

Integrating Qur'anic Values into Algebra Learning: A Pedagogical Model for Developing Islamic Scientific Character

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Abstract. This study aims to analyze the implementation and theoretical contribution of an integrated knowledge model that incorporates Qur'anic values into algebra instruction in order to cultivate an Islamic scientific character. The study contributes to the discourse on knowledge integration in Islamic pedagogy by proposing a contextual, mathematics-based learning model. It employs a qualitative approach with an interpretative case study design. Data were collected through classroom observations, semi-structured interviews with teachers and students, and analysis of instructional documents, and were analyzed using the interactive model of Miles, Huberman, and Saldaña. The findings indicate that the integration of Qur'anic values in algebra instruction can be empirically implemented through structured planning, execution, and evaluation. This integration provides evidence of strengthening students' Islamic scientific character, as reflected in increased curiosity, academic honesty, discipline, orderly thinking, and spiritual awareness. These findings expand the framework of knowledge integration by demonstrating that mathematics particularly algebra can serve as an effective epistemological medium for internalizing Islamic values simultaneously with cognitive development.

Keywords. Integration of Knowledge; Al-Qur'an; Algebra; Islamic Scientific Character; Mathematics Learning

Abstrak. Penelitian ini bertujuan untuk menganalisis implementasi dan kontribusi teoretis model integrasi ilmu yang menggabungkan nilai-nilai Al-Qur'an dalam pembelajaran aljabar untuk membentuk karakter saintifik Islami. Studi ini berkontribusi pada diskursus integrasi pengetahuan dalam pedagogi Islam dengan menawarkan model pembelajaran kontekstual berbasis matematika. Penelitian menggunakan pendekatan kualitatif dengan desain studi kasus interpretatif. Data dikumpulkan melalui observasi kelas, wawancara semi-terstruktur dengan guru dan siswa, serta analisis dokumen pembelajaran, dan dianalisis menggunakan model interaktif Miles, Huberman, dan Saldaña. Hasil penelitian menunjukkan bahwa integrasi nilai Qur'ani dalam pembelajaran aljabar secara empiris terbukti dapat diimplementasikan melalui perencanaan, pelaksanaan, dan evaluasi yang terstruktur. Integrasi ini memberikan bukti terhadap penguatan karakter saintifik Islami siswa, yang tercermin pada meningkatnya rasa ingin tahu, kejujuran akademik, disiplin, keteraturan berpikir, dan kesadaran spiritual. Temuan ini memperluas kerangka integrasi ilmu dengan menunjukkan bahwa matematika khususnya aljabar dapat menjadi medium epistemologis yang efektif untuk menginternalisasi nilai Islam secara simultan dengan pengembangan kognitif.

Kata kunci. Integrasi Ilmu; Al-Qur'an; Aljabar; Karakter Saintifik Islami; Pembelajaran Matematika

A. INTRODUCTION

Contemporary Islamic education continues to face a persistent challenge in bridging cognitive excellence with moral and spiritual formation. In many schools, mathematics learning is still positioned as a value-neutral discipline focused primarily on procedural competence and examination outcomes. Consequently, students may demonstrate academic achievement without sufficient development of ethical responsibility, reflective awareness, and character-based reasoning. This condition indicates the need for an integrative pedagogical model that reconnects scientific knowledge with Islamic values.

In recent decades, the integration of modern science and Islamic values has been positioned not merely as a normative necessity, but also as a response to epistemological fragmentation within the Muslim educational system (Afandi & Muhyidin, 2025; Anisaturrizqi, Halid, et al., 2025; Hashim & Langgulung, 2008; Marfu'ah et al., 2024; Wahyuni, 2020). Contemporary educational practices tend to separate cognitive mastery from moral and spiritual formation, thereby creating a gap between students' intellectual competence and their religious character (Crismono, Hudi, Yanuardianto, et al., 2025; Maula et al., 2025; Muqaddas et al., 2021; Saputra et al., 2024). This tension remains a central issue that has yet to be fully addressed in educational practice.

One effective approach identified is the *integration of knowledge* a process of unifying Islamic studies, natural sciences, and character education into a single, holistic learning system (Anisaturrizqi, Crismono, et al., 2025; Hamdanah et al., 2025; Jalil & Bakar, 2025; Nasucha et al., 2023; Sholehah, 2025). In this context, mathematics learning particularly algebra holds great potential to be contextualized with Qur'anic values. The concepts of numbers, order, logic, and abstraction in algebra are deeply aligned with the principles of *tawhid* (the oneness of God), the orderliness of Allah's creation, and the rational thinking encouraged in the Qur'an (Alghar & Afandi, 2024; Anisaturrizqi, Hanifiyah, et al., 2025; Crismono, Hudi, Ilyas, et al., 2025; Lestari et al., 2025; Nurhikmah et al., 2024). The integration of algebraic concepts and Qur'anic values in this study is understood at three levels: (1) symbolic (illustrative association), (2) philosophical (epistemological alignment between mathematical logic and the concept of *tawhid*), and (3) pedagogical (contextual learning strategies).

However, such integration practices are still rarely implemented systematically in schools, especially in the form of applicable learning models. Previous studies have mostly focused on the general integration between religion and science (Arifurrohman et al., 2025; Arifurrohman & Crismono, 2025; Imamuddin et al., 2020) or on strengthening Islamic character education separately (Crismono, Maghfiroh, et al., 2025; Hayati & Susatya, 2020; Tabibuddin et al., 2024; Zakiyah & Nugraha, 2024). Meanwhile, research specifically developing a learning model that integrates the Qur'an, algebra, and Islamic scientific character within a comprehensive pedagogical framework remains very limited. This highlights a gap in curriculum development and contextual learning models that not only teach abstract mathematical concepts but also instill deep spiritual and ethical Islamic values.

