasi sains dalam struktur kurikulum. Ketiga, perbedaan orientasi pembelajaran, di mana pembelajaran agama lebih menekankan aspek moral dan spiritual, sedangkan sains fokus pada kognitif dan praktikum lapangan. Temuan penelitian menunjukkan bahwa dualisme agama dan sains masih tampak nyata di dalam sistem pendidikan dan konteks pembelajaran pada kasus perguruan tinggi umum yang diteliti. Transformasi paradigmatis dan reformasi kurikulum yang lebih orientatif sangat penting untuk membuka ruang dialog hubungan fungsional antara agama dan sains yang lebih terbuka dan integral.

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Keywords:	ABSTRACTS
Dualism of knowledge; integration of religion and science; curriculum structure; pedagogical orientation; learning paradigm	<p>The dualism between religion and science in the world of education has had serious consequences, including the fragmentation of the paradigms of thought among lecturers in religious studies and science, the emergence of dichotomies and gaps within the curriculum structure, and differences in learning orientations. This research is a case study aimed at empirically examining the dualism between religion and science in teaching practice. Data collection utilised a qualitative approach, comprising interviews, a study of curriculum documents and teaching materials (RPS), and observation at a public university in Indonesia. The research results reveal three main findings. Firstly, the paradigms of thought held by lecturers in religious studies and science regarding the integration of disciplines vary from highly dichotomous to integrative. Secondly, the dominance of science within the curriculum structure. Thirdly, differences in learning orientations, whereby religious education places greater emphasis on moral and spiritual aspects, whilst science focuses on cognitive aspects and fieldwork. The research findings indicate that the dualism between religion and science remains evident within the education system and the learning context at the public university studied. A paradigm shift and more purpose-driven curriculum reform are essential to create space for a more open and integral dialogue regarding the functional relationship between religion and science.</p>

A. INTRODUCTION

The dualism between religion and science in higher education is one of the greatest challenges facing the modern education system in producing graduates who are proficient in science and technology, whilst also possessing moral and spiritual integrity. This dualism is reflected in the ontological separation between the study of the material world as the domain of science and metaphysical reality as the domain of religion (Mukhlasin, 2023). Epistemologically, science bases truth on verifiable empirical-rational evidence, whilst religion relies on revelation and experiences of faith that transcend empirical verification (Miller, 2012; White, 2019). These two concepts are further differentiated at the axiological level by their distinct value orientations, one emphasizes the pursuit of worldly material progress, while the other prioritizes otherworldly spiritual salvation. (Bylica, 2015; Henning & Henning, 2022). In educational practice, science is positioned as a neutral, objective and value-free discipline, whilst religion is situated within a normative-dogmatic and subjective sphere, isolated from science education (Damayanti & Sodiman, 2025; Townes, 2001). Some view the dualism between religion and science as a radical, mutually exclusive dualism, whilst others adopt a moderate stance, separating the two as functionally independent according to their respective spheres of activity (Noaparast, 2023; Prodi & Campbell, 2024). Islamic teachings do not recognise a dualism or dichotomy between religion and science, as evidenced by the practice of classical scholars who mastered various disciplines without separating the two (Atikah & Sholihin, 2025; Humairah et al., 2024).

The pattern of change in the dualistic scientific and educational perspectives of today's Muslim society is rooted in the historical construction of colonial educational influence, which has bequeathed a dichotomy between secular general education institutions regarded as modern and religious education, which is viewed as traditional (Hashim, 1994; Siregar et al., 2026). Religious education, which is normative in nature,

is seen as lacking adaptability to social realities because it merely produces traditional groups proficient in fiqh, tafsir and spirituality, yet ill-equipped to deal with developments in technology and modern science. Meanwhile, graduates of general education who are proficient in science and technology, and those in bureaucratic roles, have minimal religious knowledge, making them prone to abuse of authority as they are seen to have lost the spiritual values that should form the moral foundation of life (Andi et al., 2026). This separation has persisted into the post-colonial era and has had long-term systemic impacts on the design of educational curricula, social structures, ways of thinking, and educational institutions within Muslim communities, which are divided across all levels from primary to higher education. Such dualism narrows the meaning of knowledge and education, whilst limiting the potential for holistic learning that integrates faith and empirical experience (Dravitzki, 2015). If this situation persists, it will give rise to an epistemological crisis and lead to the fragmentation of knowledge and the emergence of identity confusion, both intellectually and spiritually (Febriana & Firmasari, 2021; Mustamin, 2010). This pattern of dualism in science and education is also manifested in higher education institutions in the form of a radical separation of various academic disciplines within degree programmes, curriculum structures and teaching methods.

Islamic Religious Education (IRE) normatively holds a strategic position in bridging the integration of religion and science to foster students' character holistically (Hakim & Haryadi, 2025). However, in reality, IRE in General Higher Education Institutions (GHE) faces challenges within an academic environment that is not yet grounded in Islamic epistemology, meaning that ambivalence and the religion-science dichotomy persist (Yafiz & Daulay, 2023). On the one hand, the practice of teaching IRE is still characterised by a dichotomous and atomistic approach (Hanafi, 2014), dominated by the lecture model, with teaching materials tending to contain normative doctrines (Bransika et al., 2025). Interdisciplinary integration in IRE learning is still rarely implemented, so it is often perceived as supplementary knowledge that is irrelevant to supporting students' professional identity (Ahmad Rizal et al., 2024). It tends to be a compulsory administrative module that is poorly connected to ethical perspectives in the face of competition between scientific authority and digital religious sources (Qoyimah & Ratnasari, 2025). On the other hand, the secular positivist paradigm of science education is dominated by rational-empirical methods, taught separately from religious values as if it were neutral and devoid of ethical dimensions. Science focuses on training students' critical thinking through observation, experimentation and rational verification of natural phenomena (Damayanti & Sodiman, 2025; Murni, 2026; Norafiza & Anwar, 2026). The assumptions underpinning the interpretation of facts, the formulation of scientific theories, and scientific concepts refer solely to physical reality, which is of an organic-mechanical nature, with minimal connection to religion or spiritual explanations relating to the human soul (Wan Daud, 2003).

