

**Bridging Science and Religion: A Governance Strategy
Islamic Education Institutions at the Secondary Level
Based on Scientific Integration**

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Abstract: *This research aims to analyze effective governance strategies in aligning science and religion in Islamic educational institutions, focusing on approaches that can balance these two aspects. In addition, this research also seeks to identify various challenges and opportunities in the application of scientific integration in the Islamic education environment, both from internal and external factors. The method used in this research is library research. Data analysis was conducted using a qualitative-descriptive approach through content analysis, which aims to explore conceptual understanding and summarize various perspectives. The results showed that in integrating science and religion in educational institutions, several main strategies are needed, namely: 1) Governance Strategy in Science and Religion Integration; 2) Implementation of Curriculum Based on Scientific Integration; 3) Utilization of Technology to Support the Integration of Science and Religion; and 4) Identification of Challenges and Solutions in Realizing Scientific Integration.*

Keywords: *Science, Religion, Islamic Education, Scientific Integration*

Introduction

Islamic educational institutions have an important role in producing a generation that not only has a strong Islamic understanding but is also able to face the challenges of the modern era with adequate knowledge. However, one of the major challenges faced by Islamic educational institutions today is integrating science and religion in the curriculum and learning practices. Along with the rapid development of science and technology, there is a dichotomy between science and religion, which is often considered as two conflicting entities. In fact, in the Islamic scientific tradition, science and religion are closely related and complementary. The integration of these two aspects is a big challenge for Islamic educational institutions, especially in designing a curriculum that is able to combine scientific principles with Islamic spiritual values without ignoring global academic demands.¹ In the context of education, this integration helps students understand that scientific

¹ Hakan Çoruh, "Relationship Between Religion and Science in the Muslim Modernism," *Theology and Science* 18, no. 1 (January 2, 2020): 152–61, <https://doi.org/10.1080/14746700.2019.1710355>.

discoveries can strengthen faith, as well as inspire appreciation for the beauty and order of God's creation.

The importance of the paradigm of scientific integration in Islamic educational institutions is increasingly felt in the face of the dynamics of the development of modern science, which demands a holistic and multidisciplinary approach. In the context of globalization, the flow of information and rapid technological developments require students to have critical, adaptive, and creative thinking skills, which not only rely on aspects of rationality but also on ethical values and spirituality. The concept of integration of science and religion is actually in line with Islamic teachings that emphasize the importance of science as a means to understand the signs of God's greatness (*ayat-ayat kauniyah*). However, in practice, the implementation of this concept faces various obstacles, both from structural, cultural, and methodological aspects.

On the one hand, there is a need to strengthen the scientific aspect of learning, while on the other hand, the importance of maintaining Islamic identity is a necessity that cannot be ignored. In addition, this integration forms individuals who are not only intellectually intelligent but also have noble character. This integration can optimize the development of students with noble character and cognitive intelligence.² The crucial point of the integration is the alignment of academic competencies that are strengthened with noble character.

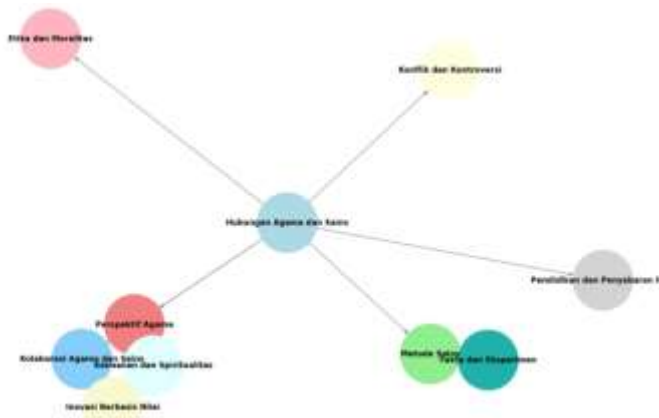


Figure 1.

