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Analysis of the Implementation of the Merdeka Curriculum Using the Pedagogical Deep Learning Approach in a Bilingual Primary School Based on the CIPP Evaluation Model

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Abstrak

Penelitian ini menganalisis implementasi Kurikulum Merdeka melalui pendekatan pembelajaran mendalam, yaitu pendekatan pedagogis yang menekankan pembelajaran bermakna dan berpusat pada peserta didik, bukan deep learning dalam kecerdasan buatan, di sebuah sekolah dasar bilingual. Penelitian menggunakan pendekatan kualitatif evaluatif dengan model CIPP (*Context, Input, Process,* dan *Product*). Data dikumpulkan melalui observasi, wawancara, dan studi dokumentasi. Hasil penelitian menunjukkan bahwa kurikulum telah selaras dengan visi sekolah dan kebutuhan peserta didik. Pembelajaran berlangsung aktif dan kontekstual, namun sebagian guru masih memerlukan penguatan kompetensi pedagogis. Kurikulum juga berdampak positif terhadap keterlibatan belajar, karakter, dan berpikir kritis siswa. Penelitian ini memberikan bukti implementasi Kurikulum Merdeka pada sekolah bilingual serta menegaskan pentingnya pengembangan profesional guru secara berkelanjutan.

Kata kunci: Kurikulum Merdeka; Pembelajaran Mendalam; Evaluasi CIPP; Sekolah Bilingual; Kompetensi Guru

Abstract

This study examines the implementation of the Merdeka Curriculum through a pedagogical deep learning approach, referring to meaningful and student-centered learning rather than artificial intelligence, in a bilingual elementary school. A qualitative evaluation was conducted using the CIPP (Context, Input, Process, Product) model. Data were collected through observations, interviews, and document analysis. The findings show that the curriculum aligns with the school's vision and students' needs. Although learning is active and contextual, some teachers require stronger pedagogical competence due to non-linear educational backgrounds, and higher-order thinking practices remain inconsistent. The curriculum positively supports student engagement, character development, and critical thinking. This study contributes practical evidence on implementing the Merdeka Curriculum in bilingual elementary schools and highlights continuous teacher professional development as a key factor for strengthening pedagogical deep learning.

Keywords: Merdeka Curriculum; Pedagogical Deep Learning; CIPP Evaluation; Bilingual School; Teacher Development

1. INTRODUCTION

Education in the twenty-first century emphasizes the development of critical thinking, creativity, collaboration, and problem-solving skills to prepare students for increasingly complex global challenges (Darling-Hammond et al., 2020). In Indonesia, the Merdeka Curriculum was introduced to promote flexible, student-centered learning that accommodates learners' diverse needs while strengthening higher-order thinking skills (Kemdikbud, 2023). One instructional approach that supports this curriculum is the pedagogical deep learning approach, which refers to meaningful, reflective, contextual, and student-centered learning experiences. In this study, deep learning does not refer to deep learning in Artificial Intelligence, but rather to a pedagogical approach that encourages students to construct understanding, connect concepts with authentic contexts, and develop higher-order thinking competencies.

Although the Merdeka Curriculum provides opportunities for more meaningful learning, its implementation at the primary school level remains challenging. Teachers are expected to redesign learning experiences, facilitate active student participation, and integrate authentic assessment while adapting instruction to students' characteristics. These challenges become more complex in bilingual primary schools, where teachers must simultaneously support language acquisition and subject-matter understanding (Brock et al., 2021). Previous studies also report that teacher readiness, pedagogical competence, and resource availability remain important determinants of successful curriculum implementation (Haryanto & Puspitasari, 2022).

This study was conducted in a bilingual primary school in Indonesia that has implemented the Merdeka Curriculum using a pedagogical deep learning approach. Bilingual schools provide a unique educational setting because curriculum implementation requires balancing language development with meaningful learning experiences and cognitive development. Consequently, evaluating curriculum implementation in this context is important to determine whether the intended educational objectives have been achieved effectively.