Science education should facilitate recognition of the majesty of the Creator and contribute significantly to the development of individuals characterized by faith, knowledge, and noble character. Consistent with the objectives of national education, science education should not be regarded as a value-neutral discipline. The narrowing of the concept of science, which is oriented towards specialisation, has positive value in supporting professional and technical expertise; however, it needs to be balanced with

religious spiritual values so as not to foster a narrow, positivist mindset amongst lecturers and students (Chairil, 2026; Nur Aini & Lazuardy, 2020). In fact, within science curricula, religious moral values are rarely incorporated into lecturers' course syllabuses, whilst religious studies courses appear to be marginalised from the realms of science and the disciplines of social, political and cultural thought (Arroisi & Sa'adah, 2020). Maintaining an extreme form of dualism has adverse effects as it narrows the scope for research design and hinders intellectual progress in the field (Macfarlane, 2014). Ian G. Barbour categorises models of the relationship between religion and science into four typologies: the conflict model, the independence model, the dialogue model and the integration model (Barbour, 2002). At several elite US universities, the majority of scientists in both the natural and social sciences view the relationship between science and religion not as a conflict, although some hold this view due to the influence of their own personal secularism (Ecklund & Park, 2009). A strong faith-based mindset combined with a high level of scientific thinking actually fosters openness to dialogue between religion and science, thereby minimising the perception of conflict (Johnson et al., 2023). The responses of prospective science and religious education teachers at universities generally view the relationship between religion and science as independent entities, although a small proportion recognise the importance of curricular collaboration (Woolley et al., 2023). There are also lecturers who view religion and science as complementary in the pursuit of holistic knowledge, whilst others are sceptical about its practical implementation due to various academic and practical challenges (Dewi et al., 2025). Public perceptions of the relationship between religion and science are not linear but are structured along a continuum that varies systematically according to cultural and national contexts (Amelia Zein et al., 2026).

Science and technology, when not balanced by spiritual (religious) aspects, have a significant impact on moral degradation and environmental damage (Nuraini et al., 2025; Tanjung & Mansyur, 2021). The negative impacts of the application of secular science and modern scholarship have prompted an intellectual response from Muslims, as well as the concept of the Islamisation of science as a philosophical programme that has sparked a variety of methods for integrating religion and science (Ghufron, 2019; Irawan, 2019; Irham, 2025). Seyyed Hossein Nasr (1960), whilst not using the term 'Islamisation of science', emphasised the importance of establishing a solid foundation for the concept of Islamic science based on tawhid in confronting the challenges of secularism and modernism (Syamsuddin, 2020). Al-Attas (1978) emphasised the importance of 'de-Westernising' science, that is, purging scientific concepts of Western secular epistemological biases before substantially undertaking the Islamisation of contemporary science to integrate religion and science. The Islamisation of science is understood as an effort to liberate knowledge from the hegemony of Western secular science, dichotomous thinking, and cultural elements that contradict the value of tawhid (Al-Attas, 2010; Nasution et al., 2026). The Islamisation of science aims to restore science to its natural state so that it aligns with the epistemological framework and worldview of Islam. Islamisation does not concern the physical objects, basic sciences or technical formulas, but rather the spiritual and intellectual aspects of humanity, the philosophical assumptions, interpretations and worldviews that underpin such knowledge (Abrori & Nurkholis, 2019). The integration of religion and science as a variant of the concept of the Islamisation of science is an endeavour to bring together,

connect and unify the spiritual values of religion with the objective truths of science, with tawhid as its primary foundation (Jamaluddin et al., 2025).

Integration refers to a functional relationship in which religion provides a normative-axiological orientation as a source of values and ethical principles, whilst science provides rational epistemic instruments for empirical verification and systematic inquiry, whilst maintaining distinct epistemic domains that are nonetheless engaged in productive dialogue (Muslih et al., 2022). In response to the dualism between religion and science, Al-Faruqi and Abu Sulayman (1982) emphasised an epistemological reconstruction based on tawhid as the unifying principle of all branches of knowledge through the integration of revelation into the framework of modern science. Osman Bakar (1998) also broadens the overall perspective with the concept of *the 'unity of knowledge'*, which he views not merely as a methodological project but as an ontological one, wherein all knowledge fundamentally originates from God. Science is fundamentally organised within a coherent hierarchy of knowledge within the Islamic intellectual tradition. Meanwhile, Amin Abdullah (2017) propose a dialogical model and concept of integration and interconnection by bringing together the *naqliyah* and *aqliyah* sciences within a framework of interconnected scientific networks without negating one another (Masyitoh, 2020). Various models of the integration of religion and science have been developed based on diverse paradigms and classifications. In addition to the diversity of these concepts and models of integration, the implementation of the integration of religion and science is viewed as a positive initiative to broaden students' perspectives in building meaningful relationships, despite challenges relating to teacher competence and the absence of specific guidelines (Riwanda et al., 2025; Suciati et al., 2022). Institutionally, there has been a strong trend towards the integration of religion and science in Islamic Religious Higher Education (IRHE), although this has not yet resulted in a well-established and comprehensive operational integration model (Khozin & Umiarso, 2019). The situation is different at General Higher Education (GHE), which still face the simultaneous challenges of dualism and the integration of knowledge, as its epistemological foundations have historically relied on empiricism and positivism. The reality of the dualism between religion and science which is reflected in the paradigms of lecturers' thinking, the structure of the curriculum and the pedagogical orientation of education at GHE has not yet been empirically studied.