The urgency of this study is further emphasized by the importance of nurturing a generation of Muslims with *Islamic scientific character* individuals capable of thinking critically, logically, and analytically within the framework of faith and piety. Such integrative

learning is expected to serve as a solution to the fragmentation between secular and religious sciences and to address the issue of educational dualism in schools and madrasahs. In this study, *Islamic scientific character* is defined as the integration of scientific attitudes (curiosity, logical reasoning, and objectivity) with Islamic values (*amanah*, *istiqamah*, and awareness of *tawhid*) that are internalized within the learning process.

Although previous studies have discussed Islamization of knowledge and character education, limited research has specifically examined how Qur'anic values can be operationalized in mathematics classrooms, particularly in algebra learning. Existing studies tend to remain philosophical or normative, rather than demonstrating concrete instructional models. Therefore, empirical investigation into value-based mathematics pedagogy remains necessary.

B. METHOD

This study adopts a qualitative case study design within an interpretivist paradigm, as it aims to explore in depth how Qur'anic values are integrated into algebra learning and how such integration contributes to the formation of students' Islamic scientific character. The qualitative case study approach is considered appropriate because it enables the researcher to examine naturally occurring learning processes in their authentic classroom context without manipulating existing conditions.

The research was conducted at SMK Madinatul Ulum Jenggawah, Jember, which was selected through purposive sampling based on the institution's commitment to implementing an integrative curriculum that combines Islamic and general sciences. The participants consisted of one mathematics teacher, one Islamic Education (PAI) teacher, the school principal, and 18 tenth-grade students. The teachers and principal were purposively selected due to their direct involvement in curriculum design and implementation, while the students were selected based on their participation in the observed algebra learning sessions (Crismono, 2024). Data were collected through three techniques: non-participant classroom observations focusing on the enactment of lesson planning, instructional interactions, and value-integration practices; semi-structured interviews with teachers, students, and the principal to gain deeper insights into perceptions, experiences, and pedagogical considerations related to the integration of Qur'anic values; and document analysis of lesson plans, teaching modules, and student worksheets that explicitly incorporated Qur'anic elements into algebra learning.

To ensure methodological rigor, data analysis followed the interactive model of Miles, Huberman, and Saldaña, which consists of three stages: (1) data condensation, (2) data display, and (3) conclusion drawing and verification. Data condensation involved coding interview transcripts, observation notes, and relevant documents to identify patterns of Qur'anic-value integration. The coded data were then organized into thematic matrices to facilitate cross-case comparisons across multiple data sources. Conclusion drawing was conducted iteratively by comparing emerging themes with theoretical concepts of knowledge integration and the development of Islamic scientific character. The trustworthiness of the data was ensured through several strategies, including source triangulation by comparing information from teachers, students, and documents; technique

triangulation through the use of observations, interviews, and document analysis; member checking, in which preliminary interpretations were discussed with teachers to confirm accuracy; prolonged engagement through repeated classroom visits to obtain stable and credible data; and an audit trail by systematically documenting all data collection and analysis procedures. This methodological design ensured that the findings provided an in-depth, credible, and contextually grounded understanding of Qur'an-based algebra learning and its implications for the formation of Islamic scientific character (Creswell, 2019).

C. FINDINGS AND DISCUSSION

The findings indicate that the integration of instruction yields five main dimensions of character: curiosity, academic honesty, discipline, logical orderliness, and spiritual awareness. These characteristics do not emerge spontaneously; rather, they are developed through pedagogical processes that connect cognitive activities with value-based reflection.

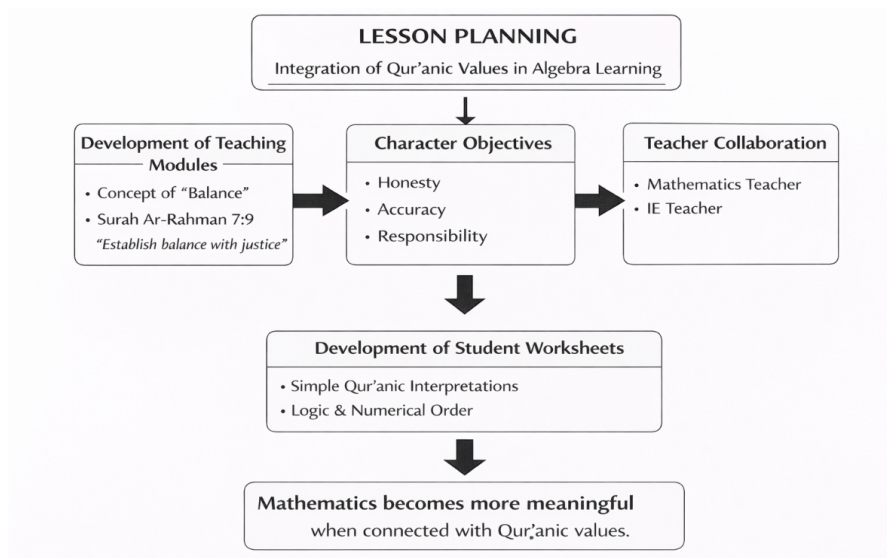
The school environment strongly supports the implementation of integrative learning, as reflected in teachers' habits of beginning lessons with *tilawah* (Qur'an recitation), collective prayers, and the incorporation of Islamic values into subject matter. Learning facilities such as classrooms, interactive whiteboards, and Qur'an-integrated teaching modules further reinforce the implementation of this research. These findings indicate that the integration is not merely additive, but transformational, as it reshapes the way students understand mathematics as a spiritually meaningful activity.

1. Implementation of Qur'anic Value Integration in Algebra Learning

Based on observations and interviews, the algebra learning process at SMK Madinatul Ulum Jenggawah has been systematically integrated with Qur'anic values. This integration is reflected in three main aspects: lesson planning, learning implementation, and learning evaluation.

