



Deep Learning Approach in The Merdeka Curriculum to Shape Students' Character Through Islamic Religious Education

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ABSTRACT

Curriculum changes always go hand in hand with the needs and problems of students. The decline in character building among students has become a major issue. The Merdeka Curriculum offers a new approach through deep learning that emphasizes deep, meaningful, and reflective learning, rather than simply memorizing concepts. The purpose of this study is to identify the strategies used in the application of deep learning in Islamic Religious Education to shape student character. The research method used is library research by reviewing various relevant literature. The results show that deep learning provides space for teachers to integrate Islamic values into the real lives of students through various strategies. With this approach, students not only understand religious concepts cognitively but also internalize religious values in their daily lives. The implementation of deep learning in IRE has proven to be able to create a learning environment that supports the development of positive character in students. Students are accustomed to thinking critically, reflecting on experiences, and connecting Islamic teachings with the challenges of modern life.

Keywords: *Deep learning, Merdeka Curriculum, Character*

ABSTRAK

Perubahan kurikulum selalu beriringan dengan kebutuhan dan permasalahan peserta didik. Pembentukan karakter peserta didik yang semakin menurun menjadi masalah utama. Kurikulum Merdeka menawarkan pendekatan baru melalui deep learning yang menekankan pembelajaran mendalam, bermakna, dan reflektif, bukan sekadar menghafal konsep. Tujuan penelitian ini adalah mengidentifikasi strategi yang digunakan dalam penerapan deep learning pada pembelajaran Pendidikan Agama Islam dalam untuk membentuk karakter peserta didik. Metode penelitian yang digunakan adalah *library research* dengan menelaah berbagai literatur relevan. Hasil penelitian menunjukkan bahwa *deep learning* memberikan ruang bagi guru untuk mengintegrasikan nilai-nilai Islam ke dalam kehidupan nyata peserta

didik melalui berbagai strategi. Dengan pendekatan ini, peserta didik tidak hanya memahami konsep keagamaan secara kognitif, tetapi juga menginternalisasi nilai religius dalam kehidupan sehari-hari. Implementasi deep learning dalam PAI terbukti mampu menciptakan lingkungan belajar yang mendukung perkembangan karakter positif siswa. Peserta didik dibiasakan berpikir kritis, merefleksikan pengalaman, serta menghubungkan ajaran Islam dengan tantangan kehidupan modern.

Kata Kunci: *Deep learning, Kurikulum Merdeka, Karakter*

INTRODUCTION

Quality education is key to building strong character in students (Dudley, 2025; Mucinskas et al., 2025; Singh, 2019). The learning process should not only focus on the cognitive realm, but also emphasise deep understanding, discipline, positive social interaction, and reinforcing moral and spiritual values (Hasriani et al., 2025). Schools play an important role in encouraging character development that aligns with the nation's development vision. One relevant strategy to achieve this is through the application of a deep learning approach in the learning process at school (Aulia, Ichsan, et al., 2025; Aulia & Nafiisah, 2023; Gamage et al., 2021; Kwangmuang et al., 2021). Through the deep learning approach, students are not only guided to understand the material in depth. Still, they are also trained to relate it to real-life experiences and develop critical, reflective, and collaborative thinking skills (Nurhakiki & Yahfizham, 2024).

Based on Law Number 20 of 2003, Article 3, the National Education System emphasises that one of education's objectives is to shape students' character. Character is one of the strengths of human beings that must be developed or built through education so that individuals who are honest, intelligent, caring, and resilient are born (Suryaningsih & Dessty, 2023). The character-building process can be integrated and combined with the existing curriculum, one of which is the Merdeka Curriculum, which provides space for deep learning. This approach emphasises that learning is not only oriented towards mastery of material, but also towards internalising values, reflective skills, and strengthening students' personalities. Therefore, the ideal curriculum is able to prepare a future generation that is high-quality, has good character, and is in line with the values of Pancasila (Aulia, Rokhimawan, et al., 2025; Kuwoto et al., 2024; Rizaldi & Fatimah, 2022).