This research was conducted in response to studies that have tended to focus on the conceptual aspects of interdisciplinary integration at Islamic higher education institutions (IHE). Meanwhile, the dualism between religion and science in the teaching of Islamic religious education (IRE) which serves as the primary gateway for the integration of science and spiritual values at higher education institutions has received insufficient attention. Therefore, this study aims to empirically examine the dualism between religion and science in teaching practice at GHE. Based on this objective, three research questions have been formulated: (1) how do lecturers in religious and scientific disciplines view the discourse on the integration of knowledge in the teaching of religion and science at higher education institutions? (2) how do the curriculum structures for religious and scientific education compare in the academic curriculum documents of higher education institutions? (3) what are the differences in the pedagogical approaches employed by lecturers in religious and scientific education?

This study will focus on these three main dimensions to explain the practice of dualism between religion and science.

The dualism between religious studies and science at higher education institutions is not only evident in the disciplinary differences between the two fields but is also influenced by paradigms, disciplinary structures, and pedagogical orientations in teaching. This research is based on three arguments. *Firstly*, the dualism between religion and science at higher education institutions manifests in lecturers' paradigms of thought, which view the relationship between religion and science dichotomously in teaching. Lecturers' perspectives on the integration or dichotomy of religion and science determine how the relationship between religious studies and science is understood and taught in the classroom. *Secondly*, the design and structure of the religious studies and science curricula reveal significant differences, with a wide disparity evident in academic documents. This reflects the extent to which the values of religion and science are accommodated in a balanced manner within the learning system. *Thirdly*, differences in the teaching approaches adopted by lecturers influence students' learning experiences. Religious education tends to be oriented towards moral and spiritual aspects, whilst science education emphasises cognitive orientation and practical competences.

B. METHOD

A qualitative approach utilizing a case study design was employed to analyze the dualism between religion and science in Islamic religious education at PTU. This methodology was selected to provide an in-depth understanding of the phenomenon, which is not adequately addressed by quantitative methods. The case study design facilitates contextual and comprehensive examination within a specific institutional setting. Additionally, this approach allows for the exploration of experiences, perspectives, and learning practices within the classroom (Yin, 2014). The qualitative case study was conducted in four stages. First, the focus of the study was defined through the formulation of the research problem. Second, the research site and informants capable of providing relevant information were identified. Third, data were collected using interviews, observation, and document analysis. Fourth, the data were analyzed through categorization and interpretation to identify patterns of meaning pertinent to the research focus.

The unit of analysis in this case study is the teaching practices of Islamic Religious Education and science courses at the Faculty of Forestry, Mulawarman University. The selection of this unit of analysis was based on several key reasons. *Firstly*, teaching practices are important for directly observing the application of scientific paradigms, curriculum structure and pedagogical orientation. *Secondly*, this study aims to specifically examine the dualism between religion and science in teaching, thereby providing a realistic picture of lecturers' teaching methods in the classroom and perceptions of the relationship between religion and science in the faculty's academic activities. Mulawarman University was selected as a case study because: (1) it is a higher education institution that embodies a science-oriented academic character with a positivist epistemological foundation, distinct from Islamic religious higher education

institutions, thereby enabling the testing of theories on the integration of religion and science through Islamic Education (PAI); (2) it has various science-based faculties, including the Faculty of Forestry and Tropical Environment, which provides a relevant context for examining the role of religion and science in addressing environmental issues; (3) it focuses on the development of the Core Scientific Programme (Pola Ilmiah Pokok) as a centre for the study of Humid Tropical Forests and their Environment, whereby the PIP must be integrated into the university's three pillars of mission as a distinctive hallmark of excellence at Mulawarman University; (4) the implementation strategy for Mulawarman University's PIP needs to involve an interdisciplinary approach, including religion, to address environmental issues and complex problems within society; (5) The Compulsory Curriculum Course (MKWK) in Islamic Religious Education (PAI) is a compulsory university course and serves as one of the pillars of Mulawarman University's PIP, enabling it to contribute to addressing environmental issues through the integration of religion and science.

The participants in this study comprised 10 lecturers from Mulawarman University, namely 6 lecturers teaching science modules and 4 IRE lecturers. Participants were selected using purposeful criterion-based sampling (Patton, 2015). The criteria for selecting respondents were: (1) lecturers who are actively teaching in their respective fields; (2) lecturers with at least five years' teaching experience to ensure familiarity with the curriculum and pedagogical practices; and (3) willingness to participate in in-depth interviews. Variation in teaching experience (age range 43 to 69 years) and disciplinary background was deliberately sought to capture the maximum variation in perspectives. Sampling continued until data saturation was achieved, defined as the point at which no new categories or perspectives emerged from additional interviews. Saturation was reached after the tenth interview, with subsequent interviews confirming patterns already identified in earlier interviews. Data were collected through three complementary methods to enable triangulation: in-depth interviews, classroom observation and document analysis. In-depth interviews lasted between 60 and 90 minutes and were conducted in Indonesian to facilitate natural expression. Interviews were recorded with the participants' consent and transcribed verbatim.

