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Research Article

Strengthening Religious Moderation Through Unity of Science in Islamic Elementary Education

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Abstract
This study aimed to examine how the Qur'anic principle of unity of science can strengthen religious moderation in Islamic Religious Education at four Islamic elementary schools in Semarang, Indonesia. A qualitative multiple-case study involved five teachers and five students selected purposively from SD Muhammadiyah Plus Semarang, SD IT Cahaya Bangsa, MI Miftakhul Akhlaqiyah, and MI Takhasus Darul Ulum. Data were generated through in-depth interviews, participatory classroom observation, and document analysis and were analyzed through data reduction, display, and conclusion drawing, with source, method, and time triangulation used to enhance credibility. The findings show that unity of science was understood as an epistemological-theological principle that connects revelation, reason, and contextual knowledge and discourages exclusive truth claims. Its implementation was evident in three interrelated practices: interdisciplinary curriculum integration, dialogical-reflective learning, and experiential learning linked to social diversity. Students displayed particularly strong openness to differing views, inclusive discussion, and avoidance of exclusive attitudes. Implementation remained constrained by a persistent religious-general science dichotomy, uneven teacher competence in integrative pedagogy, and unfiltered digital religious information. The study demonstrates that religious moderation in elementary Islamic education can be strengthened when epistemological integration is translated into concrete curriculum, dialogue, and experience, supported by teacher development and critical digital literacy.

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Introduction

Religious moderation has become a central educational concern in Indonesia because schools are expected to cultivate religious commitment while preparing learners to live constructively in a plural society. In policy and research, moderation is commonly associated with balanced reasoning, tolerance, non-violence, national commitment, and respect for diversity. These orientations become educationally meaningful when they are embedded in curriculum and classroom interaction rather than presented only as slogans or declarative content (Latifa et al., 2022; Mukhibat et al., 2024; Subchi et al., 2022). Yet studies continue to identify a gap between formal support for moderation and the practices through which learners encounter disagreement and competing interpretations (Bahri et al., 2025; Chotimah et al., 2025; Hanafi et al., 2023; Sirry et al., 2024).

Within Islamic education, this challenge is closely related to how knowledge itself is conceptualized. A persistent separation between religious and general sciences can produce

fragmented learning in which Qur'anic values, empirical knowledge, and social realities are treated as unrelated domains. The unity-of-science perspective offers an alternative by placing different forms of knowledge within a coherent epistemological and ethical horizon. Abdullah's (2014) integration-interconnection paradigm similarly promotes dialogue among religious, natural, social, and human sciences, while Islamic educational scholarship emphasizes the importance of non-dichotomous knowledge for intellectually balanced and ethically responsible learners (Halstead, 2004; Hassan, 2018; Sahin, 2018). At UIN Walisongo, this orientation is reflected in the unity-of-sciences paradigm of humanization, spiritualization, and disciplinary dialogue (Junaedi & Wijaya, 2021; Wijaya et al., 2021).

Recent evidence shows that science-religion integration remains an unfinished pedagogical project. Integration may be formally endorsed while disciplinary boundaries and uncertainty about classroom enactment persist (Irham, 2025; Khoir et al., 2025). At school and madrasah levels, integration must become visible in lesson planning, examples, questioning, assessment, and the connection between religious learning and lived problems. Studies of madrasah reform and school-level integration indicate that institutional support, teacher competence, and coherent instructional structures are critical for translating integration from an abstract paradigm into practice (Haddade et al., 2024; Riwanda et al., 2025; Rohman et al., 2023; Zarkasi et al., 2025).

The connection between epistemology and moderation is especially important. Moderation is not sustained merely by teaching learners to approve of tolerance; it also requires habits of evaluating claims, recognizing context, and engaging alternative perspectives without abandoning religious commitment. Indonesian studies show that contextual interpretation, interreligious literacy, and structured encounters can reduce exclusivist tendencies and strengthen respectful engagement (Afwadzi et al., 2024; Ali et al., 2021; Junaedi et al., 2023; Purwanto et al., 2024). Conversely, exclusionary representations in learning materials may reproduce rigid boundaries when critical interpretation is absent (Ikhrom et al., 2023). Comparative work on wasatiyyah likewise stresses that moderation should be practiced through educational relationships and moral reasoning (Alabdulhadi & Alkandari, 2024; Muhajarah & Soebahar, 2024; Nasir & Rijal, 2021).