The Relationship between Science and Religion

² Ardi Ardi et al., "The Effect of Islam and Science Integration Implementing on Science Learning in Indonesia: A Meta-Analysis," *International Journal of Evaluation and Research in Education (IJERE)* 13, no. 4 (August 1, 2024): 2594, <https://doi.org/10.11591/ijere.v13i4.27632>.

In the context of Islamic education, the governance of educational institutions plays a strategic role in realizing effective scientific integration. Good governance includes integrative curriculum planning, the development of competent human resources, and the application of learning methods that can bridge science and religion. Strategic governance also includes synergistic efforts between various stakeholders, such as the government, academics, and the community, in building an Islamic education system that is adaptive to the development of science, but still adheres to the principles of Islamic values. Therefore, Islamic educational institutions need to design effective policies and strategies to ensure that science and religion are not just placed as separate entities, but as part of an overall educational system that supports each other.³

With regard to the explanation above, there are several previous studies that have relevant to this research. First, an article entitled *Integration of Science and Religion in Value Education* written by Tutuk Ningsih, et al. The research highlights a value education model that integrates science and religion in schools. Through a qualitative approach, it was found that the integrative model facilitates the learning process, making it more meaningful and efficient.⁴

Another research was conducted by Agus Riwanda et al with the title *Integrating Science and Religion through Academic Writing: A Case Study at MAN Insan Cendekia*. The research analyzes the academic writing program at MAN Insan Cendekia, which aims to integrate science and religion through a multidisciplinary approach. The program enhances students' literacy and methodological rigor and strengthens their understanding of the relationship between science and religion.⁵ In the third research conducted by Sumanti et al, with the title *Development of the study of Islamic education in Scopus-indexed international publications in 2017-2022: Bibliometric analysis*. This study explores research trends in Islamic religious education that are dominated by ASEAN countries. This is because the number of Muslims in

³ Sari Hanafi, "From Streamlining to Mainstreaming 'Islamization of Knowledge,'" *American Journal of Islam and Society* 38, no. 1-2 (May 3, 2021), <https://doi.org/10.35632/ajis.v38i1-2.1086>.

⁴ Tutuk Ningsih et al., "Integration of Science and Religion in Value Education," *IJORER: International Journal of Recent Educational Research* 3, no. 5 (September 30, 2022): 569-83, <https://doi.org/10.46245/ijorer.v3i5.248>.

⁵ Agus Riwanda et al., "Integrating Science and Religion through Academic Writing: A Case Study at MAN Insan Cendekia," *EDUKASI: Jurnal Penelitian Pendidikan Agama Dan Keagamaan* 22, no. 2 (August 31, 2024): 167-83, <https://doi.org/10.32729/edukasi.v22i2.1869>.

the region is quite large.⁶ The three previous studies focused on the governance strategies of secondary-level Islamic education institutions in integrating science and religion. All three focus more on learning models, academic programs, and teachers' experiences in the classroom, as well as research trends in Islamic religious education. While this article highlights the institutional and managerial aspects as an integrative approach, making it unique in the context of scientific integration-based education management.

This research aims to analyze effective governance strategies in integrating science and religion in Islamic educational institutions, focusing on approaches that are able to accommodate both aspects in a balanced manner. Through governance analysis, this research is expected to provide insight into the steps that can be taken by Islamic education institutions in formulating comprehensive policies, ranging from curriculum development to increasing the capacity of educators. In addition, this research also aims to identify challenges and opportunities in the implementation of scientific integration in the Islamic education environment, both from internal and external aspects. Factors such as institutional readiness, policy support, and community perceptions of the importance of science and religion integration are aspects that need to be considered in designing effective strategies.

In particular, the challenges in implementing scientific integration in Islamic educational institutions include several main aspects, including the lack of a comprehensive understanding among educators of the concept of scientific integration, limited resources, and the gap between theory and practice in the field. Some Islamic educational institutions are still trapped in a dichotomous paradigm that separates science and religion as two different disciplines, so that efforts to integrate science are difficult to realize optimally. In addition, another challenge is the resistance of some people who still question the relevance and urgency of the integration of science and religion in the Islamic education system.

