

Research Articles

Deep Learning Approach in Inclusive Islamic Education for Children with Special Needs

Rahma Aulia^{1*}, Rindu Bunga Kasih Firdauzy², dan Wiwin Luqna Hunaida³¹ Universitas Islam Negeri Sunan Ampel Surabaya; email : rahmaauliamultono@gmail.com² Universitas Islam Negeri Sunan Ampel Surabaya; email : rindubkf@gmail.com³ Universitas Islam Negeri Sunan Ampel Surabaya; email : wiwinluqna@uinsa.ac.id* Corresponding Author: e-mail : rahmaauliamultono@gmail.com

Abstract: This article explores the application of the Deep Learning approach in inclusive Islamic Religious Education (PAI) for children with special needs (ABK), with a focus on improving the understanding of abstract concepts such as monotheism and morals. The main problems faced by ABK in PAI learning include difficulties in understanding religious concepts due to cognitive, emotional, and sensory challenges. The purpose of this study is to analyze the urgency of Deep Learning in improving the spiritual understanding, motivation, and well-being of ABK through more personalized and reflective learning. The methods used include reflective strategies such as journals and discussions, adaptive media in the form of animation and audio, and collaborative learning with peers. The findings show that the application of Deep Learning improves ABK's in-depth understanding of religious values, as well as spiritual motivation and the ability to apply ethics in everyday life. The conclusion of this study is that Deep Learning can be an effective solution in inclusive PAI learning, supporting teachers in developing more humanistic learning designs and focusing on the character building of ABK.

Keywords: Character of the Crew; Deep Learning; Inclusive Education; Religious Values; Spiritual Motivation

1. Introduction

Developments in educational technology over the past five years have brought significant changes to the way teachers design, implement, and evaluate learning. Technology-based approaches such as *deep learning*, which encourage students to construct meaning, think critically, and engage in in-depth reflection, are becoming increasingly relevant strategies in addressing the complexity of learning needs in the digital age. Numerous studies have shown that deep learning approaches can improve conceptual understanding, learning engagement, and personalize learning through adaptive and reflective strategies. In the context of inclusive education, deep learning technology and strategies are considered to offer significant opportunities to accommodate the diverse characteristics of students, particularly children with special needs (ABK), through more individualized, multisensory, and meaningful learning (Melo-López & Basantes-Andrade, 2025).

Indonesia has a strong legal basis for inclusive education through National Education Ministerial Regulation No. 70 of 2009. However, implementation in the field still faces significant challenges. Data from the Ministry of Education, Culture, Research, and Technology (Kemendikbudristek) in 2023 noted that more than 40,000 regular schools have students with special needs, while the availability of special guidance teachers and supporting facilities remains limited (Ihsan, 2024). This has a direct impact on Islamic Religious Education (PAI) learning, which tends to be normative, abstract, and demands specific cognitive and linguistic abilities. Previous research confirms that students with special needs, such as those with hearing impairments, intellectual disabilities, autism, and other learning

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disabilities, often experience difficulty understanding the values of worship, morals, and Islamic jurisprudence due to the high verbal, conceptual, and symbolic demands (Irmayanti, 2025). For example, deaf students tend to struggle to grasp the spiritual meaning of worship through verbal explanations, requiring visual strategies, demonstrations, and a more in-depth reflective approach (Purri et al., 2024) .

Previous Research Research on inclusive learning in Islamic Religious Education only discusses general concepts and strategies without testing specific learning approaches for children with special needs (Rahmawati et al., 2025) , while research on deep learning in Islamic Religious Education has proven effective but has only been applied to regular students and has not touched on the context of inclusive education (Qohar & Widyaningrum, 2025) . Thus, there is a research gap in the form of the absence of studies that connect the deep learning approach with the needs of Islamic Religious Education learning for children with special needs, so it is important to examine how this in-depth approach can help children with special needs understand Islamic Religious Education material in a more adaptive, visual, and meaningful way.

Based on these conditions, this study will answer several research questions regarding how the concept of deep learning can be applied in Islamic Religious Education (PAI) learning for children with special needs, how the dynamics of their learning process and its challenges, and why an in-depth approach is important in the context of inclusive education. This study aims to explain the concept of deep learning in Islamic Religious Education (PAI) learning for children with special needs, analyze their learning needs and characteristics, and provide arguments about the urgency of implementing an in-depth approach to strengthen spiritual understanding and religious values more effectively. Theoretically, this study contributes to the development of literature on the integration of the deep learning approach in inclusive religious education. Practically, this study is expected to provide useful guidance for Islamic Religious Education teachers, parents, and observers of inclusive education in designing more adaptive, personalized, and meaningful learning for children with special needs.