A related challenge emerges from the digital environment. Religious knowledge is increasingly encountered through social media, video platforms, and messaging applications, which can broaden access while also circulating decontextualized quotations and emotionally charged claims. Research on Indonesian Islamic learning shows that digital media can reshape religious authority and accelerate fragmented or populist narratives (Solahudin & Fakhruroji, 2020), while intensified internet use creates both opportunities and risks for religious education (Utami, 2024). For elementary learners, unity of science therefore also requires age-appropriate critical digital literacy: evaluating sources, distinguishing evidence from assertion, and considering the ethical consequences of sharing religious information.

Although religious moderation, science-religion integration, and Islamic educational reform have each received substantial attention, their empirical intersection in Islamic elementary education remains less developed. Much of the literature focuses on universities, secondary education, curriculum policy, or broad institutional outcomes (Kosim et al., 2023; Muis, 2026; Qoumas et al., 2024; Saepudin et al., 2023). This study addresses that gap through four Islamic elementary schools in Semarang and asks: (1) how teachers and students understand unity of science as a basis for

religious moderation; (2) how it is implemented through curriculum, pedagogy, and learning experience; and (3) what challenges constrain its implementation. By linking an epistemological paradigm to observable practices, the study seeks to explain how integrative Islamic education can become an operational moderation-oriented pedagogy.

Methods

This study employed a qualitative multiple-case design across four Islamic elementary schools in Semarang, Indonesia: SD Muhammadiyah Plus Semarang, SD IT Cahaya Bangsa, MI Miftakhul Akhlaqiyah, and MI Takhasus Darul Ulum. The design was appropriate because the research focused on meanings, practices, and contextual constraints rather than causal estimation or statistical generalization. A qualitative case orientation enables close examination of how an educational idea is interpreted and enacted within the institutional settings in which it acquires practical meaning (Baskarada, 2014).

Participants comprised five Islamic Religious Education teachers and five students selected purposively because they were directly involved in the learning practices under investigation. Selection prioritized informational depth and the ability to describe curriculum integration, classroom interaction, and moderation-oriented learning rather than statistical representativeness. Table 1 summarizes participant codes and affiliations; codes were used throughout reporting to protect identity.

Table 1. Informant Profiles

No	Initials	Remarks	Institution	School Location
1	DO1	Teacher	SD Muhammadiyah Plus Semarang	Semarang, Indonesia
2	DO2	Teacher	MI Miftakhul Akhlaqiyah	Semarang, Indonesia
3	DO3	Teacher	MI Takhasus Darul Ulum Semarang	Semarang, Indonesia
4	DO4	Teacher	SD IT Cahaya Bangsa	Semarang, Indonesia
5	DO5	Teacher	MI Miftakhul Akhlaqiyah	Semarang, Indonesia
6	MH1	Student	SD Muhammadiyah Plus Semarang	Semarang, Indonesia
7	MH2	Student	MI Takhasus Darul Ulum Semarang	Semarang, Indonesia
8	MH3	Student	MI Takhasus Darul Ulum Semarang	Semarang, Indonesia
9	MH4	Student	MI Takhasus Darul Ulum Semarang	Semarang, Indonesia
10	MH5	Student	SD IT Cahaya Bangsa	Semarang, Indonesia

Data were collected from February 10 to August 3, 2023 through in-depth interviews, participatory classroom observations, and document analysis. Interviews were conducted in Indonesian across three sessions, with individual segments generally lasting 10-20 minutes. Questions addressed relationships between religious and general knowledge, experiences of classroom dialogue, the role of Qur'anic values in interpreting social issues, and perceived obstacles to integrative learning. Observations focused on teacher-student interaction, openness to different views, integration of revelation and reason, inclusive discussion, and moderation practices. Documents included curriculum materials, lesson plans, teaching resources, and relevant institutional policies. Combining these techniques reduced dependence on a single source and strengthened contextual interpretation (Barrett & Twycross, 2018).

