JKPI: Jurnal Konseling Pendidikan Islam
P–ISSN: 2655-9692
E-ISSN: 2746-5977
Vol.6, No. 3, September 2025

INTEGRATION OF DEEP LEARNING TECHNOLOGY IN ISLAMIC RELIGIOUS EDUCATION (PAI)

[*1]Siti Yahriyah, [*2]Rakhmawati, [3]Moh. Nasikin, [4]Titis Setyaningrum, [5]Ragusfi Bhuena Ventura, [6]Anas Hadi
[*1,2,3,4,5,6]Universitas Darul Ulum Islamic Center Sudirman GUPPI
Email: [*1]sumayahcute@gmail.com, [2]rakhmawatii86@gmail.com, [3]mochnasikinrsud@gmail.com, [4]setyaningrumtitis@gmail.com, [5]ragusfibv@gmail.com [6]imamhadianas309@gmail.com,

Abstract
This study examines how deep learning is incorporated into the Independent Curriculum for Islamic Religious Education (PAI). Using a qualitative approach based on literature study, this study finds opportunities, problems, and new models to support students' deep understanding and strengthening of Islamic character. Through technology-based approaches such as digital platforms, interactive applications, and project-based learning, deep learning has great potential to improve students' understanding of Islam. Students can not only understand Islamic concepts academically but also apply them in their daily lives with the help of this technology. However, several obstacles hinder the implementation of deep learning, such as limited technological infrastructure, teacher and student readiness, and the challenge of balancing the use of modern technology with the preservation of Islamic values. Therefore, this study proposes a model that combines Islamic values with modern technology, such as AI and adaptive learning systems. This model aims to improve the cognitive, affective, and psychomotor aspects of the overall learning experience. In addition, this study suggests ways to improve teachers' abilities through special training, strengthen government policies on the digitalization of education, and encourage the development of technology based on Islamic principles. The results of this study are expected to encourage the implementation of in-depth learning in the Independent Curriculum, improve Islamic Religious Education learning, and instill Islamic character in students that are in accordance with the needs of the digital age. Therefore, technology integration can help in-depth learning while maintaining the core of Islamic teachings.
Keywords: Deep Learning, Islamic Education, Educational Technology

Abstrak
Kajian ini melihat bagaimana pembelajaran mendalam dimasukkan ke dalam Kurikulum Merdeka untuk Pendidikan Agama Islam (PAI). Dengan menggunakan pendekatan kualitatif berbasis studi pustaka, penelitian ini menemukan peluang, masalah, dan model baru untuk mendukung pemahaman mendalam dan penguatan karakter Islami siswa. Melalui pendekatan berbasis teknologi seperti platform digital, aplikasi interaktif, dan pembelajaran berbasis proyek, pembelajaran mendalam memiliki potensi besar untuk meningkatkan pemahaman siswa tentang Islam. Siswa tidak hanya dapat memahami konsep keislaman secara akademis tetapi juga dapat menerapkannya dalam kehidupan

sehari-hari dengan bantuan teknologi ini. Namun, beberapa hambatan menghalangi penerapan deep learning, seperti keterbatasan infrastruktur teknologi, kesiapan guru dan siswa, serta tantangan untuk mengimbangi penggunaan teknologi modern dengan pelestarian nilai-nilai Islam. Karena itulah, penelitian ini mengusulkan model yang menggabungkan nilai-nilai Islam dengan teknologi modern, seperti AI dan sistem pembelajaran adaptif. Model ini bertujuan untuk meningkatkan aspek kognitif, afektif, dan psikomotorik pengalaman belajar secara keseluruhan. Selain itu, penelitian ini menyarankan cara-cara untuk meningkatkan kemampuan guru melalui pelatihan khusus, memperkuat kebijakan pemerintah tentang digitalisasi pendidikan, dan mendorong pengembangan teknologi yang didasarkan pada prinsip Islam. Hasil penelitian ini diharapkan dapat mendorong penerapan pembelajaran mendalam dalam Kurikulum Merdeka, meningkatkan pembelajaran PAI, dan menanamkan karakter Islami kepada siswa yang sesuai dengan kebutuhan zaman digital. Oleh karena itu, integrasi teknologi dapat membantu pembelajaran yang mendalam sambil mempertahankan inti dari ajaran Islam.
***Kata kunci**: Deep Learning, Pendidikan Islam, Teknologi Pendidikan*

