

Designing a Framework for Differentiated Instruction in Early Childhood Islamic Education Based on Deep Learning Strategies

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Abstract: Islamic early childhood education faces the challenge of accommodating the diversity of children's learning abilities and needs, which requires an innovative, adaptive learning approach. This research aims to design a differentiated instruction framework grounded in deep learning strategies for Early Childhood Islamic Education, with an emphasis on integrating Islamic values to support children's holistic development. The research method involves a systematic review of current literature, including Tomlinson's theory of differentiated instruction, the concept of deep learning, and the practice of early childhood Islamic education. The study found that integrating differentiated instruction and deep learning increased children's motivation to learn, deep understanding, and character development by adjusting methods, materials, and evaluations to be responsive to individual needs. The proposed framework includes identifying children's needs, implementing active learning methods, and engaging stakeholders, though challenges such as limited teacher training and digital resources need to be addressed. The conclusion of the study emphasizes the importance of this approach in forming a generation that is intellectually intelligent and possesses noble character in accordance with Islamic teachings, with recommendations for implementation through continuous training and the development of educational technology.

Keywords: Early childhood, wonders of nature, religion, and science.

Introduction

In the world of early childhood education, especially Islamic education, there is diversity in children's learning abilities and needs. This condition demands a learning approach that accommodates individual differences, so that each child can develop to their full potential. Teachers need to observe students' potential as a whole by using various methods in learning activities, so that children can participate easily and have fun. (Fatimah et al., 2025) (Seknun & Attamimi, 2022). Howard Gardner explained the various intelligences humans have, namely: linguistic, logical-mathematical, spatial, musical, kinesthetic, spiritual, interpersonal, and intrapersonal.

The application of a learning approach based on *Differentiated instruction* is very influential in

improving children's learning outcomes with various abilities. (Erdiana, 2024; Nurdewiyanti & Karmana, 2025; Saragih, 2023). This approach allows teachers to adjust learning methods, materials, and tempos according to each child's needs and interests. In the context of Early Childhood Islamic Education, this is particularly important given students' diverse characteristics and the need to integrate Islamic values into the learning process. In addition, the challenges of the digital age and Society 5.0 increasingly demand an innovative, adaptive education to produce a generation that is not only intellectually intelligent but also imbued with noble morals in accordance with Islamic teachings.

Although educators have learned that every child has a different learning style, teaching practices in early childhood education institutions

remain conventional (Erdiana, 2024) And less responsive to students' individual needs. This can affect children's low interest in the learning process, thereby limiting learning outcomes. (Irfana et al., 2022) Moreover, optimally inhibit the development of their potential. (Dewi et al., 2025). If interest in learning is low, children will have difficulty following the learning process at school, which can lead to low child achievement. (Sinaga et al., 2024). In addition, children can fail to develop intelligence in various aspects, not only in academic but also in non-academic areas.

The scientific approach used in this study is the theory of differentiated instruction, which emphasizes adapting instruction to meet the individual needs of children, and the theory of Deep Learning, which fosters a deeper, more meaningful learning process. By combining these two theories, a practical and applicable framework for Islamic early childhood education can be designed to address the challenges of the times and the holistic needs of children. The limitation of this study is the design of a learning framework that is differentiated from deep learning strategies, especially in the context of Islamic Early Childhood Education. This study focuses on reviewing the literature on relevant theories, practices, and challenges, rather than conducting direct field research.

Materials and Methods

This study uses a literature review to develop a Differentiated Instruction framework grounded in the Deep Learning strategy in Early Childhood Islamic Education. The literature review was conducted systematically by collecting data from relevant primary and secondary sources, including scientific journals, books, articles, and current research from 2020 to 2025. The primary sources include Tomlinson's theory of differentiated instruction, the concept of deep learning in education, and Islamic early childhood education practices that integrate religious values.