Nurpratiwi's (2021) research reveals a decline in morals and ethics and a loss of noble values among the younger generation, which is an urgent problem. Al Fikri (2022) found similar results, showing that rapid technological advances have made students vulnerable to being swept away and falling into deviant behaviour, resulting in a decline in character and the loss of ideological values they should possess. In addition, Zubaedi (2011) emphasised concerns about the nation's future due to moral

degradation among students, where almost every day there are alarming news reports about deviant behaviour among students. This is inseparable from the lack of character education that touches on the deeper aspects of commendable behaviour.

Moral issues among students, such as gang fights and violence against children and adolescents, pose a unique challenge (Dalman et al., 2022). To address this challenge, the Merdeka Curriculum emphasises flexible, essential, and student-centred learning (Aulia et al., 2022; Rokhimawan et al., 2023, 2025). One approach that can support this curriculum is deep learning, which emphasises deep understanding, interconnections between concepts, and the reinforcement of values through critical reflection (Gholam, 2019; Kovač et al., 2025; Weng et al., 2023). In the context of Islamic Religious Education, deep learning not only guides students to understand the material cognitively but also encourages them to internalise moral values, build ethical awareness, and reflect on Islamic teachings in their daily lives (Mahdia & Aisyah, 2022; Ramadhan & Supriatna, 2025). Thus, deep learning is important in fostering students' strong character, critical awareness, and adaptive abilities amid the rapid pace of globalisation and technological developments (Afifatun, 2025; McDiarmid & Zhao, 2023).

Several previous studies have also shown that learning oriented towards deep understanding or deep learning plays an important role in improving the quality of the learning process (Jiang, 2022; Pan et al., 2023; Rahimi & Mosalli, 2025). The results of research by Abdudssyukur and Zulfah (2025) state that IRE learning design can be oriented towards deep understanding, self-reflection, strengthening critical and creative thinking skills, and problem-solving collaboration. Deep learning in IRE learning becomes more meaningful because the material is linked to the students' real experiences. It encourages them to self-reflect and develop their analytical and creative abilities in dealing with religious and social issues.

Another study by Gustina (2025) discusses active learning based on deep learning, focusing on the role and readiness of Islamic Religious Education (IRE) teachers. In the context of the Merdeka Curriculum, the deep learning approach is one of the important innovations that can provide a deep learning experience through reflection, project-based activities, and the habit of applying values in everyday life (Candra & Wahzudik, 2024; Fanani & Rizal, 2025). This approach makes students more independent, creative, and accustomed to applying positive behaviour in their environment (Davies et al., 2013; Fan & Cai, 2022). Based on previous studies, it can be concluded that learning that emphasises deep understanding and internalisation of values has a major contribution to shaping students' character (Mushawir et al., 2025; M. Puspita & Fitrisia, 2025). Therefore, this study focuses on strategies for implementing the deep learning approach in Islamic Religious Education, providing a new paradigm and more effective methods for character building.

This study aims to identify strategies for applying deep learning approaches to Islamic Religious Education in the Merdeka Curriculum to shape and instil strong character in students. In its implementation, this study requires appropriate methods and the selection of relevant data collection techniques to ensure that the results obtained are objective. This study highlights the importance of character education and examines how deep learning can be an innovative solution in the Merdeka Curriculum. Thus, this study is expected to open opportunities for further research and encourage future educational innovation advancement.

METHODS

This study uses a qualitative approach with library research (Sugiyono, 2021). This study aims to describe the implementation strategy of the deep learning approach in the Merdeka Curriculum through Islamic Religious Education (IRE) learning for character building of students. The primary data sources consist of books and peer-reviewed journal articles that specifically discuss deep learning, the Merdeka Curriculum, IRE, and character education. Secondary sources include proceedings, theses, and credible online publications that provide complementary perspectives. This study reviewed 25 sources, comprising 10 books and 15 journal articles.

Data collection techniques were carried out through documentation, namely searching, selecting, and reviewing literature from physical and digital libraries based on topic relevance, source authenticity, recency, and credibility criteria. Each source was read at least twice to ensure accuracy of interpretation, while the most relevant works were read three times for deeper analysis. The instrument used was a literature selection guideline with a checklist to ensure the suitability of sources with the research focus. Data analysis was conducted using descriptive qualitative methods by reading, classifying, and interpreting the data obtained. The classification resulted in three main themes: (1) the concept of deep learning in education, (2) the implementation of the Merdeka Curriculum, and (3) the role of IRE in character building. Each theme was further divided into two to three subthemes to ensure a more systematic analysis. To maintain validity, source triangulation was conducted by comparing information from various literature sources (Octavia & Winarto, 2023).