Therefore, a comprehensive and inclusive approach is needed in building awareness of the importance of scientific integration, both at the academic level and at the practical level.⁷ In addition, the problem of

⁶ Solihah Titin Sumanti et al., "Development of the Study of Islamic Education in Scopus Indexed International Publications in 2017-2022: Bibliometric Analysis," *Educational Administration: Theory and Practice*, 2024, <https://doi.org/10.53555/kuey.v30i6.1005>.

⁷ Adiyono Adiyono, Agus Zaenul Fitri, and Ali Said Al Matari, "Uniting Science and Faith: A Re-STEAM Interdisciplinary Approach in Islamic Education

integrating science and religion at the strategic level of governance in secondary education institutions often lies in the lack of synergy between the curriculum and the vision of the institution. The curriculum tends to separate science as empirical knowledge and religion as normative doctrine, without bridging the two philosophically and pedagogically. This is exacerbated by education policies that have not provided holistic integrative guidelines. As a result, teachers and school management have difficulty designing epistemologically integrated learning.⁸

On the other hand, the implementation of the integration of science and religion also offers various opportunities, especially in the context of improving the quality of Islamic education that is more comprehensive and oriented to the needs of the times. With an integrative approach, Islamic educational institutions can produce graduates who are not only superior in scientific aspects but also have a strong spiritual awareness, so that they can become agents of change who contribute positively to society. In addition, scientific integration can also be a means to strengthen the relevance of Islamic educational institutions in the midst of global competition by presenting an inclusive and innovative educational model.⁹ Thus, this study has theoretical urgency and is expected to contribute to formulating Islamic education policies and strategies that can accommodate the development of modern science while maintaining noble Islamic values. Through effective governance, the integration of science and religion can be realized optimally, so that Islamic educational institutions can become centers of knowledge development that are balanced between worldly and *ukhrawi* aspects.

Method

This research uses the library research method as the main approach in analyzing the governance strategy of Islamic educational institutions based on scientific integration between science and religion. The literature study was chosen to gain an in-depth understanding of the concepts, principles, and best practices in scientific integration in Islamic educational institutions

Learning," *International Journal of Social Learning (IJS�)* 4, no. 3 (August 31, 2024): 332–55, <https://doi.org/10.47134/ijsl.v4i3.281>.

⁸ Farah Ahmed and Safaruk Chowdhury, "Rethinking Contemporary Schooling in Muslim Contexts: An Islamic Conceptual Framework for Reconstructing K-12 Education," *Educational Philosophy and Theory* 57, no. 2 (January 28, 2025): 152–65, <https://doi.org/10.1080/00131857.2024.2411325>.

⁹ Ali Hossein Khani, "Islam And Science: The Philosophical Grounds For A Genuine Debate," *Zygon: Journal of Religion and Science* 55, no. 4 (December 2, 2020), <https://doi.org/10.1111/zygo.12646>.

through the study of various relevant literature.¹⁰ The primary data analyzed were the Madrasah Tsanawiyah and Aliyah Curriculum from the Ministry of Religious Affairs of the Republic of Indonesia, the Decree of the Director General of Pendis of the Ministry of Religious Affairs on the development of research-based madrasah and scientific integration, and journals, books, and other relevant documents as supporting data. Data collection techniques are carried out by tracing, identifying, and analyzing various references that have high relevance to the research topic. The data analysis process was carried out in a qualitative-descriptive manner, using a content analysis approach to explore conceptual understanding and formulate a synthesis of various existing perspectives as shown in Figure 2. This analysis aims to identify thematic patterns related to effective governance strategies in realizing Islamic education based on scientific integration.¹¹