The mathematics teacher developed a Teaching Module that incorporates Qur'anic values relevant to algebraic topics. For instance, in the lesson on "*Linear Equations and Inequalities*," the concept of balance is linked to the principle of justice as described in *Surah Ar-Rahman* (verses 7-9), which discusses "*mizan*" (balance). The module also includes character learning objectives, such as "*fostering honesty, accuracy, and a sense of responsibility in solving mathematical problems as an expression of Islamic scientific attitude.*"

Figure 1. Lesson Planning Model for Integrating Qur'anic Values into Algebra Learning



During the lesson planning stage, the mathematics teacher developed a Teaching Module that intentionally incorporates Qur'anic values relevant to algebraic topics. This integration is not merely symbolic; it is purposefully designed to strengthen students' conceptual understanding and character development. For instance, in the topic of Linear Equations and Inequalities, the teacher connects the concept of balance in algebra with the principle of justice described in Surah Ar-Rahman (verses 7–9) concerning mizan (balance). Through this connection, students are guided to understand that balance in mathematical equations reflects the same meaning as the values of justice and order emphasized in the Qur'an.

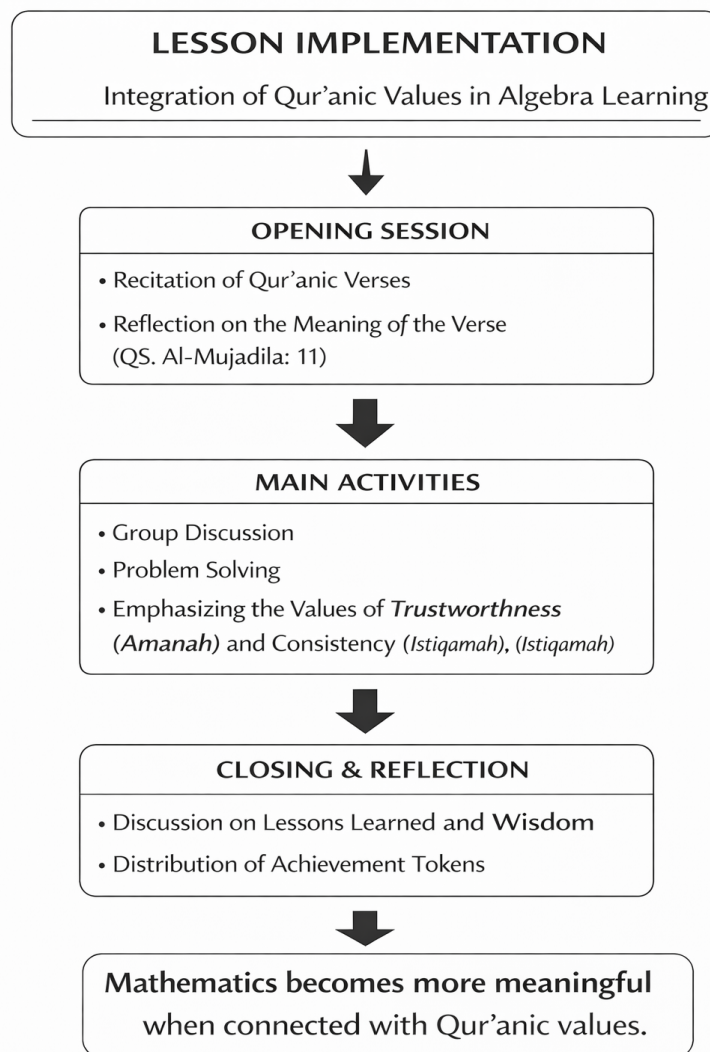
The teaching module explicitly includes character learning objectives, such as fostering honesty, accuracy, and responsibility in solving mathematical problems. The teacher views these traits as part of the Islamic scientific character, which is inseparable from the logical and systematic thinking processes inherent in mathematics. One teacher expressed, "Algebra is not merely about calculations; it also trains students to be honest and consistent with established rules."

This lesson planning process was carried out through collaboration between the mathematics teacher and the Islamic Education (PAI) teacher. The collaboration aimed to ensure that the integrated Qur'anic values were not only mentioned textually but also explained contextually and aligned with the authentic meanings of the verses. The PAI teacher contributed by clarifying the background and moral messages of the Qur'anic verses used, ensuring that the integration remained faithful to correct Islamic understanding.

In addition to the Teaching Module, the teacher also prepared Student Worksheets (LKPD) designed to encourage students to interpret simple Qur'anic verses related to order and numerical logic. Through these worksheets, students were not only asked to solve algebraic problems but also to reflect on the connection between mathematical concepts and Islamic values. These findings indicate that the lesson planning stage serves as a crucial foundation for the successful implementation of meaningful integration between the Qur'an and algebra.

At the implementation stage, the teacher begins the lesson by reciting a Qur'anic verse and providing a brief reflection on its meaning in relation to the topic being studied. For instance, before discussing equations, the teacher connects the lesson with Surah Al-Mujadila (verse 11), which emphasizes the importance of knowledge and logical thinking. This opening activity helps create a spiritual atmosphere and prepares students to view mathematics particularly algebra not only as a cognitive exercise but also as a reflection of the Qur'anic encouragement to think rationally and seek knowledge.

Figure 2. Implementation of Qur'an-Integrated Algebra Learning in Classroom Activities



During the main learning activities, the teacher applies group discussion and problem-solving methods to foster students' critical and analytical thinking skills. Students are encouraged to discover algebraic concepts through contextual activities that reflect the order and beauty of Allah's creation. The teacher also emphasizes the values of amanah (responsibility) and istiqamah (consistency) when completing practice problems.

Observations indicate that students became more enthusiastic and focused during the lessons, as they perceived the material to be not only academically valuable but also spiritually meaningful. Several students expressed that learning mathematics felt "more meaningful" because it was connected to Qur'anic values.