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RESULT AND DISCUSSION

1. Merdeka Curriculum Concept

The curriculum is a learning plan that serves as a reference for educators in the teaching and learning process (Fathurohman, 2021). Curriculum changes are influenced by developments, including the digital era that gave birth to the Merdeka Learning Curriculum. The Merdeka Learning Curriculum is an education policy that allows schools and teachers to develop curricula tailored to student needs and local contexts. This curriculum emphasises responsive, inclusive, and student-centred learning, intending to develop 21st-century competencies such as problem-solving, creativity, communication, and collaboration. Its successful implementation depends heavily on the active role of teachers as learning facilitators who help students develop skills, knowledge, and attitudes, and is supported by the School Mover program, which serves as a model and centre of excellence for other schools (Zainuri, 2023). Structurally, the Merdeka Learning Curriculum is designed to be flexible, integrating various subjects and interdisciplinary learning to suit student needs. Furthermore, its implementation utilises digital strategies through the ID Belajar platform, which provides access to various learning resources to create an effective and adaptive learning process (Tuerah & Tuerah, 2023).

The Merdeka Curriculum positions students as the primary subjects and actors in learning. Therefore, students are free to plan and make their own decisions. In practice, students do not always have to wait for teacher decisions to learn, but can instead manage their learning process independently as long as they stay on track. Teachers act as facilitators and implementers of the curriculum in the field, encouraging freedom of expression, innovation, and creativity in developing

learning (Y. Puspita & Atikah, 2023). This curriculum values students as active learners, while teachers act as learning managers. The introduction of the Merdeka Curriculum aims to improve the previous curriculum, not simply due to a change in ministers. Curriculum change is a natural inevitability because it must adapt to the demands of the times that continue to evolve in each decade (Suherman, 2023). Therefore, a harmonious approach is needed to realise the goals of the Merdeka Curriculum, which emphasises meaningful and competency-oriented learning. One of the most relevant approaches is deep learning.

2. Deep Learning Approach in the Merdeka Curriculum

In technology, deep learning is understood as a branch of machine learning that uses multi-layered artificial neural networks to process, analyse, and understand complex data such as text, images, and audio. This approach mimics the human brain's ability to recognise patterns, connect information, and make data-driven decisions, making it a crucial pillar in the development of artificial intelligence (Raup et al., 2022). However, in the context of education, the term deep learning has a different meaning. Deep learning here refers to a learning approach that emphasises in-depth understanding, interconnectedness between concepts, and meaningful learning experiences.

This approach is not only oriented towards cognitive mastery of material, but also encourages students to think critically, creatively, reflectively, and to be able to solve real problems. Thus, deep learning in education serves as a strategy to strengthen character and 21st-century competencies, unlike deep learning in artificial intelligence, which focuses on complex data processing. This idea aligns with the thinking of educational figures such as John Dewey, Howard Gardner, and Michael Fullan, who emphasise that learning must be connected to the real lives of students and provide learning experiences that are emotionally and intellectually active. Michael Fullan highlights the importance of creating a learning environment that is mindful, meaningful, and joyful to optimise student engagement (Nadawina, 2025).

In the context of education, deep learning not only emphasises conceptual understanding but also promotes reflective and in-depth learning experiences. Mindful means that students learn with full awareness of the process and meaning of the material being studied. Meaningful emphasis is that learning must be relevant to real life, so it is not abstract. Meanwhile, joyful emphasises a fun learning atmosphere, fostering curiosity, and increasing motivation. Deep learning builds a holistic learning experience through these three principles because it focuses on cognitive aspects and involves students' emotional and social dimensions (Kurniawan, 2025). The concept of deep learning plays a role in increasing motivation while providing a positive and exciting learning experience.

This approach emphasises positive emotions such as curiosity, enthusiasm, and motivation, as well as creating a comfortable yet challenging learning atmosphere. Thus, students are encouraged to explore complex concepts, think critically, and actively learn.