Data analysis followed the interactive model of Miles et al. (2014), involving data condensation, display, and iterative conclusion drawing. Interview transcripts, observation notes, and

documents were organized according to the three research questions and compared across schools to identify recurring themes concerning epistemological understanding, implementation strategies, and implementation challenges. Observation scores were summarized descriptively to support, rather than replace, qualitative interpretation; they were not used for inferential claims.

Credibility was strengthened through source, method, and time triangulation. Teacher accounts were compared with student accounts, interview evidence was checked against observations and documents, and information collected at different points was reviewed for consistency. The analysis also distinguished between participants' stated endorsement of moderation and the behavior observed during classroom interaction. This procedure supported cross-case interpretation while preserving the qualitative character of the study.

Results and Discussion

The Importance of the Unity of Science in the Qur'an as a Foundation for Religious Moderation

Across the four schools, teachers and students consistently understood unity of science as an epistemological-theological principle in which revelation, reason, and contextual knowledge are distinct but mutually related ways of understanding reality. Teachers commonly framed this orientation through tawhid, emphasizing that knowledge ultimately has a single divine source and should not be divided into mutually hostile religious and secular domains. DO1 summarized this view by stating that 'religious science and general science cannot be separated because they all come from Allah.' Other teacher accounts similarly linked monotheism with the organization and interpretation of knowledge.

Students expressed the same principle in practical rather than philosophical language. Several described learning as an effort to connect textual evidence with logic and social context. MH3 explained that students learned to combine religious postulates with logical reasoning so that religious understanding did not become rigid, while others reported greater willingness to hear different opinions before reaching judgment. Classroom observations supported these accounts: students were repeatedly encouraged to relate religious concepts to social diversity and contemporary problems. Unity of science therefore appeared less as a technical label than as a habit of bringing several sources of understanding into conversation.

Table 2. Observation Results

No	Observation Indicators	MH1	MH2	MH3	MH4	MH5
1	Integration of the value of the unity of knowledge in learning	4	4	4	5	4
2	Understanding the relationship between religious and general knowledge	4	4	4	5	4
3	Openness to differing views	5	5	5	4	5
4	Avoiding exclusive attitudes	5	5	5	4	5
5	Integration of revelation and reason	4	5	5	4	5
6	Inclusive attitudes in discussions	5	5	5	4	5
7	Internalization of religious moderation	4	5	5	4	5

The observation results reinforce this interpretation. As shown in Table 2, openness to differing views, avoidance of exclusive attitudes, and inclusive participation in discussion each averaged 4.8 across the five student participants. Integration of revelation and reason and internalization of

religious moderation each averaged 4.6, while the indicators directly measuring integration of unity-of-science values and understanding of the relationship between religious and general knowledge averaged 4.2. The strongest observed manifestations were therefore interactional behaviors rather than conceptual recognition alone.

Interview data help explain this pattern. Students associated integrative learning with reduced pressure to defend a single viewpoint immediately, while teachers described a movement from memorizing propositions toward considering reasons, context, and social consequences. These accounts do not indicate abandonment of normative commitments; rather, they show that religious commitments were increasingly discussed together with rational and contextual analysis. This combination was central to participants' understanding of moderation.

Unity of science also functioned as an ethical framework for the use of knowledge. Teachers emphasized that knowledge should contribute to common benefit rather than intensify conflict, and students described a responsibility to use learning for constructive dialogue and social harmony. Disagreement was therefore framed as an opportunity to seek stronger reasons or a more balanced solution rather than as an occasion for personal rejection. The finding extends beyond the origin of knowledge to the purposes for which knowledge is used and the moral quality of communication.

At the same time, the slightly lower descriptive scores for explicitly connecting religious and general knowledge show that positive moderation-oriented behavior did not always imply equally strong conceptual mastery of the integration paradigm. This distinction is important: openness may be observable before students can articulate the epistemological logic that supports it. Teachers therefore remain responsible for making the connection explicit so that tolerant interaction is grounded in coherent reasoning about knowledge rather than classroom politeness alone.

Overall, the first research question is answered by a consistent pattern across interviews and observations: unity of science was understood as a relationship among revelation, rational inquiry, contextual knowledge, and ethical responsibility. This understanding weakened the tendency to treat one knowledge domain as self-sufficient and supported a more dialogical approach to difference.