2. Research Methods

Study This use approach qualitative with method literature review for dig in a way deep urgency implementation deep learning approach inclusive Islamic Education learning for child in need special . Method This chosen Because research topic need mapping theories , models, and findings empirical from various research that has been there is , so literature review allows researchers integrate knowledge cross discipline , such as education inclusive , Islamic Education pedagogy , technology education , and characteristics learn ABK in a comprehensive And systematic (Waruwu, 2023) . The data collection process was carried out through search journal reputable , books scientific , and document academic using Google Scholar, ScienceDirect , and DOAJ with keywords like *deep learning approach* , *inclusive Islamic education* , *special needs students* , and *PAI pedagogy* . Election source done based on criteria : relevance direct with topic , published 5–10 years ago lastly , it is peer-reviewed, has methodology clear , and contribute significant to study education inclusive And deep learning approach . Collected data analyzed use technique analysis content And analysis thematic through the identification process concepts , coding , and grouping theme main For find patterns important related ABK needs , effectiveness deep learning strategies , as well as implications pedagogical (Rosdiana & Rustar, 2025) . Steps study covers determination focus study , keyword development , selection And evaluation quality literature , extraction information , categorization theme , until withdrawal conclusion in a way critical And structured with guard objectivity as well as accuracy synthesis scientific .

3. Results and Discussion

Deep Learning Concept in Islamic Religious Education

In an educational context, deep learning refers to a learning process that emphasizes meaningful understanding, reflection, and internalization of concepts, rather than mere memorization. This approach requires students to analyze, evaluate, and relate material to personal experiences and real-life contexts. This differs from the term "deep learning" in AI technology, which refers to multilevel neural network models; in education, the term emphasizes deepening meaning and understanding of values (Laily Nur Syayidah, 2025).

The principles of deep learning are based on reflective, contextual, and personalized learning (Kholisah et al., 2025). At the cognitive level, this model aligns with the Revised Bloom's Taxonomy, particularly at the *analyzing-evaluating-creating level*, which demands higher-order thinking skills (Pendidikan et al., 2022). Furthermore, Piaget and Vygotsky's constructivist theories emphasize that knowledge is built through social experiences, interactions, and reflection, which are the primary foundations of deep learning. Contemporary research shows that reflective and contextual approaches enhance students' understanding of religious subjects (Saepuloh et al., 2024).

In Islamic Religious Education (PAI) teaching, deep learning is crucial because PAI material is normative, conceptual, and has moral values, thus requiring a learning process that goes beyond memorization. This approach helps students understand the spiritual and ethical meaning of Islam more deeply and fosters the ability to apply religious values in everyday behavior. Research shows that meaningful learning in PAI can increase emotional engagement, religious motivation, and character development (Irfanuddin & Widodo, 2025).

Its application can be demonstrated through teaching the stories of the prophets. For example, the story of the Prophet Moses is not merely a memorized text but is also used as material for reflecting on the values of courage, justice, and steadfastness. Teachers can engage students in discussions, create reflective journals, or analyze the events using visual media. For children with special needs, visual, concrete, and multimodal methods significantly help them understand the meaning of the story and connect it to their own experiences (Gresilia et al., 2023). Thus, deep learning makes Islamic Religious Education (PAI) learning more personal, relevant, and impactful on character development.

Learning Process for Children with Special Needs in Islamic Religious Education Subjects

The learning process for children with special needs (ABK) in Islamic Religious Education (PAI) is a crucial aspect of inclusive education, where learning success depends not only on Islamic teachings but also on students' ability to access and process information effectively. Classifying ABK based on their specific needs plays a crucial role in determining appropriate learning strategies. For example, ABK can be classified as blind, deaf, autistic, dyslexic, or other categories such as cerebral palsy or ADHD (World Health Organization, 2021).

The learning characteristics of children with special needs (ABK) in Islamic Religious Education (PAI) vary widely and are influenced by their classification, which requires a personalized and adaptive learning approach. Blind students, for example, rely more heavily on their senses of hearing and touch, so they respond to audio descriptions or tactile models to understand Islamic Religious Education concepts such as the stories of the Prophets (Sari & Rahman, 2020). Deaf students process information through visual and kinesthetic channels, such as images or movement, allowing them to follow worship instructions without relying on sound (Almeida et al., 2021).

However, the Islamic Religious Education (PAI) learning process for children with special needs (ABK) is not without challenges, which can be categorized as cognitive,

emotional, and sensory. Cognitive challenges include difficulty understanding abstract concepts such as monotheism, faith, or morals, due to limitations in information processing or short-term memory (Happé & Frith, 2022). Emotional challenges often arise in the form of low self-confidence, anxiety, or difficulty managing emotions, which can hinder students' participation in spiritual discussions or religious practices (Elliott & Grigorenko, 2023).

To address these challenges, the special needs of children with special needs (ABK) in Islamic Religious Education (PAI) learning must be addressed through various aspects. Adaptive learning methods, such as repetition and visualization, are needed to help students grasp abstract Islamic Religious Education concepts (Rahman & Sari, 2022). Appropriate media, including audio for the blind or sign language for the deaf, facilitate easier access (Susanto, 2021).