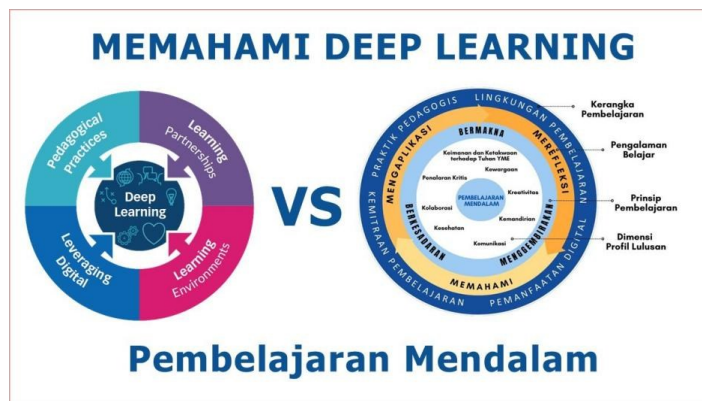


Figure 1. Deep Learning in Learning

Deep learning is a learning approach that emphasises deep understanding, interconnections between concepts, and meaningful learning experiences. This approach differs from traditional learning, which emphasises memorisation, because deep learning encourages students to think critically, reflectively, and creatively and to be able to solve problems (Jewarut, 2025). The goal is not only for students to master concepts, but also to be able to relate them to practical real-life contexts. Ahmad Turmuzi (2025) emphasises that deep learning shows that applying deep learning in education can personalise learning materials, provide adaptive feedback, and enrich learning experiences through AI-based systems such as chatbots, learning analytics, and gamification-based learning. According to Hattie, as cited by Alya Fitriani (2025), the application of deep learning also has a significant positive impact on student learning outcomes. Overall, deep learning is understood as active, exploratory, and applied learning, thereby preparing students for success in both the academic world and real life.

Deep learning is increasingly important in 21st century education because it supports the mastery of key competencies known as the 6Cs: Character, Citizenship, Collaboration, Communication, Creativity, and Critical Thinking. Schools implementing this approach have been shown to increase student motivation and higher-order thinking skills. Research also shows that Critical Thinking, Creativity, Communication, and Collaboration skills are important factors that help students solve problems critically and creatively, convey ideas well, and work together to achieve common goals (Fitriani & Santiani, 2025). Thus, the application of deep learning in education supports the mastery of 21st-century

competencies and is highly relevant to Islamic Religious Education (IRE) learning, which focuses on strengthening students' character.

3. Character Building

Character is an individual's effort to think and behave in a way that allows them to live and interact positively, whether in the family, school, community, or country. Individuals with good character are those who can make decisions and are prepared to take responsibility for the consequences or results of those decisions (Hariyanto, 2012). In this case, it is explained that character not only covers behavioural aspects but also involves the individual's thought process in shaping their attitudes and actions. This reflects the overall behaviour patterns and decision-making of individuals in various situations. In addition to efforts in thinking and behaving, character is related to social aspects; a person cannot be judged solely from individual interactions, but rather from their relationship with their environment, be it family, school, community, or country. This emphasises the importance of character in influencing the social and cultural dynamics around individuals (Akhwan, 2014). In addition to social and thinking aspects, individuals with good character not only make the right decisions but also take responsibility for their decisions (Yunanto & Kasanova, 2023). Thus, good character includes integrity and consistency in behaviour. Individuals with good character will follow their values and principles in every aspect of their lives, without compromise or inconsistency. Moral values that are important in character building can be applied and integrated into everyday life.

Character building is a person's life journey that involves reflection, experience, and continuous efforts to become the best version of oneself (Zubaedi, 2011). A person's character is not formed instantly but through a process and stages that begin with self-understanding and accepting all one's shortcomings or strengths. With self-introspection, it will be easier to accept formal or informal education and experiences around them (Julkarnain & Tamam, 2022). Through the educational process, students are taught about good and bad moral values so that they are able to understand and internalise the values that should be applied to themselves. The values that have been instilled will become habits and shape character, which will be the main key in character building. Character building aims to shape individuals who are responsible, have integrity, and are moral daily (Nurpratiwi, 2021). Thus, the application of deep learning in education supports the mastery of 21st-century competencies and is highly relevant to Islamic Religious Education (IRE) learning, which focuses on strengthening students' character.