The interview protocol explored lecturers' perspectives on the relationship between religion and science, their understanding of integration, teaching practices, and the challenges they perceived. Observations were carried out by observing lessons in 2 (two) Islamic Religious Education (IRE) classes and 2 (two) science classes to examine how subject matter was delivered and the nature of pedagogical interactions in relation to the perspectives of religious and scientific disciplines within classroom teaching practice. A structured observation protocol was utilised, focusing on pedagogical approaches, the presence or absence of explicit integration between religious and scientific content, student engagement, and the nature of lecturer-student interactions. Observation notes were recorded immediately following each session to maximise the accuracy of recollection. Document analysis was conducted by examining Mulawarman University's PIP documents, faculty curriculum documents and lecturers' semester learning plans or Rencana Pembelajaran Semester (RPS) to understand the

curriculum structure and pedagogical orientation underpinning the delivery of teaching. A total of seven RPS were examined, comprising three RPS from lecturers teaching the IRE course and four RPS from lecturers teaching the Science course; these were analysed to identify similarities and comparisons across the entire body of material containing the integration of religious and scientific content. These three data collection methods were used to complement one another so that the data collected could provide a comprehensive picture of the phenomenon under study.

The data collected were then analysed using thematic analysis to identify the meanings emerging from the research data (Braun and Clarke, 2006). Thematic analysis began with data reduction, sorting the interview results based on the transcripts and observation notes to remove information irrelevant to the focus on the dualism or integration of religion and science. The reduced data was then categorised according to three main dimensions. Firstly, within the dimension of lecturers' paradigms, the data was grouped into coding categories reflecting dichotomous, delegative, aspirational and integrative ways of thinking. Secondly, within the dimension of curriculum structure, course outlines and teaching materials, these documents were analysed to identify the separation of content (dichotomy) between science and religion. Thirdly, within the dimension of learning orientation, the researchers classified teaching practices into themes of either a doctrinal-religious approach or a secular approach. Through this thematic grouping, patterns of dualism between religion and science were identified in depth to draw systematic conclusions regarding the phenomenon of the dualism of religion and science in higher education.

C. RESULT AND DISCUSSION

Result

1. Lecturers' Dualistic Thinking Paradigm

The paradigms of thought held by lecturers in religion and science regarding the integration of disciplines vary from a highly dichotomous perspective to an integrative one in their view of the relationship between religion and science in teaching. This is evident from the interview findings in Table 1 below:

Table 1: Dualistic thinking paradigm of lecturers looking at the relationship between religion and science

No.	Informan	Departments	Interview Quotes	Coding
1	R1 (58)	Science lecturer	Religion does not need to be carried around in the discussion of general science because religious teachings do not detail the management of nature in detail and religious leaders should focus on theology.	Dualistic
2	R2 (52)	Science lecturer	I myself have not been able to design integrated learning with religion because it is not my field and should be done by religious lecturers only.	delegative
3	R3 (62)	Science lecturer	The integration of religion and science is good, but it is constrained by limited knowledge of religion and narrow allocation of teaching time.	aspiration
4	R4 (66)	Science lecturer	I myself in every lecture try to lead students to realize the majesty of God in science learning and it is recognized that the integration of knowledge is very dependent on the lecturer, because there are also lecturers who are active in nature conservation only in casuistic-material related to popular issues, not as a form of implementing God's mandate.	integrative
5	R5 (69)	Science lecturer	Linking faith in religion with environmental preservation is very important because the current environmental damage caused by the fading of faith in God is replaced by material power	integrative
6	R6 (67)	Science lecturer	It is very necessary to synergize religion and science in teaching to make students aware and if I teach I often connect religious teachings and environmental science or when teaching ISBD	integrative
7	R7 (51)	Religious lecturer	The integration of religion and science is very important to form students who care about the environment, but not all IRE lecturers are able to do it when viewed from the RPS	integrative

8	R8 (43)	Religious lecturer	I try to connect religious science and science in IRE learning in the faculty of fisheries because they both come from Allah	integrative
9	R9 (48)	Religious lecturer	The integration of religion and science in learning that is tailored to the discipline of science in each faculty/study program is very necessary, but the challenge is limited in time and insight in the field of science.	aspiration
10	R10 (51)	Religious lecturer	Integrating IRE with environmental issues or other disciplines is still very limited because there are also many materials related to aqidah, sharia, and morals that must also be taught to students.	aspiration

Source: data processed by researchers, 2024

Table 1 illustrates a diverse spectrum of views regarding the integration of religion and science in higher education. These views can be classified into four paradigms: the dualistic, the delegative, the aspirational and the integrative. The dualistic view emphasises a clear separation between religion and science, arguing that religious teachings do not provide detailed guidance on the management of nature; therefore, religion should focus solely on the realm of theology. Next, the delegative perspective acknowledges the potential for integration but treats it as a specialism and the exclusive responsibility of religious studies lecturers, rather than as part of their general remit. The aspirational perspective indicates a desire for and awareness of the importance of integration, yet this is hampered by various practical constraints such as limited religious or scientific knowledge, a tight teaching timetable, and the density of the curriculum, which must be prioritised. Meanwhile, the integrative perspective views the integration of religion and science as a fundamental necessity that has already been implemented in teaching practice. This group not only utilises religion as a theological foundation for understanding science and environmental issues—such as linking environmental degradation to a waning of faith or raising students’ awareness of God’s majesty through science—but also critically recognises that the success of integration depends heavily on the commitment and personal capacity of lecturers, rather than merely on procedural or curricular aspects alone.