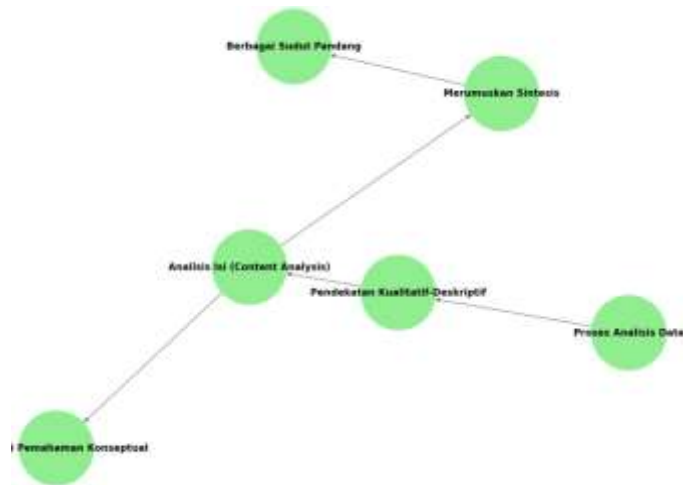


Figure 2. Systematization of Analysis

Result and discussion

This section discusses in depth the governance strategies of Islamic education institutions based on scientific integration in an effort to bridge science and religion. In the world of modern education, the integration of

¹⁰ Darcy E. Furlong and Jessica Nina Lester, "Toward a Practice of Qualitative Methodological Literature Reviewing," *Qualitative Inquiry* 29, no. 6 (July 31, 2023): 669–77, <https://doi.org/10.1177/10778004221131028>.

¹¹ Weng Marc Lim, "What Is Qualitative Research? An Overview and Guidelines," *Australasian Marketing Journal*, July 25, 2024, <https://doi.org/10.1177/14413582241264619>.

science and religious values is both a challenge and an opportunity for Islamic educational institutions to produce graduates who have a balance between scientific and spiritual understanding. This discussion will explore the approaches applied, the challenges faced, and the opportunities that can be utilized to create a holistic and competitive education system, while adhering to moderate and inclusive Islamic values¹² as listed in figure 3.

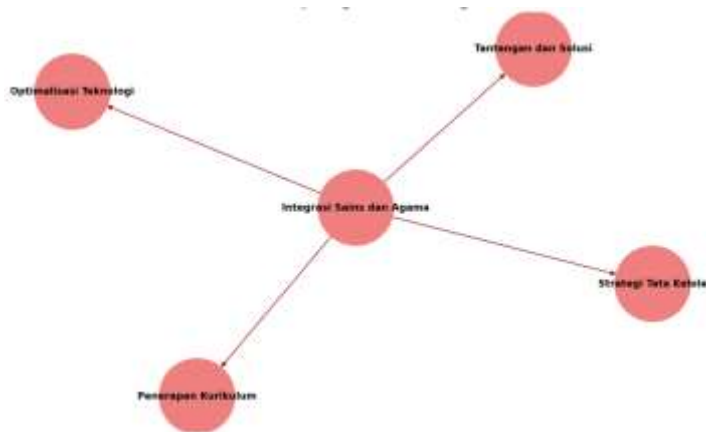


Figure 3. Subject Matter Map

1. Optimizing Stakeholders in Realizing the Integration of Science and Religion in Secondary Education Institutions

To realize scientific integration in Islamic educational institutions, each educational unit should focus on developing a vision and mission based on scientific integration. Educational institutions that have successfully implemented this concept tend to have a vision that emphasizes harmony between modern science and Islamic values. This vision is implemented through the preparation of a curriculum that accommodates both aspects, as well as the development of educators who have a deep understanding of the integration of science and religion. In addition, the mission of educational institutions is directed at strengthening research based on scientific integration and developing

¹² Zainal Abidin Bagir, “Integrasi Ilmu Dan Agama: Interpretasi Dan Aksi,” Bandung: Mizan Pustaka, 6, no. 1 (2005).

interdisciplinary learning models that are able to respond to the development of science in an Islamic manner.¹³

Collaboration with stakeholders is a key factor in supporting the implementation of science and religion integration. Islamic education institutions work with various parties, such as the government, religious organizations, research institutions, and the industrial world to strengthen synergies in curriculum development, training of educators, and provision of learning resources that support the integration of science.

Through this collaboration, a network is created that enables scientific exchange and strengthens the capacity of institutions in facing the challenges of globalization. The results of this study indicate that the management of Islamic education based on the integration of science and religion can run effectively if supported by a clear vision and strong collaboration with various stakeholders.

