Al-Manarah: Journal of Education and Islamic Studies

Available online on the website:
https://journal.pergunulampung.or.id/index.php/almanarah/index

Al-Manarah; Journal of Education and Islamic Studies
(p-ISSN: xxxx-xxxx| e-ISSN: xxxx-xxxx
Volume 1, Issue. 03, 2025, pp. 223-229

Evaluation of Program For Implementing the Deep Learning Approach in Kindergartens Using the CIPP Model

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| Submission May 11, 2025 | Revised June 09, 2025 | Accepted Agust 17, 2025 | Published December 28, 2025 |

ABSTRACT *The deep learning approach in early childhood education aims to create meaningful learning experiences through exploratory, collaborative, and reflective activities. This study aims to evaluate the implementation of a deep learning approach program in a kindergarten using the CIPP (Context, Input, Process, Product) evaluation model. The research method used was descriptive qualitative with data collection techniques through interviews and observations. The results of the study on the context aspect indicate that the program is in accordance with the developmental needs of early childhood and is supported by school policies. On the input aspect, educators have good competence and adequate infrastructure, although the variety of learning media still needs to be improved. On the process aspect, learning activities are active and meaningful, children are involved in exploration and collaboration, while educators act as facilitators. However, classroom management remains a challenge that needs to be addressed. On the product aspect, the program has been proven to improve children's critical thinking skills, creativity, communication, cooperation, and social-emotional development. This study concludes that the deep learning program is effective and worthy of being continued with improvements in learning media innovation and classroom management*

Keywords : *Evaluation, Deep learning, CIPP model, Kindergartens.*

https://dx.doi.org/xx.xxxxx/al-manarah.vxx0x.xxxx

How to Cite Puspita, Y., Putri, M.Z.R., Akbar, A.F., Rosidin, U., Handoko, h., (2025). *Evaluation of Program For Implementing the Deep Learning Approach in Kindergartens Using the CIPP Model,* Al-Manarah: Journal of Education and Islamic Studies, Volume 1 (03), 223-229.

INTRODUCTION

Kindergarten plays a crucial role in developing a child's character, intelligence, and social skills. This stage is considered the primary foundation that determines a child's future development (Arisanti et al., 2024). Therefore, a learning approach that allows children to explore, observe, and build understanding from real-life experiences is needed to support their optimal development. According to Piaget, early childhood is in the pre-operational stage, where they begin to develop basic cognitive abilities through exploration and interaction with their surroundings. Furthermore, Vygotsky emphasized the importance of social interaction in child development. One approach relevant to these characteristics is the deep learning approach, a learning process that encourages in-depth understanding, critical thinking, exploration, and the reflective application of knowledge (Akmal et al., 2025; Otto et al., 2020). In the context of kindergarten, deep learning is realized through meaningful play activities, the use of concrete

objects, social interactions, and collaborative activities that develop children's cognitive, social-emotional, and motor skills in an integrated manner.

In Indonesia, the implementation of the Independent Curriculum encourages child-centered, contextual, and experiential learning. Minister of Elementary and Secondary Education Regulation No. 13 of 2025 amends Minister of Education, Culture, Research, and Technology Regulation No. 12 of 2024 concerning the kindergarten curriculum. This regulation does not introduce a new curriculum, rather strengthens the direction of learning policies through a deep learning approach. The deep learning approach in education needs to be socialized to educators as part of improving professional competency in the digital era (Rahayu et al., 2025). Stated that the socialization of the deep learning approach can help teachers understand the principles of meaningful and contextual learning in everyday practice.

The deep learning approach aligns with Ki Hajar Dewantara's philosophy, which places children as the primary subjects of learning, enabling educators to act as facilitators, helping children construct meaning from concrete experiences. The deep learning approach in early childhood education is also seen as capable of encouraging children's active engagement through meaningful, reflective, and contextual learning experiences. In-depth learning allows children not only to recognize concepts but also to construct meaning through social interaction and exploration of their surroundings (Darling-Hammond et al., 2020; Hattie & Donoghue, 2016). Thus, deep learning becomes a relevant approach to address the challenges of 21st-century learning from early childhood education.

However, the implementation of deep learning requires policy support, educator readiness, infrastructure, and the ability to manage the learning process systematically (Suwandi et al., 2024). Program evaluation is necessary to ensure that this approach is effective and meets its objectives. Educational program evaluation plays a crucial role in providing information for decisions about continuing, improving, or terminating a program (Purnomo et al., 2022). The CIPP (Context, Input, Process, Product) model was used in this study because it is able to provide a comprehensive picture of program suitability, supporter readiness, implementation, and the results achieved (Dalmia & Alam, 2021).