The data collection process involves searching academic databases using keywords such as Differentiated Instruction, Deep Learning, Early Childhood Islamic Education, early childhood education, and differentiated learning. The data is

classified based on key themes: basic theory, practical implementation, challenges, and solutions. Data analysis is conducted qualitatively through information synthesis, pattern identification, and concept integration to develop an applicable framework. The limitation of the study lies in the literature review's focus, without field data collection, so the results are theoretical and based on previous research. The study's validity is ensured through the use of reliable sources and the triangulation of data from multiple perspectives.

Results and Discussion

Theoretical Foundations of Deep Learning-Based DI Implementation in Early Childhood Islamic Education

Differentiated instruction is a learning approach that adjusts teaching methods, materials, and assessments to the individual needs, abilities, and learning styles of students, as developed by Tomlinson. (Tomlinson, 2006). Deep learning, in this educational context, is a learning strategy that emphasizes the development of deep understanding through critical thinking skills, reflection, and the application of knowledge in real life, rather than just information transfer. Meanwhile, Early Childhood Islamic Education is an early childhood education that integrates Islamic values, holistic development (cognitive, motor skills, language development, social-emotional, and spiritual), and character development, guided by the principles of Islamic religious teachings. This definition is the basis for understanding the integration of the three concepts in the proposed learning framework.

The differentiated instruction approach focuses on adjusting learning methods and materials that suit the individual needs, abilities, and learning styles of children (Tomlinson, 2014). In the context of Early Childhood Islamic Education, this approach is highly relevant given the diverse characteristics of children and the environment that require optimal strengthening of Islamic values. The theory of social constructivism supports differentiated instruction by emphasizing meaningful learning through active interaction with the social. (Rofiqi et al., 2025).

The deep learning strategy strengthens differentiated instruction by placing children at the center of learning, actively building a deep understanding of the material. (Wahyuni, 2022). Deep learning is not just about information transfer but also about integrating critical thinking skills, reflection, and the application of religious values in everyday life. (Rofiqi et al., 2025; Sinaga et al., 2024). In Early Childhood Islamic Education, this means that children not only learn basic knowledge but also develop strong character (Kartika, 2021) according to Islamic principles.

The integration of Islamic values into the deep learning framework adds a spiritual dimension, deepening children's understanding. Moral values, prophetic history, and the concept of monotheism are conveyed through reflective and exploratory activities that help children naturally internalize these concepts. This makes learning more authentic and connected to the child's life as a whole. The synergy between differentiated instruction theory and deep learning requires transforming teachers' roles into facilitators and supervisors who can design a learning environment that supports children's exploration, collaboration, and creativity. An ideal teacher must understand each child's characteristics and uniqueness (Salim et al., 2020) to develop the cognitive, language, physical-motor, social-emotional, and religious and moral aspects of children to the maximum. So that they can adapt the material in a multidimensional way for the holistic development of children.

Finally, this theory also opens the way for the development of innovative, context- and adaptive learning methods in Early Childhood Islamic Education. With a research-based approach, this framework will allow the integration of digital technology as a tool to support adaptive learning and personalization according to children's needs.

Implementation of Differentiated Teaching in Early Childhood Islamic Education based on Deep Learning

The implementation of differentiated instruction based on deep learning in Early Childhood Islamic Education begins with an in-depth identification of children's learning readiness and individual needs. Teachers should conduct diagnostic assessments

that allow for appropriate adjustment of learning strategies (Anggraena et al., 2022; Rofiqi et al., 2025). In practice, this involves intensive observation and documentation of the child's learning process continuously so that the strategies applied are responsive and relevant.

The use of active learning methods, such as project-based learning, educational games, and role-playing, is effective for learning in the context of Early Childhood Islamic Education (Erdiana, 2024; Fatimah et al., 2025; Wahyuni, 2022), and is no exception in differentiated instruction learning based on deep learning. Its implementation can be done through learning about the prophet's story, incorporated into role-plays or practical activities that develop empathy and understanding of the values of religious teachings. Teachers also adjust the teaching content (Laia & Hafizhoh, 2022) by using a variety of interesting learning media, in accordance with the times and context (Bagou & Sukung, 2020; Novianti et al., 2020), for example, interactive multimedia that combines elements of Islam and cognitive learning. This approach is fundamental because it can increase children's motivation and involvement, ensuring that the learning process is fun and meaningful (Abror et al., 2021; Kurniawan et al., 2019; Mukarramah et al., 2020).