Another factor that is of major concern in the results of this study is increasing the capacity of educators to understand the integrative approach. One of the challenges faced by Islamic education institutions is the limited understanding of teachers and lecturers of the concept of scientific integration. Therefore, various training programs and workshops have been implemented to improve the competence of educators in adopting approaches that align science and religion in the learning process. The evaluation results show that after attending the training, there is an increase in educators' understanding and skills in developing and delivering materials based on scientific integration.¹⁴

2. Implementation of Curriculum Based on Scientific Integration

The implementation of a curriculum based on scientific integration in various Islamic educational institutions shows a variety of approaches in an effort to bridge science and religion. Case studies conducted in several Islamic schools and universities indicate that the scientific integration model is applied in various ways, such as curriculum development based on the interconnection between religious and general sciences, the application of interdisciplinary teaching methodologies, and

¹³ Mohammad Muslih et al., "Al-Qur'an-Based Paradigm in Science Integration at The Al-Qur'an Science University, Indonesia," *HTS Teologiese Studies / Theological Studies* 80, no. 1 (2024), <https://doi.org/10.4102/hts.v80i1.9459>.

¹⁴ Epon Ningrum, "Pengembangan Sumber Daya Manusia Bidang Pendidikan," *Jurnal Geografi Gea* 9, no. 1 (2016), <https://doi.org/10.17509/gea.v9i1.1681>.

the adjustment of teaching materials that accommodate Islamic values in each field of study.¹⁵

For example, in science subjects such as biology and physics, scientific concepts are linked to Islamic teachings to provide learners with a holistic understanding. In addition, some educational institutions have developed tawhid value-based learning modules, which aim to instill an understanding that science is part of an effort to recognize and understand the greatness of God.

Evaluation of the effectiveness of the integrative learning model shows that this approach has a positive impact on the quality of education. Based on observations and interviews with educators and students, it was found that the integrative learning model is able to improve students' conceptual understanding, strengthen spiritual and moral values, and encourage critical thinking that is in line with Islamic teachings. Students are not only able to understand science from an empirical aspect, but also able to relate it to religious values that shape their character. However, challenges in implementing a curriculum based on scientific integration are still encountered, such as the lack of competent human resources in both fields of science, limited references that support the interdisciplinary approach, and resistance from some parties who still see a dichotomy between religion and science.¹⁶

To overcome this challenge, some institutions have conducted training for educators to improve their understanding of the concept of scientific integration. In addition, collaboration with various higher education institutions and Islamic organizations is one of the strategies in strengthening the implementation of the curriculum. With continuous efforts and support from various stakeholders, it is hoped that the integrative learning model can continue to develop and contribute to forming a generation that is not only superior in science but also has strong spiritual values.¹⁷

¹⁵ Moch. Zakki Mubarak, "Strategi Manajemen Kurikulum Berbasis Integrasi Sains Dan Agama Di Madrasah," *JIEES : Journal of Islamic Education at Elementary School* 5, no. 1 (2024).

¹⁶ Carola Leicht et al., "Content Matters: Perceptions of the Science-Religion Relationship," *The International Journal for the Psychology of Religion* 32, no. 3 (July 3, 2022): 232–55, <https://doi.org/10.1080/10508619.2021.2003111>.

¹⁷ Kusnandi Kusnandi, "Integrasi Kurikulum Berbasis Pesantren Pada Lembaga Pendidikan," *Jurnal Kependidikan* 5, no. 2 (2017), <https://doi.org/10.24090/jk.v5i2.2138>.

Based on the explanation above, to realize scientific integration, an ideal and integrative educational curriculum formulation is needed. The curriculum harmonizes the science of religion and science in a unified whole as shown in Figure 4. The curriculum is designed based on the value of tawhid, with an interdisciplinary approach that links scientific concepts with Islamic teachings to form a holistic understanding. Teaching materials are organized to be academically and spiritually relevant, and encourage critical thinking based on Islamic values. The implementation is supported by competent educators in both fields, as well as the availability of integrated learning references and modules. Collaboration between educational institutions and Islamic organizations is the key to strengthening the integration. With this kind of curriculum, it is expected to create a generation that is intellectually superior, has noble character, and has a high spiritual awareness in facing the challenges of the times.