According to (Handoko et al., 2019); valuation is needed to identify the weaknesses and strengths of the current program so that all weaknesses in the current program can be addressed and improved, so that future programs can run well and achieve maximum results. Therefore, this research is necessary because the evaluation of deep learning in kindergarten is still limited, especially those that examine comprehensive implementation using the CIPP model. Therefore, this study aims to evaluate the program implementing the deep learning approach in kindergarten through the four main components of CIPP to determine the strengths, weaknesses, and needs for program improvement.

METHOD

This study employed an evaluative approach with a mixed methods design that integrated quantitative and qualitative data to gain a comprehensive understanding of the effectiveness of the deep learning approach implementation program in kindergartens. The evaluation model used was CIPP (Context, Input, Process, Product) developed by Stufflebeam, as this model is considered capable of providing a systematic evaluation framework in assessing the planning, implementation, and outcomes of an educational program, particularly in early childhood education.

A context evaluation was conducted to identify the background, needs, and objectives of implementing a deep learning approach in kindergarten. At this stage, the program's suitability to the developmental characteristics of early childhood learners, applicable education policies, the institution's vision and mission, and support from the school and family environment was analyzed. This evaluation aimed to ensure that the program was developed based on real needs and had a relevant conceptual foundation.

The input evaluation focused on the readiness and adequacy of resources supporting program implementation. Aspects analyzed included teacher competency and qualifications, curriculum readiness, availability of learning facilities and infrastructure, teaching materials, and school management support. The input evaluation was conducted to assess the extent to which program planning and available resources could optimally support the implementation of the deep learning approach.

Process evaluation focuses on assessing program implementation in daily learning activities. This stage examines the learning strategies used by teachers, the interaction patterns between teachers and students, the implementation of exploratory and reflective activities, and the level of student engagement in the learning process. Furthermore, obstacles and challenges that emerged during program implementation are analyzed to obtain a comprehensive picture of the alignment between planning and practice.

Product evaluation focused on the results achieved after program implementation, both in the short and medium term. Evaluation results covered the development of students' cognitive, social-emotional, creative, and critical thinking skills. Furthermore, teacher and parent perceptions and satisfaction levels regarding the program's impact were analyzed as indicators of the success of the deep learning approach implementation in kindergarten.

The research subjects included school principals, kindergarten teachers, and students involved in the program's implementation. Parents of students were involved as supporting informants to gain a broader perspective on the program's impact. This research was conducted in several kindergartens that have implemented a structured deep learning approach in their learning activities.

Data collection was conducted through questionnaires, in-depth interviews, classroom observations, and documentation studies. Questionnaires were used to obtain quantitative data regarding teachers' and parents' perceptions of the program's implementation and outcomes. In-depth interviews were conducted with school principals and teachers to explore experiences, strategies, and obstacles in program implementation. Classroom observations were used to directly observe the learning process and student engagement, while documentation studies were conducted on the curriculum, lesson plans, and child development reports.

Quantitative data was analyzed using descriptive statistics to describe trends in evaluation results for each component of the CIPP model. Meanwhile, qualitative data is analyzed through thematic analysis which includes the process of data reduction, data presentation, and drawing conclusions. The results of quantitative and qualitative analysis are then integrated to produce a holistic and in-depth interpretation of program effectiveness.

The validity of the qualitative data was ensured through triangulation of sources and techniques, as well as member checking. The reliability of the quantitative instruments was tested using Cronbach's Alpha reliability coefficient, while the content validity of the instruments was determined through expert judgment. The entire research process was conducted with due regard for ethical research principles, including approval from the school and parents of students, confidentiality of respondents' identities, and the use of data solely for academic purposes.

RESULTS AND DISCUSSION

Result

Research findings indicate that the deep learning approach aligns with the developmental characteristics of early childhood, which requires concrete experiences, meaningful play, and multisensory exploration. Deep learning helps children connect everyday experiences with the concepts they learn. This aligns with literature stating that children in the preoperational stage construct knowledge through real-life experiences and direct interactions. The cognitive and socio-emotional developments evident in the interviews indicate that deep learning not only improves conceptual understanding but also strengthens communication skills, self-confidence,

and the ability to collaborate. These findings align with kindergarten research that emphasizes the importance of exploration- and interaction-based learning for developing higher-order thinking skills in children. These research findings reinforce the view that the quality of learning implementation is more determined by the process and readiness of educators than simply the adoption of new terms or approaches. Deep learning will have an optimal impact when supported by reflective planning, a variety of learning media, and the role of teachers as facilitators who are sensitive to children's developmental needs (Darling-Hammond et al., 2020; Fleer, 2021).