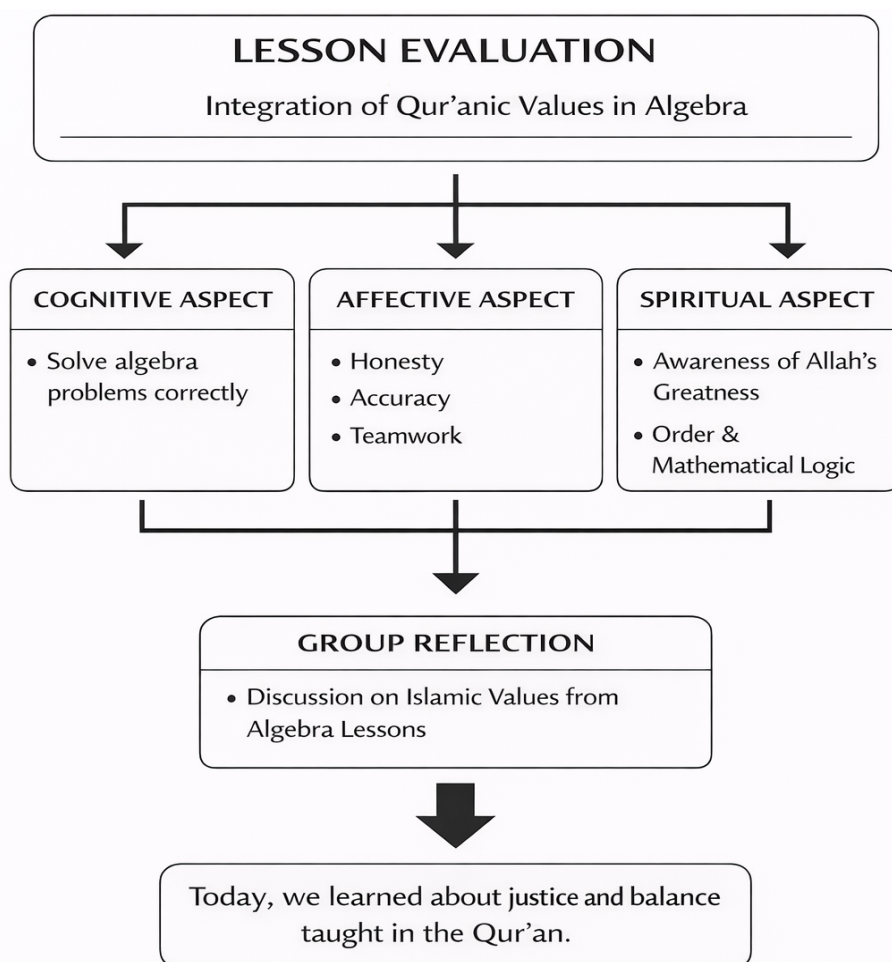
The evaluation process does not only assess students' cognitive learning outcomes, but also their attitudes and character throughout the learning process. The teacher employs an assessment instrument that covers cognitive, affective, and spiritual aspects.

Examples include:

- Cognitive aspect → the ability to correctly solve algebraic problems.
- Affective aspect → honesty, accuracy, and cooperation within group work.
- Spiritual aspect → awareness of Allah's greatness as reflected in the order and logic found in mathematics.

This comprehensive evaluation approach ensures that learning outcomes reflect both academic mastery and the internalization of Qur'anic values.

Figure 3. Evaluation Framework of Qur'an-Integrated Algebra Learning



The learning evaluation is not solely focused on students' cognitive achievement but also on the formation of attitudes and character throughout the learning process. Based on classroom observations and interviews, the teacher applies a comprehensive assessment instrument that encompasses three key aspects: cognitive, affective, and spiritual. This approach enables the teacher to view students' development holistically—not merely through their problem-solving abilities, but also through the attitudes and value awareness demonstrated during learning.

In the cognitive aspect, the assessment emphasizes students' ability to solve algebraic problems correctly and systematically. The teacher not only evaluates the final answers but also observes the students' reasoning process in constructing solution steps. According to interview results, this method helps the teacher identify how deeply students understand algebraic concepts.

The affective aspect is assessed through observation of students' honesty, accuracy, and cooperation during learning activities, especially during group discussions and problem-solving sessions. The teacher noted that integrating Islamic values in learning encourages students to be more careful, responsible, and respectful when working together. These behaviors are recognized as part of the development of an Islamic scientific character fostered through algebra learning.

Meanwhile, the spiritual aspect is evaluated through indicators of students' awareness of Allah's greatness, reflected in their understanding of order and logic within mathematics.

The teacher observes how students begin to relate algebraic concepts to the orderliness of Allah's creation, both through verbal expressions and written reflections after lessons.

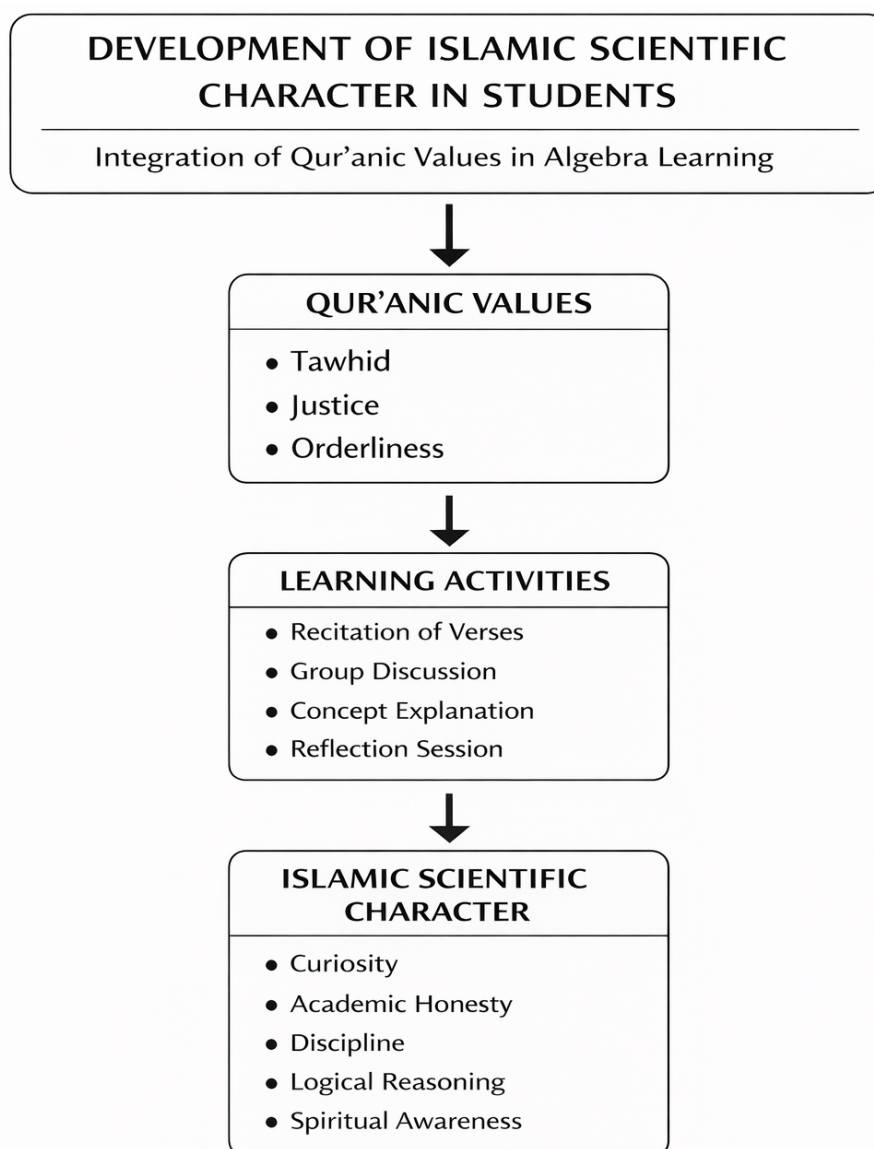
As part of the evaluation process, the teacher also conducts a collective reflection session at the end of the lesson. During this session, students are encouraged to express the Islamic values they have learned from the day's algebra topic. This reflection serves not only as feedback for the teacher but also as a space for students to internalize and personally interpret their learning experiences from both intellectual and spiritual perspectives.