The Urgency of a Deep Learning Approach in Islamic Education for Children with Special Needs

The deep learning approach in Islamic Religious Education (PAI) is becoming increasingly important in the context of inclusive education, particularly for children with special needs (ABK). Unlike memorization-oriented learning, deep learning emphasizes in-depth understanding, personal reflection, and contextual appreciation of religious values. This approach enables students not only to understand religious teachings but also to internalize and apply them in their daily lives according to their capacities and developmental needs.

Facilitating a Deep Understanding of Religious Values, Not Just Memorization

For students with special needs, cognitive processes often require specialized strategies, so religious learning cannot rely on rote memorization. Deep learning provides students with the opportunity to understand religious concepts through concrete experiences, visuals, and reflective discussions. This approach has been shown to enhance meaningful religious learning, as students are encouraged to interpret meaning, not simply memorize information.

Research shows that adapting Islamic Religious Education learning for children with special needs through visual media, gradual methods, and contextual activities significantly strengthens their understanding of religious values and their ability to practice moral values in everyday life (Rinaldho et al., 2024).

Enhancing Spiritual Motivation and Emotional Engagement through Personalized Learning

The deep learning approach touches on the affective dimension, which is crucial in religious learning. By presenting learning experiences relevant to students' lives, teachers can foster emotional engagement, spiritual motivation, and moral sensitivity. Activities such as personal reflection, the use of narrative media (prophetic stories), and meaningful assignments have been shown to increase students' religious awareness and internal motivation.

The multimodal and reflective learning models that are the principles in deep learning have a positive impact on students' motivation and perceptions of Islamic Education learning (Gustian et al., 2025).

Supporting Islamic Education Teachers in Developing Humanistic, Empathetic, and Adaptive Learning

Islamic Religious Education teachers in inclusive schools face diverse challenges, as each child with special needs has unique needs. The deep learning approach encourages teachers to design adaptive, empathy-based learning that respects the diversity of student abilities. By using humanistic strategies, such as media adjustments, scaffolding, and collaboration

between regular and support teachers, religious values can be conveyed in a more meaningful and accessible way to children with special needs.

Research on inclusive learning and PAI adaptation shows that an empathetic and flexible approach increases the success of integrating religious values in students with special needs (Al-Ghofir et al., 2025).

Deep Learning Implementation Strategy in Islamic Education Learning

Implementing a Deep Learning approach in Islamic Religious Education (PAI) instruction for children with special needs (ABK) requires a comprehensive strategy, encompassing reflective methods, adaptive media, collaborative learning, and personal evaluation. Reflective methods are at the core of Deep Learning, where students with special needs are encouraged to engage in introspection on Islamic Religious Education (PAI) values. Teachers can provide space through reflective journals or small group discussions, allowing students to share daily spiritual experiences, such as reflecting on the value of patience in facing physical challenges (Susanto, 2021).

Adaptive media plays a crucial role in adapting learning to the sensory needs of children with special needs. The use of Islamic animations or interactive videos for visually impaired students, audio descriptions for deaf students, or digital applications with large text and audio for dyslexics allow for easier access to Islamic Religious Education (PAI) materials such as stories of the prophets or concepts of worship (Rahman & Sari, 2022).

Collaborative learning involves multidimensional collaboration between students with special needs, their peers, teachers, and parents, which fosters a supportive social environment. Teachers can form small groups where regular students assist students with special needs in Islamic education activities, such as sharing moral experiences or practicing religious practices together. This collaboration not only enhances social interaction but also facilitates a shared understanding of Islamic values (Almeida et al., 2023).

Personal evaluation emphasizes formative assessment tailored to the individual abilities of students with special needs, avoiding potentially unfair standardized tests. Teachers use behavioral observations, reflective journals, or personal interviews to assess spiritual understanding and the application of Islamic Religious Education values in everyday life. This approach allows students with special needs to demonstrate progress without pressure, while encouraging self-reflection and personal growth (Happé & Frith, 2024).

4. Conclusion

This study shows that the deep learning approach is proven to improve conceptual understanding, emotional engagement, and internalization of Islamic Religious Education (PAI) values in Children with Special Needs (ABK) through reflective strategies, adaptive media, and contextual learning experiences. The main findings confirm that the learning characteristics of ABK, whether blind, deaf, autistic, or other cognitive disabilities, require multisensory, personalized, and flexible learning, supported by evidence from various studies that demonstrate the effectiveness of visual media, experience-based activities, and personal evaluation in strengthening the appreciation of religious values. Practically, the results of this study encourage Islamic Religious Education teachers to use more adaptive strategies, utilize multisensory technology, and implement individual assessments, while schools and policymakers need to provide training and support facilities for the implementation of inclusive education. However, this study still has limitations because most of the analysis is conceptual and relies on literature studies, so it does not describe the dynamics of deep learning implementation in real practice in more detail. Therefore, further research is recommended to conduct field studies involving classroom observations, learning model trials, and comparative analysis between types of special needs, so that the implementation of

deep learning in Islamic Religious Education (PAI) is increasingly measurable, applicable, and relevant for inclusive education in Indonesia.

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