Implementation and Application of Unity of Science in Islamic Education Learning

The second research question concerned how unity of science was enacted in Islamic Religious Education. Three mutually reinforcing forms emerged from interviews, observations, and documents: interdisciplinary curriculum integration, dialogical-reflective learning, and experiential learning. Teachers did not describe these as separate programs but as connected layers through which students moved from conceptual understanding to classroom dialogue and then to encounters with social diversity. The approach was strongest when teaching materials, classroom facilitation, and learning experiences supported one another.

First, curriculum integration was visible when Islamic concepts were linked to social, humanistic, and everyday contexts. Teachers used themes of tolerance, diversity, justice, and social responsibility to connect Qur'anic values with students' surroundings. DO1 stressed that Islamic Religious Education should not remain purely textual, while students reported that contextual examples made the relationship between religious teaching and plural social life easier to understand. Document analysis also identified contextual examples and moderation-related themes in learning materials. Curriculum integration therefore functioned as a bridge between text and context rather than as a competition between sources of truth.

Second, dialogical-reflective learning was the principal classroom mechanism for converting integrative content into moderation practice. Observations showed teachers using open-ended questions, asking students to explain reasons, and inviting responses to classmates' views. Teachers acted as facilitators of structured inquiry rather than the sole source of final statements. Students reported that being heard encouraged them to respect other opinions, and disagreement could occur within a controlled setting without becoming interpersonal conflict.

Reflection accompanied dialogue. Teachers summarized contributions, clarified misunderstandings, and linked individual arguments to broader religious and social concepts. This prevented discussion from becoming unstructured opinion exchange and encouraged students to reconsider an initial position after hearing evidence or contextual explanations. Such reflective moves were consistent with the high observation scores for openness, avoidance of exclusivism, and inclusive discussion, and they explain why unity of science was experienced as a way of reasoning rather than simply another curriculum topic.

Third, experiential learning extended the same principles beyond classroom discussion. Field and community-oriented activities exposed students to social diversity and required them to connect religious concepts with actual interaction. Participants described these experiences as important because tolerance became more concrete when students encountered people and circumstances different from their own. The experiential dimension therefore strengthened the relationship among cognition, affect, and social practice that teachers considered necessary for internalizing moderation.

The three forms reinforced one another: interdisciplinary content supplied the conceptual connection, dialogical-reflective pedagogy provided the interactional process, and experiential learning created a setting for application. Textual integration without dialogue could remain teacher-centered, dialogue without a conceptual framework could become simple opinion sharing, and experience without reflection could remain an isolated activity. The findings therefore answer the second research question through a three-part implementation model that translates complex epistemological ideas into age-appropriate habits of inquiry, dialogue, and responsibility.

Challenges in Applying the Principle of the Unity of Science to Strengthen Religious Moderation

Despite these positive patterns, implementation was not fully consistent. Three challenges appeared repeatedly: persistence of a dichotomous understanding of knowledge, uneven teacher competence in integrative pedagogy, and exposure to unfiltered digital religious information. These constraints were interconnected rather than isolated. A teacher who continued to separate religious and general knowledge had fewer conceptual resources for interdisciplinary tasks, while limited pedagogical confidence made it harder to guide discussion of complex social or digital issues.

The first challenge was the continuing separation of religious and general knowledge. Participants reported that integration could be recognized in principle while routine teaching still followed familiar subject boundaries. Students sometimes experienced religious theory and social reality as separate, demonstrating that institutional endorsement does not automatically produce epistemological change. Where disciplinary connections remained implicit, students had greater difficulty seeing why contextual evidence or contemporary problems were relevant to religious learning.

The second challenge concerned pedagogical competence. Some teachers were more comfortable with conventional explanation than with open-ended, interdisciplinary discussion and

identified limited training in integrative pedagogy. Students similarly noted that one-way teaching reduced opportunities to connect material with actual issues. The problem therefore involved not only knowledge of moderation but also the professional capacity to design questions, manage disagreement, select cross-disciplinary examples, and guide reflection while maintaining conceptual focus.