These findings indicate that evaluation in integrative learning is not merely a measurement activity, but also a transformative process that cultivates awareness and internalization of values within students.

2. Development of Students' Islamic Scientific Character

Based on interviews with teachers and students, the integration of Qur'anic values into algebra learning has positively contributed to the development of students' Islamic scientific character, which harmonizes scientific attitudes with religious values. The emerging characteristics include curiosity, as students become more active in asking questions and strive to understand mathematical concepts more deeply; academic honesty, as students attempt to solve problems independently and avoid cheating because they feel guided and observed by their faith; discipline and responsibility, shown through submitting assignments on time and maintaining the cleanliness and orderliness of their learning tools; logical orderliness, reflected in students' ability to think systematically and logically when solving problems, which mirrors the divine order in Allah's creation; and spiritual awareness, as students begin to connect the order and logic found in mathematics with the greatness of Allah SWT. As one student stated, "It turns out that mathematical logic is like Allah's creation everything is orderly and governed by rules." These findings indicate that the integration of Qur'anic values in algebra learning not only enhances cognitive understanding but also nurtures a balanced development of intellect, morality, and spirituality among students.

Figure 4. Integration of Qur'anic Values in Developing Students' Islamic Scientific Character through Algebra Learning



Based on in-depth interviews with teachers and students, the integration of Qur'anic values in algebra learning has been proven to have a positive impact on shaping students' Islamic scientific character a character that harmoniously combines scientific attitudes with religious values. Both teachers and students perceive algebra learning not merely as a cognitive activity, but also as a form of spiritual reflection that shapes the way they think and behave throughout the learning process.

One of the most prominent traits observed is curiosity. Teachers noted that students became more active in asking questions and eager to understand mathematical concepts more deeply. This happened because the learning process emphasized not only the final results but also the reasoning and meaning behind each concept. As one teacher expressed, "When students are encouraged to connect algebra with Qur'anic verses, they become more interested in finding out the underlying reasons."

Another strengthened aspect is academic honesty. Students tend to solve problems independently and avoid cheating. According to interview results, some students shared that the inclusion of faith-based values in learning made them feel more responsible for

their own learning process. This demonstrates that the integration of Qur'anic values functions as an internal moral compass in guiding students' academic behavior.

Discipline and responsibility also improved, as reflected in students' punctuality in submitting assignments and their attention to cleanliness and organization of learning materials. Teachers observed that this integrative approach encouraged students to view learning as an amanah (trust) that must be carried out with sincerity and dedication.

From a cognitive perspective, students showed greater logical orderliness in their thinking. Their ability to approach algebraic problems systematically and rationally became more evident, in line with the concept of divine order introduced through Qur'anic verses. Teachers noted that this connection helped students understand that mathematical logic is not merely a symbolic system but a reflection of the universal order created by Allah SWT.

