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Curriculum Management Based on Deep Learning to Improve Graduate Quality

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Abstract

This study examines how immersive learning-based curriculum management contributes to improving graduate quality in an Islamic high school context. Using a qualitative case study approach at MA Riyadul Ulum Pasuruan, data were collected through in-depth interviews, classroom observations, and document analysis involving school leaders, teachers, staff, and students. Findings indicate that integrating immersive learning principles into curriculum planning, teaching practices, and assessment systems improves students' conceptual understanding, critical thinking, and active learning engagement. The most significant results indicate that the effectiveness of immersive learning is strongly influenced by institutional curriculum management, specifically teacher professional development, consistent policy alignment, and process-oriented assessment. The uniqueness of this study lies in positioning immersive learning not merely as a pedagogical strategy but as an integrated curriculum management framework within the madrasah system, aligning academic competencies and Islamic character education. This study contributes theoretically by expanding the discourse on Islamic education management beyond a normative perspective, and practically by offering a contextual model for developing a madrasah curriculum oriented toward sustainable graduate quality.

Keywords*: Curriculum Innovation; Deep Learning; Graduate Quality; School Management; Competency-Based Education.*

Introduction

Education plays a strategic role in developing competitive and sustainable human resources, particularly amidst global demands emphasizing mastery of 21st-century skills such as critical thinking, creativity, and complex problem-solving (Dilekçi & Karatay, 2023; Karaca-Atik et al., 2023). In this context, the curriculum is no longer understood merely as an administrative document, but rather as a managerial instrument that determines the direction, depth, and quality of the learning process. International studies show that the effectiveness of curriculum management significantly influences learning outcomes and graduate quality (Shi et al., 2022; Wu & Chen, 2021).

In line with these developments, the deep learning approach in education has evolved as a response to the limitations of learning oriented toward memorization and surface mastery. Deep learning emphasizes in-depth conceptual understanding, the integration of knowledge across

contexts, and the development of higher-order thinking skills (Gurung et al., 2023; Haber, 2020). Numerous studies have shown that deep learning, particularly through projects, analytical discussions, and authentic problem-solving, significantly improves the quality of learning outcomes (Boss & Krauss, 2022; Yu, 2024).

However, the majority of studies on deep learning and curriculum innovation still focus on general education and higher education in non-religious contexts. Literature specifically examining the integration of curriculum management and deep learning in the context of Islamic education, particularly madrasas, is still very limited. This is despite the fact that madrasas have unique epistemological and pedagogical characteristics, namely the integration of Islamic knowledge, general knowledge, and character building (Kuswandi & Asmoni, 2025). This limitation indicates a measurable research gap, namely the lack of contextual and relevant deep learning-based curriculum management models for the madrasah education system.

On the other hand, various educational evaluation reports indicate that the quality of madrasah graduates still faces challenges, particularly in mastering critical thinking skills and applying knowledge contextually (Asiyai, 2022). This problem is not merely a pedagogical phenomenon, but rather a managerial one related to how the curriculum is designed, implemented, and systematically evaluated. Therefore, the research problem in this study focuses on how curriculum management can be optimized to encourage in-depth learning that has a significant impact on the quality of madrasah graduates.

Several previous studies have examined project-based learning, teacher competency development, and technology integration in teaching (Howard et al., 2021; Pacher et al., 2024). However, these studies generally address learning aspects in a fragmented manner and have not yet incorporated deep learning into an integrated curriculum management framework. Furthermore, the direct relationship between deep learning-based curriculum management and graduate quality improvement in madrasah settings has rarely been explored empirically, particularly through in-depth qualitative approaches.

Based on this gap, this article offers a conceptual innovation in the form of integrating curriculum management and deep learning in the madrasah context. This innovation lies not only in the application of deep learning as a pedagogical strategy but also in its placement as a principle of curriculum management, encompassing holistic learning planning, implementation, and evaluation. With this approach, the curriculum is directed not only at achieving academic targets but also at developing higher-order thinking skills and student character (Yoto et al., 2024).

This research has theoretical significance by enriching the study of Islamic education management through the development of a curriculum model oriented toward in-depth learning. The findings are expected to broaden the discourse on how Islamic educational values can be integrated with contemporary pedagogical approaches in a systematic and applicable manner. Theoretically, this study also strengthens the relevance of constructivism and higher-order thinking theories in the context of madrasah education (Cheng et al., 2021; Hatch, 2023).