Based on the available data, it can be concluded that the diversity of views regarding the integration of religion and science is a tangible manifestation of the dualism in paradigms of thought and scholarship that remains deeply rooted. Lecturers’ perspectives on the integration of religion and science in teaching reveal contrasting and asymmetrical patterns. Religious studies lecturers consistently fall within the aspirational to integrative spectrum, holding strong views that emphasise the

importance of integration for character building and for contextualising religious teachings within students' academic disciplines. Thus, religious studies lecturers have, in a paradigmatic sense, embraced the idea of integration; however, the challenges they face are of a technical and curricular nature, rather than philosophical. Meanwhile, science lecturers exhibit a more polarised spectrum. On the one hand, there is a dichotomous view that separates religion from general scientific discourse; on the other, there is a delegative view that regards integration as the exclusive task of religious studies lecturers. Conversely, there is also an integrative perspective that actively incorporates divine values into the teaching of science. These trends confirm that paradigm dualism remains a key challenge affecting the consistency and quality of the integration of religious and scientific values in learning at the universities studied.

2. Dominance of Science in Curriculum Structure

Within the curriculum structure, there is a clear tendency to emphasise scientific understanding over the reinforcement of religious values. Science-based subjects dominate, accounting for the majority of teaching time and learning topics, whilst religious content features only to a limited extent in a few semesters. Table 2 illustrates this dichotomy and the dominance of the curriculum, which tends to give greater prominence to science.

Table 2. Structure of Semester 1 Compulsory Courses

Semester I (Package System)				
No.	Status	Course Name	Credits	
1	MKWK	Religious Education	3	(2-1)
2	MKWK	Pancasila Education	2	(2-0)
3	MKWK	Citizenship Education	2	(2-0)
4	MKWK	English	2	(2-0)
5	Mandatory	English	2	(2-0)
6	MBB	Social Sciences & Basic Culture	2	(2-0)
7	Mandatory	Math	2	(2-0)
8	Mandatory	Chemistry	3	(2-1)
9	Mandatory	Biology	3	(2-1)
10	Mandatory	Management Basics	2	(2-0)
11	Mandatory	Introduction to Forestry Science and Technology	2	(2-0)
11 MK Compulsory Study Programs Total 25 Credits				

Source: Faculty curriculum documents, 2024

In the first semester, of the 11 courses on offer, there was only one religious studies course worth 3 Semester Credit Units (SCU) out of a total of 25 SCU (see Table 2). The other courses were dominated by the social sciences, humanities and pure sciences such as mathematics, chemistry and biology. This dominance of science courses reinforces the finding that the integration of religion into learning risks being marginalised in the absence of supportive policies and curriculum integration models.

This is also highlighted in the summary of the curriculum structure and fields of study shown in Table 3.

Table 3. Summary of Curriculum Structure and Study Interests

Summary of Curriculum Structure	Study Interests			
	Forest Management 53	Silviculture 51	Technology Results Forest 57	Forest Resources Conservation & Ecotourism
Compulsory Courses for Study Programs	39 courses 97 CREDITS	39 courses 97 CREDITS	39 courses 97 CREDITS	39 courses 97 CREDITS
Compulsory Courses of Study Interest	10 courses 23 CREDITS	7 courses 20 credits	14 courses 24 CREDITS	7 courses 20 credits
Required Courses to Be Programmed	≥ 4 courses ≥ 12 credits	≥ 5 courses ≥ 15 credits	≥ 4 courses ≥ 11 credits	≥ 5 courses ≥ 15 credits
Field Work Practice (PKL)	3 credits	3 credits	3 credits	3 credits
Real Work Lecture (KKN)	3 credits	3 credits	3 credits	3 credits
Final Project (Thesis)	6 CREDITS	6 CREDITS	6 CREDITS	6 CREDITS
Quantity	≥ 144 credits	≥ 144 credits	≥ 144 credits	≥ 144 credits

Source: Faculty curriculum documents, 2024

Table 3 shows the disparity in the proportion of religious and science modules at universities. Of the total 144 SKS that students must complete during their studies, approximately 67.36 per cent, or 97 SKS, are dominated by science modules, whilst religious education accounts for only 2.08 per cent, or 3 SKS. The compulsory courses for the degree programme, which are the same across all fields of study—namely 39 courses totalling 97 SKS primarily cover scientific material relating to forest management, technology and conservation. Compulsory courses specific to each area of specialisation number between 7 and 14, with a credit load of 20–24 SKS, whilst compulsory elective courses comprise only 4–5 courses with a credit load of 11–15 SKS. Field activities such as work placements, community service programmes and final-year projects, which provide practical experience, do not alter the predominance of science in the credit allocation. Overall, the curriculum places greater emphasis on a scientific and technical approach to learning than on the reinforcement of religious values or religious studies.