The third challenge was the digital information environment. Students increasingly encountered religious content through social media and the internet, including claims that were difficult to verify or framed difference provocatively. Teachers described digital media as a double-edged environment: it expands access to learning while increasing exposure to decontextualized claims. Students also acknowledged difficulty distinguishing reliable information from misleading content, showing that unity of science now requires judgments about evidence, authority, and context in digital spaces.

These challenges can reinforce one another: a dichotomous curriculum limits the lenses available for evaluating information, teacher-centered pedagogy reduces opportunities to practice verification, and online narratives can strengthen simplified distinctions that integrative learning seeks to question. Participants therefore emphasized professional development, cross-subject collaboration, contextual learning, and critical digital literacy. The third research question is thus answered by an alignment problem among epistemology, pedagogy, institutional practice, and the contemporary information environment.

Discussion

The findings indicate that *unity of science* can strengthen religious moderation when it functions as an operational epistemological framework rather than merely as an institutional slogan. This interpretation is consistent with Abdullah's (2014) integration-interconnection paradigm, which emphasizes constructive dialogue between religious and general sciences while maintaining their methodological distinctiveness. It also extends earlier scholarship on the unity of knowledge that connects knowledge, faith, ethics, humanization, and spiritualization (Hassan, 2018; Junaedi & Wijaya, 2021; Wijaya et al., 2021). In the present study, this relationship was reflected in students' ability to connect Qur'anic values with rational-contextual analysis and ethical judgments concerning social differences. The contribution is therefore not limited to demonstrating that knowledge integration supports moderation; it suggests that moderation also has an epistemic dimension. Learners may become more moderate when they are encouraged to evaluate multiple forms of evidence, interpret religious claims contextually, and avoid assuming that a single knowledge domain can adequately explain every social or religious problem.

This interpretation is relevant to contemporary debates on science-religion integration in Indonesia. Previous research has shown that integration is frequently endorsed at the institutional level but remains uneven in pedagogical practice (Irham, 2025; Khoir et al., 2025). The present findings demonstrate that such integration can be introduced at the elementary level through concrete learning practices rather than abstract philosophical terminology. Students do not need advanced epistemological concepts to understand that religious texts, rational inquiry, social evidence, and ethical responsibility can complement one another. This finding is consistent with studies emphasizing literacy-based integration in madrasahs and institutional reform as pathways toward more coherent learning (Haddade et al., 2024; Zarkasi et al., 2025).

The observed patterns of openness, avoidance of exclusivism, and inclusive classroom interaction also clarify the pedagogical mechanism connecting knowledge integration with religious moderation. Previous Indonesian studies indicate that moderation-oriented education becomes more meaningful when learners actively interpret religious texts, encounter alternative perspectives, and engage in respectful dialogue (Afwadzi et al., 2024; Hanafi et al., 2023; Purwanto et al., 2024; Suyanto et al., 2024). Interreligious literacy research similarly suggests that engagement with difference can reduce rigid boundaries and foster more nuanced understandings of religion (Ali et al., 2021). The present study extends these findings by showing that dialogue is strengthened when students are provided with an epistemological basis for recognizing the legitimacy of different forms of knowledge. Consequently, dialogical-reflective pedagogy appears to function as an important bridge between an integrative curriculum and moderation-oriented behavior.

The findings also highlight the limitations of purely declarative moderation education. Religious moderation may remain superficial when it is confined to institutional labels, ceremonial activities, or cognitive definitions without being translated into classroom interaction (Chotimah et al., 2025). Similarly, learning materials can reproduce exclusionary perspectives when they provide insufficient space for critical interpretation (Ikhrom et al., 2023). Therefore, interdisciplinary curriculum integration alone is insufficient. Its effectiveness depends on learning structures that require students to explain arguments, compare perspectives, listen to others, reconsider initial judgments, and relate claims to relevant social contexts. Experiential learning strengthens this process because students can connect abstract values with lived social diversity. This pattern is consistent with studies showing that field-based moderation education can foster tolerance and more reflective professional or social identities (Purwanto et al., 2023, 2024).