INTRODUCTION

Education in the digital age faces major challenges in providing learning that is in line with technological advances and the demands of the twenty-first century. The Merdeka Curriculum was created as a strategic step to increase flexibility and creativity in learning. This curriculum allows for the integration of technology, such as the deep learning approach. This method uses exploration, active engagement, and critical analysis to emphasize deep understanding. This is in line with the message of Prof. Dr. Abdul Mu'ti, M.Ed., Minister of Primary and Secondary Education, who emphasized that innovative technology-based approaches are essential to encourage more contextual and meaningful learning. In the context of Islamic Religious Education (PAI), the application of this technology requires a careful approach to ensure that Islamic values remain alive while taking advantage of the innovation opportunities offered by modern technology.

The concept of deep learning in Islamic religious education is very relevant given the difficulties faced by teachers and students in managing learning in accordance with religious values. Deep learning not only focuses on understanding academic material, but also integrates Islamic moral and ethical values, which are an important foundation in PAI education. In today's digital age, technologies such as artificial intelligence and data-based learning can provide greater support for students and teachers to understand values. As stated in the Qur'an Surah Al-Mujadalah (58:11):

يٰٓاَيُّهَا الَّذِيْنَ اٰمَنُوْٓا اِذَا قِيْلَ لَكُمْ تَفَسَّحُوْا فِى الْمَجٰلِسِ فَافْسَحُوْا يَفْسَحِ اللّٰهُ لَكُمْۚ وَاِذَا قِيْلَ انْشُزُوْا فَانْشُزُوْا يَرْفَعِ اللّٰهُ الَّذِيْنَ اٰمَنُوْا مِنْكُمْۙ وَالَّذِيْنَ اُوْتُوا الْعِلْمَ دَرَجٰتٍۗ وَاللّٰهُ بِمَا تَعْمَلُوْنَ خَبِيْرٌ ١١

Meaning: "O you who believe! When you are told, ‘Make room in assemblies,’ then make room; Allah will make room for you. And when you are told, ‘Stand up,’ then stand up; Allah will raise those of you who believe several degrees. And Allah is Well-Aware of what you do."

These verses are important as a foundation on which technology can be used to improve the quality of education in academic and religious terms. By integrating deep learning,

learning spaces can be created that not only enrich students' religious knowledge but also strengthen their Islamic character. Freedom gives teachers more freedom to tailor learning to the needs and potential of students.

The research question focuses on how deep learning can be effectively incorporated into the free curriculum for Islamic Religious Education (PAI). This study examines the opportunities, difficulties, and models of integrating this technology to produce students who are not only academically excellent but also have strong Islamic character.

The novelty of this research lies in its specific emphasis on the application of deep learning in Islamic Religious Education (PAI) in the Merdeka Curriculum. Deep learning has been applied in various aspects of general education, but it is rare for people to talk about how to apply it in the context of PAI while maintaining strong Islamic values.

This research provides deep insights into how technology can be used in PAI learning to enhance students' spiritual and moral understanding. In addition, this research presents creative models that can be used to enhance technology-based learning experiences while maintaining Islamic values, which are the main foundation of education.

The research arguments are significantly supported by the theories outlined in this article, especially the concepts of digitization and deep learning. These concepts help explain how technology can be used to teach PAI while maintaining Islamic values (A. H. I. M. G. O. N. Azizah 2022). Previous studies provide an empirical basis for identifying challenges and opportunities in the application of technology in Islamic education, reinforcing the argument about the relevance and novelty of this study (Nugroho 2015). These theories support the research argument by showing that the integration of deep learning can have a positive impact on PAI learning, both academically and spiritually (Isti'ana 2024).

In a study, there are several models that can be used to optimize technology-based learning while maintaining Islamic values, which are an important component of Islamic religious education. This research is relevant to addressing the challenges of 21st-century education, where learning requires students who are not only academically intelligent but also moral and resilient (Rohmah and Sholikhah 2024). By understanding the implementation of the Merdeka Curriculum comprehensively, we hope to find the right way to overcome various existing problems and maximize the potential of this curriculum to produce useful, quality, and relevant PAI learning.

METHOD

This study uses a qualitative approach with a library research method to explore the integration of deep learning technology in the Merdeka Curriculum in Islamic Religious Education (PAI). This approach aims to gain an in-depth understanding of themes related to technology, Islamic values, and educational innovation. The main data sources include books, scientific journals, previous research, government documents, and relevant academic studies.