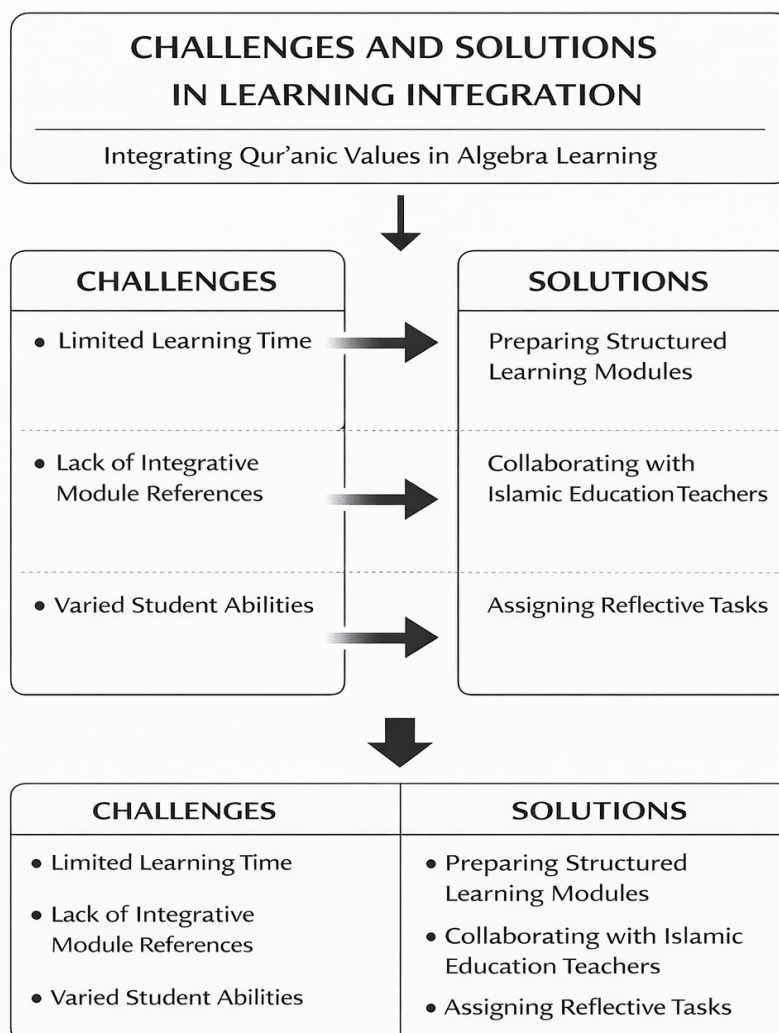
Furthermore, the integrative learning approach fostered spiritual awareness among students. Several students began to relate the consistency and precision in mathematics to the greatness of Allah SWT. As one student reflected, "It turns out that mathematical logic is like Allah's creation, everything is orderly and governed by rules." This statement illustrates that students not only grasp mathematical concepts rationally but also interpret them spiritually.

The mathematics teacher emphasized that through this integrative approach, students developed not only in academic achievement but also in religious consciousness within every learning experience. Therefore, Qur'an-based algebra learning significantly contributes to shaping a holistic Islamic scientific character, encompassing both intellectual competence and spiritual sensitivity.

3. Challenges and Solutions in the Implementation of Integration

Despite its positive outcomes, the study also identified several challenges in implementing the integration of Qur'anic values into algebra learning, including limited learning time, as connecting algebraic concepts with Qur'anic verses requires additional time for explanation and reflection; a lack of integrative learning resources, since teachers still need to independently design teaching materials that align mathematical concepts with Qur'anic values; and varied student abilities, as some students find it difficult to understand the relationship between mathematical concepts and spiritual meanings. To address these challenges, teachers implemented several solutions, such as preparing structured learning modules that include relevant Qur'anic verses and short reflections, collaborating with Islamic Education (PAI) teachers to help explain the spiritual and ethical values embedded in the lessons, and assigning reflective tasks that encourage students to write about the spiritual insights they gain from learning mathematics. These strategies help ensure that the integration process remains meaningful, feasible, and sustainable, while fostering both cognitive mastery and spiritual growth among students.

Figure 5. Challenges and Solutions in Integrating Qur'anic Values into Algebra Learning



Field findings revealed that teachers perceived the implementation of Qur'anic value integration in algebra learning as a meaningful process, yet one that requires greater pedagogical effort. Mathematics teachers acknowledged that limited instructional time was the primary challenge, as connecting algebraic concepts to Qur'anic verses involves more than merely mentioning the verses, it also requires interpretation and reflection to ensure students truly grasp the relationship. As one teacher stated, "If it's only briefly mentioned, students might not understand the meaning, so we need time for discussion and reflection." This indicates that Qur'anic integration demands a deeper learning approach than conventional instruction.

In addition to time constraints, teachers also faced a lack of ready to use integrative teaching modules. According to interview results, most instructional materials had to be developed independently by aligning algebra topics with relevant Qur'anic values. This made the lesson planning process more complex and required collaboration with Islamic Education (PAI) teachers. A PAI teacher emphasized, "Collaboration between teachers is essential so that the verses used are not only thematically relevant but also interpreted correctly." The absence of standardized modules indicates a structural gap in the development of an integrative curriculum, while teacher collaboration functions as a practice-based adaptive strategy.

From the students' perspective, observations and interviews showed varying levels of understanding in connecting mathematical concepts with spiritual values. Some students were able to perceive the order and balance in algebra as reflections of Allah's greatness, while others still viewed mathematics and Islamic values as separate domains. One student mentioned, "At first, it was difficult to see the connection, but after the teacher explained it slowly, I started to understand." These findings indicate that successful integration requires continuous guidance and a gradual approach adapted to students' diverse abilities.

To overcome these challenges, teachers adopted reflective and collaborative strategies. The preparation of structured learning modules containing Qur'anic verses and brief reflections helped teachers manage class time more efficiently. The involvement of PAI teachers reinforced students' understanding of the spiritual dimensions within mathematics lessons. Furthermore, assigning reflective writing tasks allowed students to express their spiritual insights personally, ensuring that Qur'anic integration was not only conceptual but also experiential and meaningful.

These strategies demonstrate that the success of integrative learning depends not only on the content but also on the pedagogical process of reflection and interaction that takes place in the classroom, ultimately fostering a more holistic educational experience. The findings of this study indicate that the integration of Qur'anic values into algebra learning not only enhances students' understanding of mathematical concepts but also contributes significantly to the formation of *Islamic scientific character*. This result reinforces the view that mathematics learning can serve as a strategic medium for integrating the cognitive, affective, and spiritual dimensions of education in a holistic manner.

Consistent with the findings of Fuadi & Suyatno (2020), the integration of modern science with Islamic values can create more meaningful learning experiences, as students no longer perceive scientific knowledge as separate from religious values. However, unlike Fuadi and Suyatno's research, which emphasized integration at a conceptual and curricular level, this study demonstrates a more contextual and specific integration within mathematics learning particularly algebra by connecting the concepts of balance, order, and logic with verses from the Qur'an. This finding broadens the discourse on knowledge integration by showing that exact sciences such as algebra have strong potential to be contextualized with Qur'anic values in practical classroom settings.