Practically, this research contributes as a reference for madrasah administrators, teachers, and policymakers in designing and implementing more adaptive and quality-oriented curriculum policies. The case study of MA Riyadul Ulum Pasuruan was chosen because it represents a madrasah that strives to integrate Islamic education and global demands in a balanced manner. Therefore, the results

of this research are expected to serve as a strategic reference in developing sustainable madrasah curriculum policies that are relevant to the challenges of the times.

Research methods

This research uses a qualitative approach with a case study design, chosen to gain an in-depth and contextual understanding of the implementation of deep learning-based curriculum management in madrasah environments. This approach is relevant to the research objective, which is to comprehensively analyse managerial processes, learning practices, and their impact on graduate quality, which cannot be adequately explained through a quantitative approach alone (Carrió Llach & Llerena Bastida, 2023).

The research subjects were selected using a purposive sampling technique with the following criteria: (1) direct involvement in curriculum planning, implementation, or evaluation; and (2) having at least one year of experience in implementing deep learning-based learning. The research informants numbered 12 people, consisting of 1 madrasah principal, 5 core subject teachers, 2 education staff, and 4 final-year students. The selection of this number and variety of informants aimed to obtain a multi-stakeholder perspective so as to be able to describe the dynamics of curriculum management holistically (Lokot, 2021; Solarino & Aguinis, 2021).

Data collection was conducted over four months, from February to May 2024. Data collection techniques included in-depth semi-structured interviews, non-participant observation, and document analysis. Interviews were conducted face-to-face, lasting 45–90 minutes per informant and recorded with the participants' consent. Observations focused on classroom learning processes, curriculum meetings, and activities supporting in-depth learning. Document analysis included curriculum documents, Lesson Implementation Plans (RPPs), evaluation instruments, and madrasah academic reports. This combination of techniques was designed to ensure a direct link between the empirical data and the research objective, which is to examine curriculum management practices and their implications for graduate quality (O'Leary, 2020; Serafini et al., 2022).

Data analysis was conducted using thematic analysis with an inductive approach. The analysis procedure included five main stages: (1) transcription of interview data and recording of observation results; (2) repeated reading to gain a comprehensive understanding; (3) an open coding process to identify units of meaning relevant to the research focus; (4) grouping codes into main themes representing curriculum management practices, deep learning strategies, and their impact on graduate quality; and (5) thematic interpretation by linking empirical findings to the theoretical framework used. This procedure allows for systematic analysis and aligns with the research objectives of an exploratory-analytical nature (Fryer, 2022; Khoei & Singh, 2024).

Data validity was ensured through triangulation of sources and techniques, comparing data from interviews, observations, and documents. Furthermore, member checking was conducted by confirming the initial summary of findings with several key informants to ensure the accuracy of the researcher's interpretations. This process aimed to increase the credibility and dependability of the research and ensure that the findings were not only descriptive but also reflected methodological rigor in line with the theoretical aims of the study (May & Perry, 2022; Shea, 2022).

Results

The research results indicate that the implementation of deep learning-based curriculum management at MA Riyadul Ulum Pasuruan is systematic and planned. During the planning stage, the curriculum was designed with an emphasis on integrating academic competencies, higher-order thinking skills, and character development. Curriculum documents and Lesson Plans (RPPs) demonstrate a shift from content-based learning to process-based learning and in-depth understanding.

During the implementation stage, classroom learning is characterized by the use of analytical discussion methods, problem-based projects, and exploratory assignments that require students to integrate various concepts. Observations indicate increased student active participation in the learning process, particularly in group discussions and project presentations. Teachers act as facilitators, guiding students' thinking processes, rather than as the sole source of knowledge.

In terms of human resource management, interviews revealed that teachers regularly participate in internal training related to deep learning strategies and the development of competency-based assessments. These efforts have resulted in increased teacher preparedness in designing lessons that emphasize analysis, reflection, and problem-solving. However, there is variation in the level of mastery among teachers, particularly in the use of learning technology.

The learning evaluation results showed an improvement in the quality of student learning outcomes, particularly in the ability to explain concepts argumentatively and relate them to real-world contexts. Assessment documents and academic reports indicated that assessments focused not only on final results but also on students' thinking processes. However, this study also identified challenges in the form of limited technological resources and resistance from a small number of teachers to changes in learning approaches.