The analysis procedure used in this study is thematic analysis, which aims to identify patterns of relationships between the concept of deep learning and the application of the Merdeka Curriculum. Through this analysis, the study explores how technology can be effectively integrated to strengthen Islamic values-based education, while overcoming challenges such as the digital divide. The main focus of the study is to create inclusive, meaningful, and contextual PAI learning in accordance with the principles of the Merdeka Curriculum.

RESULTS AND DISCUSSION

Opportunities for Integrating Deep Learning into the Merdeka Curriculum

By incorporating deep learning into the Merdeka Curriculum, there is a great opportunity to improve Islamic Religious Education (PAI) learning. By using a more in-depth and contextual approach, deep learning can improve students' understanding of PAI material while teaching them 21st-century skills such as creativity, critical thinking, and collaboration (Isti'ana 2024). Technology-based PAI learning innovation is a learning method that uses technology to enhance the learning experience of students. This innovation aims to create a learning environment that is more interactive, individualized, and tailored to the unique needs of students (A. H. I. M. G. O. N. Azizah 2022). Here are some important components of technology-based PAI innovation. Technological tools such as online learning platforms, interactive applications, and others help optimize the learning process (Rohmah and Sholikhah 2024).

Students can access learning resources anytime and anywhere, enabling more contextual and flexible learning according to their individual circumstances. In Islamic Religious Education (PAI), deep learning allows students to understand the material in a more profound way. This method focuses not only on memorization but also on the application of Islamic principles in daily life, so that students can implement their knowledge in various real-life situations. Project-based learning is one example of the implementation of deep learning in PAI. In this approach, students are given projects that require them to study Islamic themes such as fiqh, akhlak, and Islamic history. This implementation is carried out through lesson plan planning with an independent curriculum as a teaching module, as well as project implementation that involves students in identifying problems, developing solution ideas, creating prototypes, and testing the results. Supporting factors in this model include the teacher's mastery of the material, the selection of projects that are appropriate for the characteristics of the students, and the optimal use of resources. However, there are also inhibiting factors such as the need for a lot of time, high costs, and the need for various media. To overcome these obstacles, it is recommended that teachers receive training in developing professionalism to implement PBL, as well as good time management so that projects can be adjusted to their duration (Ulum et al. 2025). Technologies such as interactive media, virtual simulations, and online collaboration help deepen their understanding and connect the material to modern contexts.

Strengthening Islamic Character and Values

This innovation not only increases students' religious knowledge but also nurtures their character in accordance with Islamic moral and spiritual principles (Rohmah, N., & Sari 2022). Technology is used to encourage broader learning that encompasses cognitive, affective, and psychomotor skills.

Challenges of Implementing Deep Learning in the Merdeka Curriculum

There are many challenges to implementing deep learning in the Merdeka Curriculum. These include limitations in infrastructure, teacher capabilities, student readiness, and the cultural and moral impact of Islam on the use of advanced technology. To ensure the successful implementation of deep learning in Islamic Religious Education (PAI), these issues must be addressed. Infrastructure barriers are one of the main obstacles, especially in economically disadvantaged areas. Technological equipment, stable internet networks, and other digital learning tools remain a challenge for many schools. This situation hinders the use of deep learning, which requires adequate access to technology. Therefore, building technological infrastructure, especially in remote areas, requires support from the government and related parties. A study shows that challenges such as the readiness of technological infrastructure in schools, the availability of adequate training for teachers, and proper content management remain the main focus in optimizing the use of technology for PAI learning in Indonesia (Hasanah 2025).

In addition, teachers' competence in using educational technology is also a significant challenge. Not all teachers have the ability to manage digital platforms, understand data analytics, and apply student-centered learning methods. Efforts such as intensive training and technology-based curriculum development are needed to improve teachers' skills and confidence in adopting advanced technology in the learning process.

The ability of students to adapt to technology-based learning must also be considered. Certain students lack the confidence and skills necessary to use technology. Students from different socioeconomic backgrounds have different opportunities to use digital learning. To overcome this problem, gradual student mentoring and technical support are needed.