Previous research has explored the implementation of the Merdeka Curriculum in different educational settings. Setiawan et al. (2024) highlighted that successful implementation depends largely on teachers' competencies and schools' ability to adapt the curriculum to local contexts. Likewise, Rahmawati and Santosa (2021) found that the effectiveness of pedagogical deep learning strategies is influenced by teacher preparedness and institutional support. Meanwhile, Purba (2026) demonstrated that the CIPP evaluation model provides a comprehensive framework for assessing curriculum implementation by examining contextual conditions, educational resources, implementation processes, and learning outcomes. Nevertheless, these studies primarily focused on general schools or specific curriculum components, leaving limited evidence regarding bilingual primary schools.

Accordingly, a research gap remains. Few studies have comprehensively evaluated the implementation of the Merdeka Curriculum through a pedagogical deep learning approach in bilingual primary schools using the CIPP (Context, Input, Process, Product) evaluation framework. Existing studies

generally emphasize learning outcomes or curriculum implementation separately, without systematically examining how contextual factors, teacher readiness, instructional processes, and educational outcomes interact to determine implementation success.

This study addresses that gap by systematically evaluating the implementation of the Merdeka Curriculum in a bilingual primary school using the CIPP model. The study contributes to the literature in two important ways. First, it provides empirical evidence regarding the implementation of the pedagogical deep learning approach within the Merdeka Curriculum in a bilingual educational context. Second, it identifies strengths and challenges across the context, input, process, and product dimensions, thereby generating practical recommendations for improving teacher professional competence, instructional quality, and curriculum implementation in bilingual primary education.

Therefore, the objective of this study is to evaluate the implementation of the Merdeka Curriculum through the pedagogical deep learning approach in a bilingual primary school using the CIPP evaluation model. Specifically, the study aims to: (1) examine the alignment between curriculum implementation and the school's vision and students' needs (context); (2) evaluate teacher readiness, competencies, and educational resources (input); (3) analyze teaching and learning practices during curriculum implementation (process); and (4) assess curriculum outcomes in terms of student engagement, character development, and higher-order thinking skills (product). The findings are expected to provide evidence-based recommendations for strengthening the implementation of the Merdeka Curriculum, particularly in bilingual primary school settings.

2. LITERATURE REVIEW

2.1. Merdeka Curricullum in Elementary School

The Merdeka Curriculum in Indonesia is designed to provide a flexible, student-centered learning experience that develops critical thinking, creativity, and problem-solving skills (Kemdikbud, 2023; Setiawan et al., 2024). It emphasizes contextualized learning, allowing teachers to adjust teaching strategies to meet students' individual needs. Studies have shown that the success of the curriculum largely depends on teacher competence, school resources, and alignment with the school's vision (Haryanto & Puspitasari, 2022). In bilingual elementary schools, the implementation of the Merdeka Curriculum presents additional challenges. Some teachers with non-linear educational backgrounds may find it difficult to deliver curriculum objectives effectively without targeted professional development.

2.2. Deep Learning Approach in Elementary Education

Deep learning focuses on helping students acquire meaningful understanding, apply knowledge in new contexts, and develop higher-order thinking and metacognitive skills (Rahmawati & Santosa, 2021). In the context of the Merdeka Curriculum, deep learning promotes active and student-centered learning, critical thinking, and problem-solving abilities.

2.3. Deep Learning in Bilingual School

Implementing deep learning in bilingual schools requires balancing language development and cognitive growth simultaneously (Brock et al., 2021). Research shows that deep learning strategies in bilingual classrooms improve student engagement, collaboration, and critical thinking skills while supporting dual-language proficiency. This approach encourages students to interact meaningfully with content in both languages, fostering cognitive flexibility and deeper comprehension.