The formation of Islamic scientific character which includes curiosity, academic honesty, discipline, logical orderliness, and spiritual awareness is also in line with the study of Mahfud & Zahriyah (2025), which emphasizes the importance of Islamic character education in shaping students' learning behavior. However, previous research has tended to treat character education as a separate domain, primarily taught through Islamic Religious Education. In contrast, this study demonstrates that religious and scientific values can be developed simultaneously through mathematics learning, allowing Islamic principles to be internalized not only normatively but also through scientific reasoning activities.

Observations and interviews also revealed that students' logical consistency in solving algebraic problems reflects the divine order found in Allah's creation. This finding supports Kermani & Doagooei (2015), who argue that mathematics has epistemological compatibility with the concept of *tawhid* (oneness of God), as both emphasize order,

consistency, and rationality. Thus, the integration of the Qur'an and algebra is not artificial but is instead founded on a strong philosophical and epistemological basis within the Islamic scientific paradigm.

In terms of planning and implementation, collaboration between mathematics teachers and Islamic Religious Education (PAI) teachers has proven to be a key factor in the success of integrative learning. This finding is consistent with Haviz & Maris (2020), who highlight the importance of interdisciplinary collaboration in developing value-based learning. Such collaboration ensures that Qur'anic verses used in the classroom are not only thematically relevant but also accurately interpreted, thereby preventing oversimplification or misinterpretation of Islamic values.

Nevertheless, this study also identifies several challenges, including limited instructional time, a lack of integrative teaching materials, and variations in students' abilities. These challenges are similar to those found by Hadi et al., (2024), who noted that integrative learning requires thorough planning and strong pedagogical readiness. However, the solutions implemented in this study such as the development of structured learning modules, collaborative reflection, and reflective assignments demonstrate that these challenges can be addressed through adaptive and reflective teaching strategies.

In conclusion, this study strengthens and complements previous research by showing that the integration of Qur'anic values into algebra learning is not only theoretically relevant but also practically applicable in classroom instruction. Qur'an-based algebra learning has been proven effective in cultivating a balanced Islamic scientific character, bridging the dichotomy between scientific knowledge and religious values in education.

D. CONCLUSION

This study demonstrates that the integration of Qur'anic values in algebra instruction is not only practically implementable, but also makes a theoretical contribution to the development of integrative pedagogical models in Islamic education. It affirms that mathematics can serve as an epistemological medium for unifying cognitive and spiritual dimensions simultaneously. Practically, these findings have implications for the development of integration-based curricula, the design of collaborative interdisciplinary learning, and holistic evaluation encompassing cognitive, affective, and spiritual aspects. Looking ahead, further research is needed to examine this model in broader contexts and through quantitative or mixed-methods approaches in order to strengthen the generalizability of the findings.

REFERENCES

- Afandi, A. J., & Muhyidin, M. (2025). Revisiting Al- Faruqi ' S Islamization Of Knowledge : A Hermeneutic and Decolonial Analysis For Contemporary Epistemic Reform. *International Journal of Religion and Social Community*, 3(2), 1–26. <https://doi.org/10.30762/ijoresco.v3i2.3568>
- Alghar, M. Z., & Afandi, M. I. (2024). Islamic Integrated Maths : Mathematical Logic In The Qur ' An. *Fahima: Jurnal Pendidikan Dan Kajian Keislaman*, 3(1).

- Anisaturrizqi, R., Crismono, P. C., & Yanuardianto, E. (2025). Assessing the Relevance of Montessori Education in Contemporary Contexts Using Bibliometric Analysis. *JP (Jurnal Pendidikan) : Teori Dan Praktik*, 10(2), 156–173.
- Anisaturrizqi, R., Halid, A., & Crismono, P. C. (2025). Urgensi Etika Islam dalam Pengembangan Artificial Intelligence. *Edu Journal Innovation in Learning and Education*, 03(02). <https://doi.org/10.55352/edu.v3i2>
- Anisaturrizqi, R., Hanifiyah, F., & Crismono, P. C. (2025). Holistic Tahfidz Education Based on Pesantren : Bibliometric Analysis of the Integration of Memorization and the Formation of Qur ' anic Character. *J-PAI: Jurnal Pendidikan Agama Islam*, 11(2), 153–166.
- Arifurrohman, & Crismono, P. C. (2025). Bibliometric Analysis of Religious Tolerance Research Trends: Indonesia's Role in Global Studies. *Jurnal Penelitian*, 22, 79–94.
- Arifurrohman, Crismono, P. C., & Ilyas, M. (2025). Parenting Trends In The Digital Era : A Bibliometric Analysis from an Islamic Perspective in Muslim-Majority Societies. *At-Turās: Jurnal Studi Keislaman*, 12(2), 1–21.
- Creswell, J. W. (2019). Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research. In Sustainability. *Educational Research*, 11(1).
- Crismono, P. C. (2024). *Metode Penelitian Pendidikan : Pendekatan Kuantitatif, Kualitatif, Ptk, dan Penelitian Pengembangan*.
- Crismono, P. C., Hudi, S., Ilyas, M., Yanuardianto, E., Dahri, H., & Yakoh, M. (2025). Rethinking Religious Influence on Mathematics Learning Behavior : A Mathematical Model of Planned Behavior amid Shifting Educational Paradigms. *Bidayatuna : Jurnal Pendidikan Guru Madrasah Ibtidaiyah*, 08(01), 79–98. <https://doi.org/10.54471/bidayatuna.v8i1.3298>
- Crismono, P. C., Hudi, S., Yanuardianto, E., & Ilyas, M. (2025). Research Trends In Islamic-Based Mathematics Education: Global Studies And Academic Collaboration Networks. *International Journal of Current Science Research and Review*, 08(03), 1091–1105. <https://doi.org/10.47191/ijcsrr/V8-i3-12>
- Crismono, P. C., Maghfiroh, S. L., Dahri, H., & Yakoh, M. (2025). Students ' Mathematics Learning Attitudes and Behaviors : A Case Study Of Boarding School Alumni In Higher Education. *Jurnal Elemen*, 11(2), 408–426.
- Fuadi, A., & Suyatno, S. (2020). Integration of nationalistic and religious values in islamic education: Study in integrated islamic school. ... *International of Social Science Journal*. <https://www.randwickresearch.com/index.php/rissj/article/view/108>
- Hadi, S., Affani, S., & Ayman Al-Akiti, M. (2024). The Challenge of Integrating Science and Religion in Indonesia and Malaysia. *Teosofi: Jurnal Tasawuf Dan Pemikiran Islam*, 14(1 SE-Articles), 96–122. <https://doi.org/10.15642/teosofi.2024.14.1.96-122>
- Hamdanah, Crismono, P. C., & Yakoh, M. (2025). Islamic Values in Mathematics Education : A Bibliometric Analysis with Emphasis on Educational Management Trends. *Al-Tanzim: Jurnal Manajemen Pendidikan Islam*, 09(04), 1231–1245.
- Hashim, C. N., & Langgulung, H. (2008). *Islamic Religious Curriculum in Muslim Countries : The Experiences of Indonesia and Malaysia*. 30(1), 1–19.