Figure 4.
Curriculum Integration Pattern

3. Technology Optimization in Supporting the Integration of Science and Religion

In today's digital era, technology has a very significant role in supporting the integration of science and religion in Islamic educational

institutions. The utilization of digital technology in delivering materials based on scientific integration has opened up great opportunities for educational institutions in developing more interactive and effective learning methods.¹⁸ With digital technology, the concept of integrating science and religion can be delivered comprehensively through various attractive media, such as learning videos, interactive simulations, and online platforms that allow collaboration between students and teachers. Technology also enables the visualization of abstract concepts in Islam that were previously difficult to understand using conventional methods, such as the interrelationship between Qur'anic verses and modern scientific theories in cosmology, biology, and physics.

The utilization of digital technology also allows wider and deeper access to various sources of knowledge. With digital platforms such as electronic libraries, online scientific journals, and education-based social media, students can access references that support an interdisciplinary approach. This allows for more open and collaborative learning, where students can understand the relationship between science concepts and religious values in a broader context. In addition, digital technology also allows flexibility in the delivery of materials, so that students can learn according to their own pace and learning style. By utilizing technologies such as artificial intelligence (AI) and big data analysis, educators can also customize the curriculum according to the specific needs of students in understanding scientific integration.¹⁹

In addition to the general utilization of digital technology, the use of e-learning platforms has become an effective solution in supporting interdisciplinary studies in Islamic educational institutions. E-learning platforms such as Moodle, Google Classroom, and specialized Learning Management Systems (LMS) developed by Islamic educational institutions have provided opportunities to combine general knowledge with Islamic perspectives in one structured learning space, as shown in Figure 5.

¹⁸ Zainun Mustafa, Azizan Baharuddin, and Shaikh Mohd Saifuddeen, "Islam, Science and Education: Delving into the Progress, Collaboration and Biases," *Journal of Islamic Thought and Civilization* 11, no. 2 (September 16, 2021), <https://doi.org/10.32350/jitc.112.03>.

¹⁹ Saiful Saiful, "Sistem Pendidikan Islam, Integrasi Ilmu Pengetahuan Agama Dan Teknologi Digital," *JlIP - Jurnal Ilmiah Ilmu Pendidikan* 6, no. 2 (2023), <https://doi.org/10.54371/jiip.v6i2.1659>.

In this platform, science materials can be presented along with relevant Qur'anic commentaries, hadith, and Islamic values that can provide holistic insights to learners. Through e-learning, Islamic educational institutions can also present courses oriented towards scientific integration, such as the philosophy of Islamic science, scientific ethics in an Islamic perspective, and the contribution of Muslim scientists to the development of modern science.²⁰