2.4. Teacher Competency Development

Teacher competence is a critical factor in successful curriculum implementation. Teachers must be able to integrate deep learning strategies, manage bilingual instruction, and design student-centered activities effectively (Haryanto & Puspitasari, 2022). Professional development programs, mentoring, and continuous training have been shown to enhance teacher pedagogical skills, content knowledge, and classroom management, directly influencing student outcomes such as engagement, critical thinking, and character development (Setiawan et al., 2024).

2.5. CIPP Evaluation Model

The CIPP model (Context, Input, Process, Product) provides a systematic framework for evaluating curriculum implementation (Stufflebeam, 2003). Context evaluation assesses the alignment of the curriculum with school vision and student needs; input evaluation examines teacher readiness and resource availability; process evaluation analyzes teaching and learning methods; and product evaluation measures the outcomes and effectiveness of the curriculum. Previous research highlights that CIPP evaluation enables schools to identify strengths, weaknesses, and areas for improvement, providing evidence-based guidance to enhance teacher capacity and student learning outcomes (Rahmawati & Santosa, 2021).

3. METHOD

This study employed a qualitative evaluative research design to analyze the implementation of the Merdeka Curriculum with a deep learning approach at Palm Kids Primary School, Muara Enim. The research was conducted using the CIPP evaluation model (Context, Input, Process, Product) as a framework to systematically assess curriculum implementation. Qualitative methods were selected to allow an in-depth understanding of the experiences, perceptions, and practices of teachers and students in the bilingual school context (Creswell & Poth, 2018).

The research participants consisted of teachers and school administrators at Palm Kids Primary School. Specifically, 8 classroom teachers (including both native and non-native bilingual instructors) and 2 school administrators were involved. Participants were selected using purposive sampling to ensure that those with direct involvement in curriculum implementation and student learning were included. The study also observed classroom activities involving students from grades 1 to 6, representing the full range of primary school levels.

Data were collected through three main techniques: (1) Observation, classroom learning activities were observed to assess teaching methods, student engagement, and the application of deep learning strategies. A structured observation protocol was developed based on the CIPP model, focusing on context, input, process, and product aspects. (2) Interviews, semi-structured interviews were conducted with teachers and administrators to gather detailed insights regarding teacher preparedness, challenges in implementing the Merdeka Curriculum, and the support provided for bilingual instruction. Interview guides were developed according to the dimensions of the CIPP model and deep learning practices. And (3) Document Analysis, relevant school documents, such as lesson plans, learning modules, assessment records, and teacher professional development reports, were analyzed to validate and complement observational and interview data.

There are instrument specifications: (1) Observation protocol: Checklist and rating scales aligned with CIPP evaluation dimensions, allowing systematic recording of classroom practices and interactions. (2) Interview guide: Semi-structured questions designed to explore teacher competence, instructional strategies, and curriculum adaptation for bilingual students. And (3) Document review template: Structured format to extract information about curriculum alignment, resource availability, learning activities, and student outcomes.

Data analysis followed a qualitative thematic approach (Braun & Clarke, 2006), guided by the CIPP model. The analysis steps included: (1) Data reduction: Selecting, summarizing, and coding relevant information from observations, interviews, and documents. (2) Data categorization: Organizing data into the CIPP dimensions (context, input, process, product) and linking to deep learning implementation. (3) Data interpretation: Identifying patterns, themes, and relationships to understand the effectiveness of curriculum implementation and teacher competencies in a bilingual school context. And (4) Triangulation: Comparing findings across observation, interview, and document data to ensure credibility and validity of conclusions.

This study employed non-digital and semi-structured qualitative research tools suitable for educational evaluation research. The primary tools consisted of observation protocols, interview guides, and document analysis instruments. These tools were designed to systematically capture qualitative data related to the implementation of the Merdeka Curriculum using the CIPP evaluation framework. The tools were categorized as medium-level sophistication instruments, as they relied on structured indicators and guided questions rather than automated or digital data-processing systems.