In addition, it is important to consider the impact of Islamic culture and principles on the use of technology. The use of advanced technology in Islamic education should not neglect moral and spiritual principles. It is essential that Islamic values are incorporated into every aspect of technology-based learning to maintain a balance between technological advancement and Islamic educational values. Approaches such as project-based learning (PBL) have proven effective in creating holistic learning. Through PBL, students not only develop academic knowledge, but also social skills, creativity, problem solving, and critical thinking. This is because PBL encourages students to actively engage in projects that are relevant to real life, allowing them to integrate various aspects of learning into one integrated activity (Ediana et al. 2023).

Overall, the implementation of deep learning in the Merdeka Curriculum requires an integrated strategy, cross-sector support, and an approach that takes into account cultural aspects and Islamic values. Thus, modern technology can be used as a tool to enrich PAI education without sacrificing the essence of Islamic teachings. One learning model that can be adopted is Artificial Intelligence (AI)-based, which is designed to support holistic learning of character and Islamic values. With strategic steps, deep learning has great potential to become an innovation that strengthens religious education in the digital age.

Artificial Intelligence (AI) Application-Based Learning Model

An artificial intelligence-based learning model specifically designed to support Islamic Religious Education (PAI) offers an innovative approach that integrates modern technology with Islamic values. Various outstanding features of this model are intended to improve the quality of learning, including personalized learning paths, interactive Islamic content, and Islamic values-based evaluation. Personalized learning paths, based on in-depth data analysis, allow students to obtain materials that suit their needs, abilities, and interests, providing a relevant and effective learning experience so that students can understand Islamic concepts more deeply. In addition, this application provides interactive Islamic content, such as videos, simulations, and Artificial Intelligence (AI)-based activities, which are designed to strengthen students' understanding of the values of faith, morals, and worship. This feature makes learning more interesting and motivates students to be more active in the learning process. Not only that, but the learning evaluation is also designed comprehensively, taking into account cognitive aspects and the practice of Islamic values. The application can provide in-depth feedback on how students understand Islamic teachings and encourage them to apply these values in their daily lives through the use of artificial intelligence (AI) algorithms. This learning model combines Islamic values and modern technology to create a dynamic, flexible, and meaningful learning process. However, it still maintains Islamic educational values (N. Azizah et al. 2025).

Deep Learning-Based Projects with Islamic Values

A great opportunity to improve students' skills in Islamic Religious Education (PAI) is through deep learning-based projects, which combine advanced technology with experience-based learning (Santoso 2025). Islamic Scientific Projects are one form of these projects, in which artificial intelligence is used to support in-depth research on topics such as Islamic history, Qur'anic interpretation, and hadith analysis. In addition, collaborative learning can be implemented with AI platforms, which allow students to work together virtually to discuss religious topics further. These programs not only encourage students to master technology, but also help them understand religious principles in innovative ways.

Adaptive Learning Model with Islamic Values

Using an adaptive approach, this learning model can tailor lesson materials to students' unique learning needs while maintaining Islamic principles. Using deep learning

technology, this model enables data analysis to identify student learning patterns and tailor lesson material to support a more effective learning process. Cultural and religious values are incorporated into the learning, making this model contextual and inclusive. This method ensures that students not only receive lessons that are relevant to the local context, but also gain a deep understanding of Islamic teachings.

Use of Artificial Intelligence (AI)-Based Educational Chatbots

Chatbots specifically designed for Islamic religious education (PAI) use deep learning technology. These chatbots can help students learn more about Islamic teachings through interactive questions and relevant answers. They can also understand the context of students' questions and provide answers in line with Islamic values (Lailiya Rachmawati Syarif 2025). To get started, teachers must be trained in the use of this technology. Artificial Intelligence (AI) and deep learning in the learning process, it is also important to ensure that the applications or platforms used are equipped with features that support the integration and preservation of Islamic values in every aspect of learning. This article makes a significant contribution by filling the gap in previous research through its focus on the integration of deep learning technology to enrich PAI learning while maintaining Islamic values. In further development, the research strategy includes the development of technology-based learning models for religious subjects, analysis of the long-term impact of deep learning technology on strengthening Islamic values, and an in-depth study of the challenges that arise in integrating technology with an Islamic perspective to produce inclusive and relevant solutions.