Social interaction and collaboration between children are also the focus of this approach. Through small group discussions and collaborative activities, children are encouraged to develop their skills (Nilam et al., 2025; Sabrina et al., 2024). This establishes the classroom environment as a supportive and inclusive learning community. The entire learning process is followed by regular teacher reflection to evaluate and improve learning strategies based on children's needs. This reflection is dynamic, opening up space for continuous innovation in deep learning-based differentiation approaches.



Picture 1. Framework of Differentiated Instruction Based on Deep Learning Strategies in Early Childhood Islamic Education

The implementation strategy for differentiated instruction based on deep learning in Early Childhood Islamic Education requires the design of a flexible curriculum that accommodates children's varying competencies and interests. This curriculum emphasizes easily adaptable teaching modules and the integration of Islamic values into each learning theme. The use of technology as a learning tool is also a priority. For example, adaptive learning applications can be used by teachers to monitor children's development in real-time and provide appropriate feedback. Thus, mapping children's needs can be more accurate and learning more personalized.

Collaboration between teachers, parents, and the community is the key (Sabrina et al., 2024). Workshops and training for teachers, as well as socialization to parents, are needed so that they understand the importance of their respective roles in supporting this differentiated learning process (Nanditasari et al., 2024). It is essential to build synergy so that learning at home and school complement each other. In the implementation of learning, teachers must be creative in raising Islamic themes that are relevant to children's cultural context. Using a multisensory approach and thematic projects allows the child to comprehend the content thoroughly, not only cognitively but also in the social and spiritual aspects. Evaluation and assessment are formative and adaptive, allowing them to accommodate the child's individual progress. Teachers are encouraged to conduct regular quality assessments and adjust learning based on the results, including paying attention to children's emotional and spiritual maturity.

Challenges and Solutions in Implementation

The main challenge in implementing differentiated instruction based on deep learning in Early Childhood Islamic Education is the lack of adequate teacher training to use this strategy effectively. Many teachers still stick to traditional methods that are less responsive to individual children's differences.

The availability of suitable digital learning resources is also a significant obstacle. Some institutions do not yet have adequate technological

facilities to support the adaptive and interactive learning required in this strategy.

Communication and collaboration with parents sometimes face obstacles due to parents' low understanding of values and differentiated learning methods based on deep learning. This results in limited support at home, which significantly affects children's learning.

To overcome these challenges, continuous teacher training and workshops are necessary. The development of relevant and easily accessible digital teaching media must also be a priority. In addition, intensive socialization and support for parents in understanding the child's learning process are needed to ensure optimal support at home.

Building strong partnerships among schools, parents, and communities can address these challenges, ensuring a harmonious and effective learning ecosystem that supports children's holistic development in Islamic education

Conclusions

This research successfully designed a Differentiated Instruction framework based on the Deep Learning strategy for Early Childhood Islamic Education, integrating individualized learning with the development of a deep understanding and appreciation of Islam. Key findings show that this approach is efficacious in improving learning motivation, holistic child development (cognitive, social-emotional, and spiritual), and response to challenges in the digital age. Implementation through the identification of children's needs, active learning methods, and stakeholder collaboration can create an inclusive and meaningful learning environment.

However, challenges such as a lack of teacher training and limited access to digital resources need to be addressed through continuous training, the development of teaching media, and socialization with parents. The implications of this research for educational practice include the need to transform teachers' roles into adaptive facilitators and to integrate technology to personalize learning. Recommendations for further research include empirical trials of this framework in early childhood

Islamic educational institutions to validate its effectiveness in a real-world context. Overall, this framework contributes to developing a generation that is not only intellectually intelligent but also noble, in accordance with Islamic teachings, supporting a holistic vision of education in the era of Society 5.0.

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