The dominance of science subjects within this curriculum structure, when viewed from both philosophical and pragmatic perspectives, has two dimensions. Philosophically, the imbalance in the curriculum is seen as a manifestation of academic secularism, which gives rise to a dualism of knowledge in which religion is positioned as an inferior subject whilst science dominates the learning environment. From a pragmatic and functional perspective, the dominance of science within this curriculum

structure is not a form of marginalisation of religion but rather a requirement of professional specialisation. GHE has a mandate to produce a workforce that is ready for immediate deployment across various sectors; consequently, the dominant proportion allocated to science is intended for the development of technical competencies. The IRE module, with 2–3 SKS, is deemed proportionate for providing a foundation in ethics and social character without burdening students with in-depth theological study. An analysis of the RPS documents regarding the functional integration of religious values with science in learning will explicitly demonstrate the presence of either dualism or the integration of religion and science within the curriculum structure. The results of the RPS document analysis reveal that explicit integration is largely absent. The RPS documents for science courses rarely, if ever, mention religious values, ethics or spiritual dimensions. Meanwhile, the RPS documents for Islamic Education (IRE) courses demonstrate a limited connection with scientific disciplines. Thus, the absence of this functional integration in both the IRE and science courses is not merely a matter of quantitative proportion, but also serves as evidence of curricular dualism.

3. Differences in Learning Orientation

The differences in learning orientation between religious education and science are one indicator of the duality within the educational process. Religious education tends to emphasise moral and spiritual aspects, whilst science focuses on cognitive and practical aspects. These differences in orientation are reflected in the learning approaches employed in each field. Based on the results of observations and an analysis of the course syllabi, there are significant differences between the teaching of Islamic religious education (IRE) modules and general science-based modules. Religious studies courses place greater emphasis on the moral and spiritual development of students through discussion and lectures, whilst science courses focus on conceptual understanding, laboratory practicals and experiments, and data analysis skills. A detailed explanation of these differences in orientation can be found in Table 4.

Table 4. The Difference Between IRE and Science Learning Aspects

Learning Aspects	Learning Islamic religious education courses	Learning general courses (Science)
Main Focus of the Material	Formation of spiritual moral character, understanding of religious teachings, Islamic ethics, history of Islamic civilization, and religious values	Understanding of concepts, theories, natural laws, scientific methodology, practical applications in the field of science.
Pedagogical Approach	Lecture methods, discussions and worship practicums.	Experimental methods, practicum in the laboratory, problem solving, and data analysis.
Learning Objectives	Producing individuals who have noble character, faith, piety, and have a comprehensive understanding of Islamic teachings.	Producing individuals who have logical, critical, analytical thinking, and are able to apply scientific principles to solve problems.
Main Learning Resources	The Qur'an, Hadith, classical and contemporary books, tafsir, fiqh, and other religious literature	Scientific textbooks, research journals, scientific publications, experimental data and the latest scientific sources.
Learning Emphasis	Affective aspects (attitudes and values), psychomotor (worship), and cognitive (understanding of religious concepts).	Cognitive aspects (concept understanding), and psychomotor (practicum and research skills).
Learning Evaluation	The assessment includes the understanding of religious concepts, the results of paper presentations, memorization and worship practices.	The assessment includes understanding concepts, analytical skills, problem solving, practicum reports and presentation of research results.
Relevance to Daily Life	Emphasis on actualizing Islamic values in every aspect of life, shaping morals, and providing guidelines for life.	Emphasizing the application of science concepts to explain natural phenomena, develop technology, and improve the quality of life.

Source: processed by researcher, 2025

The research findings indicate differences in pedagogical orientation between the teaching of Islamic Religious Education (IRE) and that of general science-based subjects (Table 4). IRE teaching is oriented towards the development of moral and spiritual character through an understanding of religious teachings, ethics and religious values, employing a pedagogical approach that utilises lectures, discussions and practical worship sessions. Islamic Religious Education is directed towards the development of individuals of noble character, who are faithful, God-fearing, and possess a comprehensive understanding of Islamic teachings. The primary learning resources are the Qur'an, Hadith, classical and contemporary texts, tafsir, fiqh, and

religious literature. In contrast, science education emphasises an understanding of concepts, theories and scientific methodology through experimentation, laboratory practicals, *problem solving* and data analysis. This approach aims to develop logical, critical and analytical thinking, supported by learning resources such as scientific textbooks, research journals and experimental data. These differences indicate a separation in pedagogical orientation between the spiritual and cognitive dimensions, which reinforces a form of dualism in teaching practice.

Based on these findings, Islamic religious education and science teaching exhibit a dichotomous distinction between character development and the mastery of technical competencies. Science courses emphasise empirical aspects that have little connection to Islamic ethics, whilst Islamic religious education (IRE) courses tend to be confined to a cognitive-doctrinal approach. This difference in orientation indicates a separation between the religious values dimension and the scientific dimension in teaching practice, thereby revealing a form of pedagogical dualism in the educational process. Without adequate integration between these two learning orientations, students risk losing a comprehensive understanding of the relationship between God, humanity and nature—which should form a crucial foundation for holistic character development.

Discussion

The Nature of the Dualism between Religion and Science: Structural and Cultural Dimensions

The findings of this study reveal two interrelated dimensions of dualism, namely structural dualism and cultural dualism. Structural dualism refers to institutional and curricular arrangements that separate religion and science. This is evidenced by the structure of the curriculum, in which science subjects dominate the allocation of credit points, whilst religious studies are limited to a single subject. Furthermore, there is a physical and administrative separation of religious education from the core disciplinary curriculum, and there is currently no institutional mechanism for dialogue between Islamic Education (IRE) and other interdisciplinary subjects. The Course Outline (RPS) documents show little evidence of integration incorporated into the curriculum. Cultural dualism, meanwhile, refers to the beliefs, assumptions and professional identities that perpetuate this separation. This is evidenced by the diversity of lecturers' paradigms, ranging from those who actively embrace integration to those who reject it. There is also a pattern of delegation whereby science lecturers view integration as the exclusive responsibility of religious studies lecturers. Furthermore, no evidence has been found of interdisciplinary dialogue between religious studies and science lecturers that has developed into a culture of mutual support between them.