Teacher capacity emerged as another critical factor. The continuing reliance on conventional explanation indicates that integration is not only a curriculum issue but also a professional-development challenge. Teachers need the ability to identify meaningful interdisciplinary connections, formulate age-appropriate open questions, facilitate disagreement constructively, and distinguish productive plurality from conceptual confusion. Similar challenges have been identified in wasatiyyah-oriented education, where teacher preparation strongly influences whether moderation values are meaningfully enacted (Alabdulhadi & Alkandari, 2024). Indonesian policy studies likewise show that national aspirations depend substantially on institutional interpretation and teachers' pedagogical competence (Kosim et al., 2023; Qoumas et al., 2024). Professional development should therefore integrate conceptual understanding with practical skills in lesson design, facilitation, and reflective assessment.

Critical digital literacy represents a further extension of this epistemic responsibility. Participants' concerns regarding unfiltered religious information reflect broader transformations in contemporary religious knowledge production. Digital platforms expand access to religious sources but may also fragment authority, decontextualize claims, and amplify provocative narratives (Solahudin & Fakhruroji, 2020). Utami (2024) similarly describes digital media as both an opportunity and a challenge for religious education. From a unity-of-science perspective, digital literacy should therefore be considered an integral component of religious moderation. Students need age-appropriate guidance in evaluating who produces information, what evidence supports particular claims, how claims relate to other knowledge, and what ethical consequences may result

from sharing them. Such habits can begin in elementary education through teacher-guided verification and contextual reading practices.

The broader literature reinforces the importance of connecting knowledge, attitude, and practice. Latifa et al. (2022) show that knowledge and attitudes influence intentions toward religious moderation, while Subchi et al. (2022) demonstrate its multidimensional nature. Nasir and Rijal (2021) emphasize institutional mainstreaming, whereas Muhajarah and Soebahar (2024) situate moderation within broader Southeast Asian contexts. The present study contributes a school-level perspective by showing that knowledge integration provides an intellectual structure, while moderation becomes visible through classroom dialogue, ethical judgment, and social interaction. Nevertheless, because Indonesian Islamic schools vary substantially in institutional resources, educational traditions, and teacher capacity (Moeis, 2022; Rohman et al., 2023), the identified practices should be treated as adaptable principles rather than a universal formula.

Practically, four priorities emerge: curriculum planning should deliberately connect Qur'anic concepts with relevant social, scientific, and humanistic knowledge; classroom routines should institutionalize reasoned dialogue and reflection; experiential activities should be followed by guided interpretation; and digital-literacy tasks should emphasize source verification, contextual understanding, and ethical communication. These priorities are consistent with moderation-oriented curriculum development and national policy initiatives (Mukhibat et al., 2024; Qoumas et al., 2024; Sirry et al., 2024). The novelty of the study therefore lies in linking epistemological and pedagogical dimensions: unity of science provides the rationale for connecting knowledge domains, dialogical-reflective pedagogy translates that rationale into classroom interaction, experiential learning connects it to lived plurality, and digital literacy extends it into contemporary information environments. Together, these elements provide a coherent conceptual model for strengthening religious moderation in Islamic elementary education.

Conclusion

This study demonstrates that the Qur'anic principle of unity of science can provide a substantive epistemological foundation for strengthening religious moderation in Islamic elementary education when it is translated into concrete pedagogical practice. Across four schools, teachers and students understood integration as a relationship among revelation, reason, contextual knowledge, and ethical responsibility; this orientation was reflected most strongly in openness to differing views, avoidance of exclusive attitudes, and inclusive discussion. Implementation occurred through three complementary strategies: interdisciplinary curriculum integration, dialogical-reflective learning, and experiential engagement with social diversity. At the same time, persistent knowledge dichotomies, uneven teacher competence, and unfiltered digital religious information constrained systematic implementation. Theoretically, the study positions moderation as both an ethical and epistemic disposition; practically, it highlights curriculum alignment, sustained teacher development, experiential learning, and critical digital literacy as interdependent priorities. The study is limited by its qualitative design, small group of informants, four-school context, and absence of longitudinal evidence, so the findings are analytically transferable rather than statistically generalizable. Future research should compare different school systems, employ mixed-method or longitudinal designs, develop age-appropriate measures of moderation, and examine how digital religious literacy shapes the relationship between integrative learning and student attitudes. Strengthening moderation at the

elementary level ultimately requires a coherent educational culture that connects knowledge, dialogue, evidence, ethics, and lived diversity.

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