Discussion

Context (Program Context)

Observation results showed that all context indicators received positive scores. The materials, methods, and learning environment were aligned with the children's developmental needs. Children demonstrated enthusiasm, curiosity, and active participation during deep learning activities. Educators also understood the concepts and objectives of deep learning. Interviews corroborated these findings. One educator explained that learning occurred through meaningful activities such as matching fruit shadows, recognizing colors, and collaborative fine and gross motor skills. This aligns with the theory that deep learning integrates concrete experiences and emotional engagement (Agyeman, 2024; Otto et al., 2020). School policy support in the form of implementation guidelines and teacher training demonstrates the institution's readiness to implement the program. In the context of early childhood education, deep learning is not defined as the complexity of the material, but rather the depth of the learning experience that is appropriate to the child's developmental stage.

Deep learning in early childhood education emphasizes the connection between play, thinking, and simple reflection, helping children build understanding gradually and meaningfully (Edwards, 2017). Therefore, the implementation of deep learning needs to be adapted to the principles of child development and the characteristics of the PAUD learning environment. Meaning of findings: The program is appropriate to the context of child development and is institutionally supported, so it is worthy of being continued.

Input (Program Input)

The infrastructure is available and supports exploration and collaboration activities. Educators have sufficient competence in implementing deep learning principles. However, observational notes indicate that learning media lacks variety, leading to boredom among students. According to educators, material preparation begins a week in advance, but media variety still needs to be strengthened. This aligns with previous research findings that the completeness and diversity of media influence the effectiveness of deep learning (Suwandi et al., 2024). The CIPP model is considered relevant in evaluating educational programs because it not only assesses final results but also examines the suitability of needs, resource readiness, and the quality of the program implementation process. This evaluative approach enables data-driven decision-making for continuous improvement, particularly in the context of learning innovations such as deep learning in early childhood education (Frye & Hemmer, 2012; Stufflebeam & Coryn, 2014). Meaning of findings: Program input is adequate, but media innovation needs to be improved for optimal learning outcomes.

Process (Learning Process)

The learning process runs according to the principles of deep learning (Zafirah et al., 2025), exploration, collaboration, and reflection. Children actively ask questions, discuss, and explore. Collaborative interactions are evident when children help each other and share ideas. Educators act as facilitators by providing space for creativity and not dominating the process. Assessment is conducted through ongoing observation and portfolios of children's work.

Challenges arise in classroom management because children often move around, requiring educators to reorganize activities to be more structured. Children's active involvement throughout the learning process demonstrates that deep learning encourages participation, curiosity, and positive social interactions. Significance of findings: The process is running effectively, but classroom management remains a significant challenge.

***Product* (Program Results)**

The program yielded positive results for children's critical thinking skills, communication and collaboration skills, creativity in producing work, and social-emotional development (sharing, empathy, and emotional control). Stakeholders (educators, schools, and parents) were satisfied. However, educators noted the need for increased media diversity for optimal results. These findings align with the theory that deep learning enhances higher-order thinking and collaborative skills (Agyeman, 2024; Akmal et al., 2025)The CIPP model is highly relevant for use in evaluating innovative educational programs because it provides a basis for decision-making that is oriented towards continuous improvement (improvement-oriented evaluation) (Stufflebeam & Coryn, 2014), emphasizes that program evaluation not only assesses final success, but also serves as strategic feedback for further program development. Significance of findings: The program successfully achieved the expected outputs and had a significant impact on child development.

This study was conducted to respond to the need identified in the introduction, namely the limited empirical evaluation of deep learning implementation in kindergarten, particularly through a comprehensive and systematic framework. The findings demonstrate that the deep learning approach, when implemented within the developmental context of early childhood education, is not merely feasible but also pedagogically meaningful. The alignment between the approach and children's developmental characteristics confirms that deep learning in early childhood should not be interpreted as cognitive complexity, but rather as experiential depth that enables children to construct understanding through concrete, social, and reflective activities.