4. Deep Learning in Islamic Religious Education Learning

Deep learning-based IRE learning designs emphasise the connection between the material and the real experiences of students (Munzir, 2025; Zhang et

al., 2022). Teachers not only convey theory, but also connect it to everyday reality so that students can more easily understand Islamic values in context (Abdussuykur & Zulfah, 2025). In addition, learning also provides space for students to reflect on themselves (Arvatz et al., 2025; Aulia & Nafiisah, 2023; Chan & Lee, 2021; Sandberg-Jurström, 2022), for example, by contemplating the extent to which the teachings they have learned have been applied in their personal lives. Through this approach, critical and creative thinking skills are also developed, where students are invited to analyse religious and social issues while offering solutions in accordance with Islamic principles (Megawati & Sulisworo, 2025). Furthermore, deep learning-based learning in IRE emphasises collaboration and problem solving through discussions, group work, and religious social projects (Kasch et al., 2022). Thus, students not only understand the material in depth but are also able to internalise Islamic values in real life (Nadawina, 2025).

According to Hidayat, quoted by Aliyah, the deep learning approach in religious education provides students with opportunities to address critical questions and build arguments based on Islamic values. Deep learning also integrates religious teachings with contemporary challenges. Deep learning in Islamic religious education helps students understand the relationship between Islamic values and social reality (Aliyah et al., 2025), for example, in the subject of Morality about Honesty. Teachers not only explain the definition and arguments about honesty, but also relate it to students' real experiences, such as cases of cheating during exams or not being honest with parents (Holm et al., 2025; Starovoytova & Arimi, 2017; Waltzer et al., 2024). After that, students are invited to reflect on themselves by writing down their personal experiences of being dishonest and how they felt afterwards. In the next stage, the teacher encourages students to think critically and creatively, for example, by analysing the negative impacts of lying in social life and offering creative ideas to cultivate honesty in school (Preuter et al., 2024). Finally, students are involved in collaborative problem solving through group discussions, such as developing a class code of ethics on honesty or creating a small campaign to build a culture of honesty in the school environment.

Developing critical and creative thinking skills in IRE learning means encouraging students to not only passively accept information (Dalimunthe, 2024; Golden, 2023; O'Reilly et al., 2022), but also to be able to analyse, evaluate, and interpret Islamic teachings in accordance with the context of life. For example, when discussing religious tolerance, students are encouraged to critique phenomena of intolerance in society and then challenged to offer creative ideas for fostering mutual respect in the school environment. In this way, IRE becomes a forum for students to practice their analytical and innovative skills in solving real-

world problems. Meanwhile, the emphasis on collaboration and problem solving teaches students to work together in completing tasks or dealing with religious and social issues.

Teachers can develop methods such as group discussions, case studies, or problem-based learning projects, in which each group member contributes according to their respective abilities (Almulla, 2020; Chang et al., 2022; Gustavsen & Foshaug Vennebo, 2025; Novalia et al., 2025). For example, when discussing *zakat*, students work together to find creative solutions on how zakat can be distributed appropriately to help the surrounding community. This kind of collaboration not only strengthens their understanding of the material but also instils the values of *ukhuwah* (brotherhood), mutual respect, and problem-solving skills that are applicable in everyday life. The relevance of implementing deep learning in IRE is in line with strengthening the competencies and character mandated in the Merdeka Curriculum, such as independence, mutual cooperation, critical thinking, and creative reasoning. This aligns with the principles of deep learning, which emphasise mindful, meaningful, and joyful learning, where students understand the material cognitively and feel the meaning and joy in the learning process.

One of the keys to deep learning is the teacher's ability to design learning activities that are challenging yet appropriate for the students' level of development. Teachers must provide scaffolding so students can gradually and independently build their knowledge (Ukwandu et al., 2025). The strategies used focus on active learning with students at the centre of the process, for example, through project-based learning, problem-based learning, small group discussions, and direct exploration. Through these strategies, students practice critical thinking, collaboration, and developing solutions based on their own understanding, while teachers act as facilitators who provide direction, stimulus, and emotional support (Kemendikbud, 2022). In addition, reflection is an important part of deep learning. Students are encouraged to reflect on what they have learned, how the learning process took place, and why it is important. This reflection process fosters mindful learning, which helps students understand concepts more deeply, not just looking for the right answers, but also understanding the thinking behind them. Reflection can be realised through learning journals, class discussions, and group presentations.