CONCLUSION

This study found that incorporating deep learning technology into the Merdeka Curriculum is an important strategic step to improve Islamic Religious Education (IRE) learning. The main finding of this study is that deep learning technology has the potential to improve students' understanding of IRE material and help them learn 21st-century skills such as creativity, critical thinking, and collaboration. By utilizing digital platforms, virtual simulations, and AI applications that are in line with the needs of the times, these opportunities can be maximized. However, its implementation faces many challenges, such as limited technological infrastructure, teacher readiness, the digital divide, and efforts to balance the use of advanced technology with the preservation of Islamic values as the basis for PAI learning.

To improve learning efficiency through a holistic approach that involves cognitive, affective, and psychomotor aspects, this study recommends the development of an AI-based integration model. It is suggested that the government improve digital education policies by upgrading technological infrastructure and providing a special budget for religious education digitization programs.

Meanwhile, intensive training is crucial for educators to improve Islamic education teachers' ability to use deep learning technology, such as managing virtual classrooms and incorporating Islamic values into technology-based learning. Researchers must

discover more about educational technology based on Islamic values if they want to create innovative Islamic education learning applications that are in line with Islamic principles. The impact of this technology's use on student learning and character building requires further research. These findings and recommendations are expected to serve as a strategic basis for developing PAI learning that is appropriate for the digital era while maintaining religious values as an important part of Islamic education.

REFERENCES

Azizah, Abdul Hadi; Imam Mukhlis; Glady Oline; Nurul. 2022. "Pendidikan Islam Dan Tantangan Di Era Revolusi Industri 4.0." Reforma: Jurnal Pendidikan Dan Pembelajaran 11 No. 1:29–41. http://www.jurnalpendidikan.unisla.ac.id/index.php/reforma/article/view/653.

Azizah, Nur, Islam Negeri, Sultan Syarif, and Kasim Riau. 2025. "Pemanfaatan Artifical Intelligence Sebagai Asisten Pendidik Dalam Meningkatkan Kualitas Pembelajaran Pendidikan Agama Islam Di Era Digital" 6:17–23.

Ediana, Dina, Nining Andriani, Aziz Rizki Maftahul Ilmi, and Rosa Zulfikhar. 2023. "Pembelajaran Berbasis Proyek Melalui Aplikasi Dan Platform Web: Kajian Literatur Terhadap Pengembangan Keterampilan Holistik Siswa." Jurnal Review Pendidikan Dan Pengajaran 6 (3): 860–66. https://journal.universitaspahlawan.ac.id/index.php/jrpp/article/view/19498.

Hasanah, Nur. 2025. "Pemanfaatan Media Digital Dalam Pembelajaran Agama Islam Mata Pelajaran Fikih Pada Madrasah Aliyah Negeri (MAN) 3 Medan" 10 (1): 320–26.

Isti'ana, Ais. 2024. "Integrasi Teknologi Dalam Pembelajaran Pendidikan Islam." Indonesian Research Journal on Education 4 (1): 336–44. https://doi.org/10.31004/irje.v4i1.493.

Lailiya Rachmawati Syarif, Syamsul Aripin. 2025. "Inovasi Pembelajaran PAI Melalui Artificial Intelligence (AI)." Ta'lim 4 (1): 172–78.

Nugroho, Muhammad Aji. 2015. "Pemanfaatan Teknologi Informasi Dalam Peningkatan Mutu Pendidikan Islam Di Madrasah." MUDARRISA: Journal of Islamic Education 6 (1): 30. https://doi.org/10.18326/mdr.v6i1.758.

Rohmah, N., & Sari, N. I. 2022. "Pemanfaatan Teknologi Digital Dalam Pembelajaran Pendidikan Agama Islam." Jurnal Iqra 1 (1): 12756–64.

Rohmah, N R, and M Sholikhah. 2024. "Eksplorasi Model Pembelajaran Hybrid Dalam Konteks Pendidikan." Sasana … 2 (2): 108–14. https://doi.org/10.56854/sasana.v2i2.316.

Santoso, Hidayat Edi. 2025. "Integrasi Teknologi Deep Learning Dalam Pembelajaran Pendidikan Agama Islam (PAI) Di Era Digital" 6 (2): 1476–83.

Ulum, Al, Jurnal Pendidikan, Zaroh Nisa Waryanti, Alfian Eko Rochmawan, and Institut Islam. 2025. “KEMAMPUAN BERFIKIR KRITIS SISWA KELAS VIII DI MTS N 6 BOYOLALI” 5 (1): 27–36.