The positive contextual alignment found in this study strengthens Piaget's and Vygotsky's foundational theories, which emphasize experiential learning and social interaction as core mechanisms of early cognitive development. Children's active engagement, curiosity, and enthusiasm observed during learning activities indicate that deep learning successfully facilitates meaningful learning experiences rooted in play and exploration. This finding contributes to the literature by demonstrating that deep learning principles can be operationalized effectively at the kindergarten level, countering assumptions that deep learning is only suitable for higher education or advanced cognitive stages. In this regard, the study extends the work of Darling-Hammond et al. (2020) and Otto et al. (2020) by providing empirical evidence from early childhood contexts in developing educational systems.

From an input perspective, the study highlights that educator competence plays a more decisive role than infrastructure alone. Although learning facilities were generally adequate, the limited variety of learning media emerged as a constraint on sustaining children's engagement. This finding aligns with prior research indicating that deep learning requires diverse, flexible, and stimulating learning resources to support inquiry and creativity. However, this study contributes new insight by demonstrating that even when physical resources are modest, reflective planning and pedagogical sensitivity can sustain deep learning practices. This reinforces the argument that professional development for educators is a critical lever for the successful adoption of innovative learning approaches in early childhood education.

The process evaluation revealed that deep learning principles—such as exploration, collaboration, and reflection—were consistently present in classroom practice, supporting the central research question concerning how deep learning is enacted in kindergarten settings. Children's willingness to ask questions, collaborate with peers, and engage in exploratory tasks suggests that deep learning fosters not only cognitive engagement but also social-emotional

growth. These findings are consistent with research emphasizing the role of learner-centered pedagogy in developing higher-order thinking skills from an early age. Importantly, this study adds to the literature by identifying classroom management as a contextual challenge unique to early childhood deep learning environments, where high levels of physical movement and interaction are intrinsic to meaningful learning. This insight underscores the need for adaptive classroom management strategies that align with the philosophy of deep learning rather than constrain it.

The product evaluation demonstrates that the deep learning approach yields multidimensional outcomes, encompassing cognitive, social-emotional, creative, and collaborative competencies. These outcomes directly address the concerns raised in the introduction regarding the relevance of early childhood education in preparing learners for 21st-century challenges. The findings support the argument that deep learning contributes to the development of foundational competencies such as critical thinking, communication, and empathy, which are increasingly recognized as essential for lifelong learning. By evidencing these outcomes in kindergarten settings, the study bridges a gap in the literature that has largely focused on older learners.

From a theoretical standpoint, this study reinforces the relevance of the CIPP evaluation model for assessing educational innovation. Unlike outcome-focused evaluations, the CIPP model enabled a holistic understanding of how contextual readiness, resource input, instructional processes, and learning outcomes interact dynamically. This contributes to evaluation literature by demonstrating the applicability of CIPP as an improvement-oriented framework in early childhood education, particularly for pedagogical reforms such as deep learning that require sustained institutional and professional support.

In terms of practical contribution, the study provides evidence-based guidance for policymakers and practitioners implementing the Independent Curriculum in Indonesia and similar contexts. The findings suggest that successful deep learning implementation requires alignment between policy direction, educator readiness, and classroom practices, rather than reliance on curriculum documents alone. For future educational development, this study underscores the importance of continuous program evaluation as a mechanism for refining pedagogical innovation and ensuring that learning approaches remain responsive to children's developmental needs.

Overall, this research contributes to the advancement of early childhood education by demonstrating that deep learning is both developmentally appropriate and pedagogically effective when evaluated and implemented systematically. By linking empirical findings with established learning theories and contemporary educational discourse, the study offers a robust foundation for future research and policy development aimed at fostering meaningful learning experiences from the earliest stages of education.

CONCLUSION

This study evaluated the implementation of the deep learning approach in kindergarten using the CIPP model and found that the approach is pedagogically appropriate and effective when aligned with children's developmental characteristics and supported by institutional readiness. The findings indicate that educator competence and reflective instructional practices play a more critical role than infrastructure alone in determining program success. Deep learning was shown to promote active engagement, collaboration, critical thinking, and social-emotional development, supporting the holistic goals of early childhood education. Methodologically, this study contributes to the literature by demonstrating the relevance of the CIPP model as an improvement-oriented evaluation framework for innovative pedagogical programs in early childhood settings. Despite limitations related to scope and duration, the study provides empirical support for deep learning as a viable foundation for child-centered education and offers direction for future research to examine its long-term impact and scalability.

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