- Haviz, M., & Maris, I. (2020). Measuring mathematics and science teachers' perception on thinking and acting in 21st-century learning. *Journal for the Education of Gifted Young ...* <https://dergipark.org.tr/en/pub/jegys/issue/56816/747395>
- Hayati, F. N., & Susatya, E. (2020). Strengthening of Religious Character Education Based on School Culture in the Indonesian Secondary School. *European Educational Researcher*. <https://eric.ed.gov/?id=EJ1272367>
- Imamuddin, M., Isnaniah, I., Zulmuqim, Z., & ... (2020). Integrasi Pendidikan Matematika dan Pendidikan Islam (Menggagas Pembelajaran Matematika di Madrasah Ibtidaiyah). ... : *Jurnal Pendidikan* ... <http://journal.iaincurup.ac.id/index.php/JPD/article/view/1928>
- Jalil, A., & Bakar, A. (2025). Integration of Islamic Education with Science in the National Education System. *Journal of Practice Learning and Educational Development*, 5(3), 1013–1020. <https://doi.org/10.58737/jpled.v5i3.680>
- Kermani, V. M., & Doagooei, A. R. (2015). Vector topical functions and Farkas type theorems with applications. *Optimization Letters*, 9(2), 359–374. <https://doi.org/10.1007/s11590-014-0748-4>
- Lestari, F., Farid, F., Syazali, M., Putra, F. G., Maulidi, I., & Apriliani, V. (2025). Integration Of Qur'anic Values In Mathematics Learning: A Bibliometric Analysis. *Islamic Journal of Integrated Science Education (IJISE)*, 4(2), 55–71.
- Mahfud, M., & Zahriyah, S. (2025). Internalizing Islamic Values in Students : The Role of Character Education in Building Morals and Ethics. *MA'ALIM: Jurnal Pendidikan Islam*, 6(1), 93–105. <https://doi.org/10.21154/maalim.v6i1.10150>
- Marfu'ah, Crismono, P. C., & Hudi, S. (2024). *Integrasi Nilai Moderasi Beragama dalam Pendidikan Agama Islam untuk Pengelolaan Lahan Pertanian Berkelanjutan*. 7, 152–163.
- Maula, H., Crismono, P. C., & Pitasari, M. A. R. (2025). Global Mapping of Research on Mathematics Learning Difficulties: A Bibliometric Analysis of Cognitive Factors and Educational Technology. *Wahana : Tridarma Perguruan Tinggi*, 77(2), 243–262.
- Muqaddas, A., Ishaq, O., & Hassan, I. (2021). Challenges of Islamic Education in the Era of Globalization : A Proposed Holistic Solution Challenges of Islamic Education in the Era of Globalization : A Proposed Holistic Solution. *International Journal of Academic Research in Progressive Education and Development*, 1(3), 337–349. <https://doi.org/10.6007/IJARPED/v10-i3/10748>
- Nasucha, M. R., Khozin, K., & Thoifah, I. (2023). Synergizing Islamic Religious Education and Scientific Learning in the 21st Century: A Systematic Review of Literature. *Jurnal Pendidikan Agama Islam (Journal of Islamic Education Studies)*, 11(1), 109–130. <https://doi.org/10.15642/jpai.2023.11.1.109-130>
- Nurhikmah, Ayyubi, I. I. Al, Prayetno, E., Jamaliah, D., & Mumtazah, N. (2024). Equilibrium of Faith and Logic : Integration of Islamic Moral Values and Mathematics Education at the Junior High School Level in Various Contexts. *IJEMR: International Journal of Education Management and Religion*, 1(2), 127–144.
- Saputra, M. A. A., Crismono, P. C., & Hudi, S. (2024). Personalizing Learning Using Deep Learning: Innovation in Digital Education. *Jurnal Ilmu Pendidikan Dan Pembelajaran*,

04(01), 83–94.

Sholehah, N. R. (2025). Islamic Education Based On Integration Of Science. *Halaqa : Journal Of Islamic Education*, 1(2), 227–244.

Tabibuddin, M., Mukhlis, M., & Jamaluddin, J. (2024). Penyelenggaraan Pendidikan Formal dan Non Formal dalam Pesantren: Analisis terhadap Pasal 17 UU Nomor 18 Tahun 2019. *Jurnal Ilmiah Profesi Pendidikan*, 9(1), 160–167. <https://doi.org/10.29303/jipp.v9i1.1878>

Wahyuni, A. (2020). Integration of Islamic Values in Science Education ' A Reconstruction Effort in Education ' Integrasi Nilai-Nilai Islam Dalam Pendidikan Sains ` Sebuah Upaya Rekonstruksi dalam. *HALAQA: ISLAMIC EDUCATION JOURNAL*, 4(2), 163–168. <https://doi.org/10.21070/halaqa.v4i2.1000>

Zakiah, S., & Nugraha, M. S. (2024). Tantangan dan Peluang dalam Menjembatani Sains dan Agama di dalam Konteks Pendidikan : Sebuah Perspektif Tambahan. *Hamalatul Qur'an: Jurnal Ilmu-Ilmu Al-Qur'an*, 5(2), 641–646.