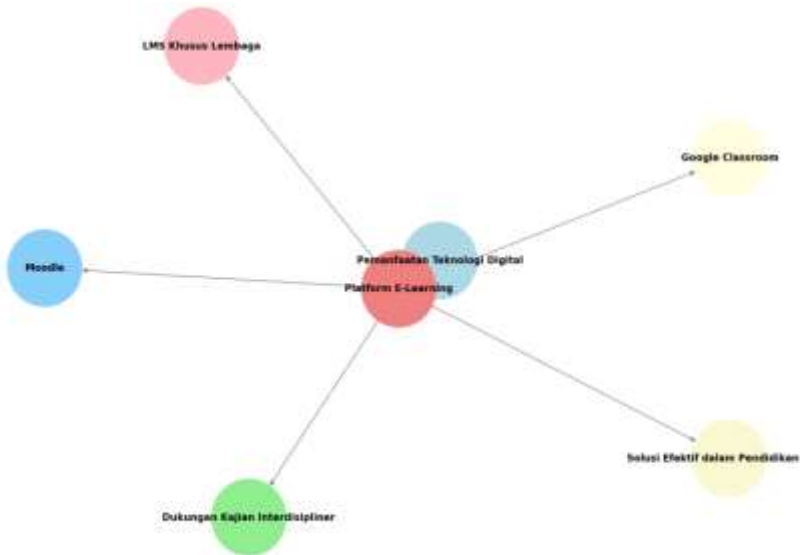


Figure 5.
Optimizing the Use of Learning Technology

The e-learning platform also enables the involvement of experts from various scientific fields in the learning process. Collaboration between scientists and scholars through webinars, online panel discussions, and virtual workshops has enriched learners' understanding of the interconnections between science and religion. Interactive features such as discussion forums, integrative competency evaluation-based quizzes, as well as online collaborative projects allow students to not only

²⁰ Adiyana Adam, "Integrasi Media Dan Teknologi Dalam Pembelajaran Pendidikan Islam," *Amanah Ilmu: Jurnal Kependidikan Islam* 3, no. 1 (2023).

passively receive materials, but also actively contribute their thoughts and understanding of issues related to the integration of science and religion.²¹

While the use of technology in supporting the integration of science and religion provides many benefits, there are challenges that need to be overcome. Some of these include limited infrastructure in some Islamic education institutions, a lack of training of educators in the use of technology, and the digital divide among students. Therefore, it is important for educational institutions to invest in human resource development and technology infrastructure to ensure optimal technology utilization. Overall, the integration of digital technology in Islamic education is instrumental in building a more inclusive, modern, and relevant approach to the times. With a good governance strategy, the use of technology can strengthen collaboration between science and religion and equip students with holistic and integrative scientific insights.²²

Technology plays an important role in shaping the paradigm of science and science integration in educational institutions by providing digital platforms that facilitate collaboration, access to interdisciplinary learning resources, and integrated curriculum development. For stakeholders, technology enables integrated mapping of Islamic and scientific materials through e-learning, learning management systems, and AI-based applications. This supports data-driven decision-making and strengthens the synergy between academics and spirituality. Technology also makes it easier to train teachers in understanding the integrative approach.²³

4. Challenges and Solutions in Realizing Scientific Integration

The implementation of scientific integration in Islamic educational institutions faces various complex challenges, including aspects of policy, human resources (HR), and infrastructure. In the policy aspect, the main

²¹ Jahidih Saili, Muhamad Suhaimi Taat, and Nurul Hamimi Awang Japilan, "21st Century Teaching And Learning Revolution: An Analysis Of Islamic Education Teachers' Technological Competency In The Context Of Sirah And Islamic Civilisation," *International Journal of Modern Trends in Social Sciences* 7, no. 27 (June 23, 2024): 14–25, <https://doi.org/10.35631/IJMTSS.727002>.

²² Nur Azaliah Mar, "Integration of Technology and Islamic Education in the Digital Era: Challenges, Opportunities and Strategies," *Journal of Scientific Insights* 1, no. 1 (June 30, 2024): 01–08, <https://doi.org/10.69930/jsi.v1i1.74>.

²³ Saleh Abdullah Alabdulkareem, "Exploring the Use and the Impacts of Social Media on Teaching and Learning Science in Saudi," *Procedia - Social and Behavioral Sciences* 182 (May 2015): 213–24, <https://doi.org/10.1016/j.sbspro.2015.04.758>.

challenge faced is the absence of national standards that explicitly regulate the integration model of science and religion in the Islamic education curriculum. Educational policies that are still oriented towards a dichotomous approach between religious and general sciences cause difficulties in preparing a truly holistic and integrated curriculum. In addition, the limited regulatory support that facilitates synergy between academics, educational practitioners, and the government in developing integrative learning models also slows down the process of implementing scientific integration.²⁴

In terms of human resources, the challenges that arise include the limited number of educators who have a deep understanding of the concept of scientific integration. Many teachers and lecturers are still trapped in the classical paradigm that separates science and religion, so they are less prepared to apply integrative learning methods. In addition, the lack of training and competency development for teaching staff in pedagogical aspects and methodologies based on scientific integration is a significant obstacle. In some Islamic educational institutions, it was found that teachers with a religious education background lacked an understanding of the development of modern science, while those with a science background tended to lack a deep understanding of Islamic concepts and values.