These conditions further reinforce the assumption that religion belongs to the spiritual/moral domain and science to the cognitive/technical domain. This research is relevant to the socio-cultural context of education in Indonesia, where educational traditions have long reflected a separation between religious studies and general studies (Akhyar et al., 2023). Religion and spirituality are often associated with the traditional

and irrational domains, whilst scientific knowledge is associated with progress or modernity, which is equated with rationality (Jensen & Buchowski, 2013; Osadchuk et al., 2023). Religion is positioned as a source of moral and spiritual formation, whilst science is positioned as a means of developing technical skills and rationality. Science is still viewed as knowledge distinct from religious teachings, rooted in the historical belief that science was introduced by colonial powers and is therefore considered not entirely compatible with religious scholarly traditions, and vice versa (Barnes et al., 2025; Awang et al., 2014). This tendency has resulted in the curricula and teaching materials for both religion and science not only being taught separately, but their very existence being viewed as representing distinct paradigms; this, in turn, influences students' conceptual and academic development, preventing the formation of a holistic understanding and set of values.

The dualism between religion and science is also reinforced by several factors identified in this study. *Firstly*, epistemological factors whereby the historical development of general higher education in Indonesia is rooted in a secular-positivist epistemology, in which science is understood as value-free and religion as a private matter (Fakhrurazi et al., 2024; Iskandar et al., 2022; Wahid, 2014). This epistemological foundation persists within institutional structures and lecturer training. *Secondly*, institutional factors: the various academic disciplines or departments within faculties have limited interaction with religious studies courses. Whilst IRE holds a position as a university course, it has not yet been integrated into disciplinary curricula. Although, in the case of Unmul, there is already a focus on developing the 'Core Scientific Model' as a hallmark of interdisciplinary academic development as a *centre for tropical studies*, there is as yet no institutional policy mandating collaboration or integration, particularly in relation to religion. *Thirdly*, there are pedagogical factors: neither religious studies nor science lecturers have received training in integrative pedagogical approaches. Science lecturers are often unfamiliar with the epistemology and content of religion, whilst religious studies lecturers often lack scientific knowledge, as expressed by R3, R9, and R10. *Fourthly*, professional boundaries. Disciplinary identities and professional boundaries create resistance to crossing into other domains. As stated by R2, "*integration is not my field and should be carried out by religious studies lecturers alone*". This delegative orientation reflects the maintenance of strong professional boundaries. *Fifth*, resource and time constraints. Lecturers reported limited time, heavy teaching loads, and a lack of resources to develop integrative materials. The aspirations expressed by R3, R9, and R10 to integrate—yet being constrained by practical limitations—are very common. The research findings indicate that the implementation of the integrative paradigm at the practical level has not yet been realised as hoped. Its failure to be implemented is due to interrelated factors, namely institutional and pedagogical factors, including learning resources (Astuti et al., 2020).

Developing a Dialogical-Functional Integration Model

Based on the empirical findings and the theoretical framework employed, this study proposes a dialogical-functional model as an alternative form of integration capable of overcoming the limitations of both the dualistic approach—which strictly

separates religious studies and science—and the purely synthetic approach, which tends to unify the two in a syncretic manner without regard for their respective epistemic characteristics. This model is built upon four main components. *Firstly*, the recognition of two distinct yet complementary epistemic domains. Religion serves to provide a normative-axiological orientation in the form of sources of values, ethical principles, and guidelines for living, whilst science offers rational-epistemic instruments through empirical verification, systematic inquiry, and technological development (Muslih et al., 2022). *Secondly*, a functional dialogue that connects the two domains functionally without conflating them, so that scientific inquiry is always conducted within an ethical framework rooted in religious values—for example, environmental management as a manifestation of the caliphate, whereas understanding of religious teachings is, in turn, enriched by scientific knowledge of nature. *Thirdly*, the creation of spaces for dialogue through institutional mechanisms such as interdisciplinary collaboration, team-based teaching, integrative curriculum design, and professional development programmes that bridge the boundaries between academic disciplines. *Fourthly*, the formulation of the ultimate goal of integration as an effort to produce graduates who are not only technically competent but also possess a deep sense of ethical responsibility and are capable of understanding the implications of their scientific practices for society and the environment.

The development of an integration model in this study illustrates that the integration of religion and science requires a transformation in the way of thinking; it is not merely a matter of adding religious or scientific content to teaching practice. Religion and science must be viewed as a pattern of relational connections that operate within distinct epistemological domains (Muslih et al., 2021). Religion is rooted in revelation, which operates in the orientative and normative spheres as the Word of God—a sacred text containing guidance that encompasses a horizon of meaning and provides a value orientation and a source of normative principles for both human activities and scientific endeavour. Science, on the other hand, is a rational activity that operates through empirical verification, epistemological attitudes, and consistent scientific practice. Thus, the integration of science and religion is not merely a unification of subject content in learning, but a functional interconnection between the respective subjects. In other words, in both Islamic Education (IRE) and science learning, human beings are positioned as epistemic subjects who are intellectually, ethically and theologically accountable for whatever scientific discipline and profession they pursue. Previous research has contributed to an understanding of dualism and its various risks in learning and student competence (Awang et al., 2014; Hoven, 2013; Stones et al., 2020), but has not sufficiently analysed the opportunities available for fostering scientific dialogue. This study emphasises the possibility of dialogue between revelation and science to construct a holistic and integrative scientific framework (Amran et al., 2024; Oviedo et al., 2024). This opportunity for dialogue is seen as opening up new avenues not only for understanding the philosophical foundations of dualism but also for discovering opportunities for productivity in religious education through a more academic approach in collaboration with the scientific discipline. In this way, the tendency towards dualism between religious studies and science—evident in the