The use of digital technology is also an important strategy in supporting deep learning-based Islamic Religious Education (Huda et al., 2024; Mintasih et al., 2024). Technologies like the Merdeka Learning platform, interactive learning applications, Islamic educational videos, and other digital media can help students connect Islamic Religious Education material with real-life experiences, reflect, and

collaborate more broadly. In this way, technology serves as a means of strengthening the application of deep learning in education, not in the sense of artificial intelligence. Deep learning involves the use of several strategies that have implications for several aspects of learning, namely the curriculum, learning process, assessment, ecosystem, the role of educators, principals and supervisors, as well as management and supervision (Tan et al., 2019). The implementation of deep learning requires adjustments to the current curriculum. Adjusting lesson materials is an important step in the application of deep learning to place greater emphasis on understanding and developing student competencies. The use of digital information and communication technology also needs to be continuously developed to support effectiveness and efficiency in learning. The following are the curriculum characteristics used in deep learning (Azizah, 2025): 1) Adaptive, flexible and responsive, & 2) Student-centred.

The implementation strategy for deep learning in IRE learning covers several important interrelated aspects. First, in terms of curriculum, adjustments need to be made to make it more adaptive, flexible, and responsive to developments over time. Learning materials should not only be oriented towards cognitive mastery, but also directed towards deep understanding and the development of student competencies. Second, the learning process must be designed to be participatory, reflective, collaborative, and project-based so that students can connect IRE material with real-life experiences, while also training their critical and creative thinking skills. In addition, the use of digital information and communication technology is an important strategy to improve the effectiveness and efficiency of learning. The assessments should also be authentic, including project assessments, portfolios, reflection journals, and attitude observations to reflect a comprehensive understanding and internalisation of Islamic values. The learning environment or school ecosystem must also support meaningful learning with a conducive and pleasant atmosphere.

5. Impact on Student Character Building

The implementation of deep learning in Islamic Religious Education has a significant impact on the character building of students. Through this approach, a deeper religious awareness grows because students cognitively understand Islamic teachings and internalise them daily. The values of honesty and discipline are enhanced because learning is not limited to memorisation, but emphasises practical application in behaviour (Adiyono et al., 2024; Siahaan et al., 2022; Suryanti, 2023). In addition, deep learning encourages students to have empathy and social responsibility through group work, social projects, or discussions on social issues (Adesina et al., 2023; Sethi & Jain, 2024; Waghid, 2024). Equally important, self-reflection skills are also strongly developed, as students are trained

to reflect on personal experiences and relate them to Islamic values. Thus, deep learning not only enriches knowledge but also strengthens Islamic character, which is the main goal of Islamic Religious Education. This result also aligns with character education theory, highlighting that learning becomes effective when values are experienced, reflected upon, and practised in real life. In this context, deep learning acts as a bridge between abstract Islamic values and students' daily experiences, thereby answering the research problem of how IRE learning strategies can support student character formation.

CONCLUSION

This study confirms that the Merdeka Curriculum is not only oriented towards cognitive mastery but also requires learning strategies that support character building and 21st-century competencies. The deep learning approach has proven relevant because it emphasises deep understanding, interconnections between concepts, and reflective, collaborative, and applicable learning experiences. In line with the theories of deep learning and character education, the findings of this study demonstrate that: (1) deep learning-based strategies in IRE enable students to connect knowledge with real-life experiences, (2) these strategies foster critical, creative, and collaborative skills, and (3) they directly contribute to the internalisation of Islamic values for character building. Hence, the research questions are answered concisely: deep learning in IRE effectively supports both cognitive mastery and character formation as mandated by the Merdeka Curriculum.

These findings can be applied by teachers through the development of project-based learning, self-reflection, and the use of digital technology to broaden learning experiences. Schools and policymakers also need to encourage the creation of a conducive learning ecosystem so that the principles of deep learning can be integrated sustainably. For further research, empirical studies through field studies are needed to test the effectiveness of deep learning implementation in various subject contexts, including IRE, so that more applicable and measurable models can be found to shape students with strong character and become lifelong learners.

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