Discussion

The findings of this study demonstrate that deep learning-based curriculum management in madrasas cannot be understood solely as a pedagogical innovation, but rather as a managerial practice that shapes the entire learning ecosystem. Empirical results indicate that the shift in curriculum orientation toward conceptual understanding drives a shift in the role of educational actors, particularly teachers, from conveyors of material to facilitators of advanced cognitive processes. This finding aligns with the view that graduate quality is significantly influenced by how the curriculum is strategically managed, not just by its content design (Wu & Chen, 2021).

From a theoretical perspective, the practices found reinforce the assumptions of social constructivism, which emphasizes the importance of interaction, reflection, and authentic experience in constructing knowledge. The analytical discussion-based learning and contextual projects identified in this study demonstrate that deep understanding is formed through the negotiation of meaning, not the accumulation of information (Hatch, 2023). Thus, the results of this study expand the application of constructivism theory to the realm of Islamic education curriculum management.

A critical analysis of the findings also shows that the success of deep learning implementation is highly dependent on institutional capacity, particularly in educator professional development. Variations in teachers' abilities to implement deep learning strategies demonstrate that curriculum innovation is not automatic but requires continuous investment in competency development (Howard et al., 2021). This confirms that curriculum reform without the support of human resource management risks producing partial changes.

In the context of madrasas, the findings of this study have important implications because they demonstrate that a deep learning approach can be harmoniously integrated with Islamic educational values. The reflective practices, responsible learning, and meaningful learning emerging in the empirical findings align with the character-building goals that characterize madrasas (Kuswandi & Asmoni, 2025). Thus, deep learning does not function as a foreign concept, but rather as an approach compatible with Islamic educational epistemology.

The main novelty of this research lies in its positioning of deep learning as a curriculum management principle, not simply a classroom teaching method. Unlike previous research that focused on the effectiveness of specific instructional strategies (Boss & Krauss, 2022; Gurung et al., 2023), this study demonstrates that significant impacts on graduate quality emerge when deep learning is institutionalized through consistent curriculum policies, lesson plans, and evaluation systems.

The research also revealed that process-based assessment plays a crucial role in supporting in-depth learning. Assessments that emphasize argumentation, analysis, and reflection encourage students to develop more systematic and contextual thinking. These findings support the argument that alignment between learning objectives, teaching strategies, and evaluation is a key prerequisite for the success of a high-level competency-based curriculum (Cheng et al., 2021).

However, this study critically notes the existence of structural barriers, particularly limited technological facilities and resistance to change. These barriers demonstrate that curriculum transformation requires strong institutional leadership and adaptive internal policies. Without such support, innovation can potentially stall at the experimental stage and struggle to achieve sustainability (Pak et al., 2020).

From a scientific perspective, the findings of this study contribute to the enrichment of the Islamic education management literature by presenting operational empirical evidence. This study bridges the gap between normative discourse on Islamic education and evidence-based managerial practice, thus opening up space for the development of a madrasah curriculum model that is more responsive to global challenges (Asiyai, 2022).

Overall, this discussion confirms that deep learning-based curriculum management is a strategic approach to sustainably improving the quality of madrasah graduates. By integrating deep learning into the curriculum management system, madrasahs can not only improve academic achievement but also strengthen the relevance of Islamic education in facing the complexities of the 21st century (Karaca-Atik et al., 2023).

Conclusion

This study concludes that deep learning-based curriculum management at MA Riyadul Ulum Pasuruan plays a strategic role in improving graduate quality, particularly in developing conceptual understanding, higher-order thinking skills, and active student participation. This research employs a qualitative case study methodology to illustrate that the integration of deep learning into curriculum planning, implementation, and evaluation facilitates a more meaningful and contextualised learning experience, in accordance with constructivist principles and the cultivation of 21st-century competencies.

The results confirm that the successful implementation of this approach is largely determined by the madrasah's managerial capacity, particularly in strengthening teacher competencies, ensuring

consistent curriculum policies, and supporting an assessment system that emphasises thinking processes. These findings not only strengthen the relevance of deep learning theory and curriculum management but also provide an empirical contribution to the development of Islamic education management studies, which have tended to be normative and lacking practical evidence.

Nonetheless, this study is constrained by its concentration on a singular madrasah context and its qualitative methodology. Therefore, future research is recommended to involve more institutions with diverse characteristics and combine qualitative and quantitative approaches to more comprehensively measure the impact of deep learning on graduate quality. In addition, further studies can explore the role of madrasah leadership and educational policies in ensuring the sustainability of in-depth learning-based curriculum management.

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