differing paradigms of lecturers who predominantly teach science subjects within the curriculum, as well as the differing learning orientations between the moral and cognitive dimensions—can be managed. This research indicates that the ideal of integrating religious studies and science within theoretical discourse has not yet been fully implemented in teaching practice.

Implications for Policy and Practical Implementation

The findings of this study carry a number of strategic implications spanning four key areas: curriculum reform, lecturers' professional development, institutional policy, and the agenda for further research. Curriculum reform involves not merely adding separate religious studies modules, but fundamentally integrating ethical dimensions and values into the entire disciplinary content. The predominance of science credits in general higher education institutions is an inevitability arising from the demands of professional orientation and the needs of the modern workplace; consequently, this phenomenon cannot be viewed as a deliberate attempt to distance religion from the academic world. Nevertheless, this imbalance in proportions still poses a significant risk of scientific dualism and the alienation of religion if not managed wisely. Therefore, to prevent such a rigid separation, many public universities are now beginning to implement the concept of the integration of science, as well as the Islamisation or spiritualisation of science, into their curricula (Nurohman, 2022; Qona'ah & Ghufroon, 2024). Through this approach, spiritual and religious values are no longer forced to stand alone as a series of new modules that burden the credit system, but are subtly embedded into the teaching of professional ethics and scientific methodology within the science modules themselves. Furthermore, the development of professional competencies is required to foster religious literacy amongst science lecturers and scientific literacy amongst religious studies lecturers in a balanced manner.

The diversity of paradigms identified amongst lecturers calls for professional development programmes that address both the philosophical acceptance of integration and the practical capacity for its implementation. Science lecturers require enhanced religious literacy and integrative pedagogy, whilst religious studies lecturers need to be equipped with an understanding of science and the ability to contextualise religious teachings in accordance with the characteristics of their respective fields of study. Furthermore, the formulation of institutional policies must provide structural support for the creation of sustainable interdisciplinary collaboration, as well as the application of pedagogical practices that explicitly link each scientific topic with contextual ethical and spiritual reflection. A team for the integration of religious and scientific teaching should be established, along with joint curriculum development and inter-departmental dialogue, supported by strong leadership to establish integration as a sustainable institutional priority. Finally, given the limitations of this study to a single institutional case, future research is recommended to involve a variety of higher education institutions and to accommodate student perspectives. Research using quantitative measures is also needed to assess the impact of integration on learning outcomes, as well as research and development (R&D) to design and test integrative

learning models and materials that are more practical and measurable on a broader scale within the context of higher education.

E. CONCLUSION

Several limitations of this study should be acknowledged as part of the methodological reflection. *First*, the research is based on a single institutional case study at Mulawarman University. Therefore, the findings may not be generalisable to other public universities without careful contextual comparison. *Second*, the sample size of 10 lecturers, while sufficient for qualitative research and reaching saturation, restricts the breadth of perspectives represented. *Third*, the study primarily examines lecturers, and students' perspectives on learning experiences and dualism were not systematically investigated. *Fourth*, the limited number of classroom observations may not capture the full spectrum of pedagogical practices. *Fifth*, although the analysis of the curriculum's credit points is informative, it should not be considered a definitive measure of functional integration, as a higher proportion of science courses does not necessarily indicate dualism. Despite these limitations, the study offers significant theoretical and practical contributions. Theoretically, it addresses a gap in the literature concerning the paradigmatic diversity of lecturers and underscores the necessity of an integrative approach in science-based higher education. There is a need to develop a dialogical-functional model that addresses the limitations of the dualistic paradigm and moves beyond conventional philosophical debates by recognising that the integration of religion and science is not simply a merging of subject matter, but a synergy between religion as a normative-axiological guide and science as a rational-epistemological tool.

This research contributes to the sociology of education literature by systematically mapping the structural and cultural dimensions underlying the disciplinary dichotomy in public universities. Practically, it offers a framework for university administrators to reform academic policies by enhancing transdisciplinary curriculum structures. It also serves as a reference for developing lecturers' competencies to bridge paradigmatic divides through instructional collaboration, such as team teaching, and promotes the creation of integrated and contextual learning materials. These materials enable students to coherently integrate religious values with scientific practice when addressing professional challenges. As this study is limited to mapping structural and cultural dimensions, future research should pursue several strategic directions. *First*, employing a Research and Development (R&D) approach to design and test practical and contextual models for learning and curriculum integration. *Second*, validating instructional instruments that bridge religious normative orientations with rational scientific activities within a coherent framework. *Third*, implementing transdisciplinary models in classroom settings to assess their effectiveness in reducing the dualism of knowledge at both the student cognitive level and within broader academic practices in higher education. *Fourth*, conducting comparative studies across various universities and institutional types, including Islamic and general higher education institutions, to provide a more comprehensive understanding of the dynamics of scientific integration in diverse contexts.

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