Another challenge faced is the limited supporting infrastructure in Islamic educational institutions. Laboratory facilities, adequate libraries, and access to learning resources relevant to the integration of science and religion are still very limited. This limitation causes the learning process based on research and exploration to be less than optimal.²⁵ In addition, the availability of digital learning media that can bridge between Islamic concepts and scientific developments is also still minimal in many Islamic educational institutions, so scientific integration often only takes place theoretically without concrete applications.

Despite facing various challenges, there are several solutions that can be applied based on best practice experiences from institutions that have successfully implemented the integration of science and religion. One

²⁴ Asnawan Asnawan, "Enhancement Integrated Quality Management in Islamic Education Institutions," *Bulletin of Science Education* 1, no. 1 (January 18, 2021): 42, <https://doi.org/10.51278/bse.v1i1.108>.

²⁵ Haihui Zhang, "Assessing the Impact of Technology Integration on Educational Management Research," *Region - Educational Research and Reviews* 5, no. 4 (November 17, 2023): 103, <https://doi.org/10.32629/rerr.v5i4.1316>.

solution that has proven effective is the development of a curriculum based on scientific integration that involves various stakeholders, including academics, educational practitioners, and religious leaders. This collaboration allows the development of a curriculum that is not only in line with the demands of modern science but also in line with Islamic values. For example, some educational institutions have successfully developed subjects that link science concepts with Islamic teachings in a contextual and applicable manner. Strengthening human resource capacity is also a key solution in realizing scientific integration. Continuous training programs and workshops for educators in understanding the concept of integration and its application in the learning process can improve teacher readiness in delivering holistic material. In addition, the development of technology-based learning methods, such as e-learning and digital media that integrate science content and Islamic values, can be an alternative to overcome the limitations of physical infrastructure.

From the infrastructure aspect, solutions that can be implemented include utilizing digital technology to expand access to relevant learning resources, such as scientific journals, e-books, and interactive learning videos. Strengthening cooperation with higher education institutions that have implemented scientific integration is also a strategic step in sharing resources and experiences. Islamic education institutions can build partnerships with Islamic-based universities that already have established scientific integration programs to accelerate the implementation process at the secondary and primary levels. Overall, although there are various obstacles in the aspects of policy, human resources, and infrastructure, strategic efforts involving multi-stakeholder collaboration and the use of technology can be an effective solution in realizing the integration of science and religion in Islamic educational institutions.²⁶

Conclusion

Modern Islamic education is expected to integrate science with religious values. This challenge is also an opportunity for Islamic educational institutions to produce graduates who have a balance between scientific and spiritual insights. To realize scientific integration in Islamic educational

²⁶ Khozin Khozin and Umiarso Umiarso, "The Philosophy and Methodology of Islam-Science Integration: Unravelling the Transformation of Indonesian Islamic Higher Institutions," *Ulumuna* 23, no. 1 (June 25, 2019): 135-62, <https://doi.org/10.20414/ujis.v23i1.359>.

institutions, each educational institution is expected to focus on developing a vision and mission based on the concept of scientific integration. The implementation of a curriculum that integrates various disciplines in Islamic educational institutions shows a variety of approaches in connecting science with religion.

Based on the literature study in this research, it was found that scientific integration is realized through various strategies, such as curriculum development that connects religious and general sciences, the application of interdisciplinary learning methods, and the adjustment of teaching materials that integrate Islamic values in each field of study. In addition to this, the utilization of digital technology in the delivery of materials that integrate various disciplines has created extensive opportunities for educational institutions to design more interactive and efficient learning methods. In addition, the implementation of scientific integration in Islamic educational institutions faces a variety of complex challenges, including aspects of policy, human resources (HR), and infrastructure. In the policy aspect, the main challenge faced is the absence of national standards that clearly regulate the alignment model between science and religion in the Islamic education curriculum.

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