The observation tool was a structured checklist and field-note template developed based on the Context, Input, Process, and Product components of the CIPP model. It enabled the researcher to record teaching strategies, student engagement, bilingual instructional practices, and the application of deep learning approaches during classroom activities.

The interview tool consisted of a semi-structured interview guide containing open-ended questions aligned with the research objectives. This tool allowed flexibility while maintaining consistency

across participants, facilitating in-depth exploration of teacher competencies, curriculum challenges, and professional development needs.

The materials used in this study included primary and secondary documents related to curriculum implementation. These materials comprised lesson plans (Rencana Pelaksanaan Pembelajaran), teaching modules, assessment records, student work samples, school curriculum documents, and teacher professional development reports. All materials were selected based on their relevance to evaluating curriculum alignment, instructional processes, and learning outcomes within a bilingual primary school context.

4. RESULT AND DISCUSSION

This section presents the results of the study and discusses the findings based on the research objectives and the CIPP evaluation model. The results are organized into four components: context, input, process, and product. The discussion integrates empirical findings with relevant theories and previous studies to provide a comprehensive understanding of the implementation of the Merdeka Curriculum with a deep learning approach in a bilingual primary school setting.

The results of the context evaluation indicate that the implementation of the Merdeka Curriculum at Palm Kids Primary School is aligned with the school's vision as a bilingual institution. School documents and interviews with administrators reveal that the curriculum emphasizes student-centered learning, character education, and bilingual competence. Learning objectives are formulated to support students' cognitive development while simultaneously strengthening English and Indonesian language proficiency.

Classroom observations confirm that learning activities are designed to be contextual and relevant to students' daily experiences. This alignment between curriculum goals and students' needs supports the fundamental principles of the Merdeka Curriculum, which emphasize flexibility and meaningful learning experiences (Kemdikbud, 2023). These findings are consistent with Setiawan et al. (2024), who argue that curriculum relevance and alignment with school vision significantly influence implementation success, particularly in primary education.

The input evaluation focuses on teacher readiness, educational background, and learning resources. The findings show that while teachers demonstrate commitment and adaptability, several teachers have non-linear educational backgrounds that limit their mastery of pedagogical strategies, particularly in applying deep learning approaches. This condition affects lesson planning, instructional depth, and assessment practices.

Table 1. Summary of Input Evaluation Results

Aspect	Findings	Implications
Teacher background	Some teachers have non-linear academic backgrounds	Need for pedagogical reinforcement
Teacher competence	Adequate basic teaching skills, limited deep learning mastery	Professional development required
Learning resources	Sufficient teaching materials and facilities	Optimization needed for deep learning

The results support previous studies indicating that teacher competence is a key determinant of effective curriculum implementation (Haryanto & Puspitasari, 2022). In bilingual schools, teachers face additional challenges due to the need to integrate language instruction with content learning (Brock et al., 2021). Therefore, strengthening teacher competencies through continuous professional development is essential to maximize curriculum effectiveness.

The process evaluation examines teaching and learning activities during curriculum implementation. Observational data show that learning activities are generally active, interactive, and student-centered. Teachers employ project-based learning, group discussions, and contextual tasks to engage students. Students actively participate in bilingual classroom interactions, demonstrating confidence in expressing ideas. However, the findings also indicate that the application of higher-order thinking skills is not yet optimal. Some learning activities focus more on task completion than on deep conceptual understanding, reflection, and analysis. This suggests that deep learning strategies have not been consistently implemented across all subjects.

These findings align with Rahmawati and Santosa (2021), who emphasize that deep learning requires structured scaffolding and reflective teaching practices. While the Merdeka Curriculum encourages higher-order thinking, its successful implementation depends on teachers' ability to design learning experiences that promote critical inquiry and conceptual depth.

The product evaluation assesses the outcomes of curriculum implementation in terms of student engagement, character development, and critical thinking skills. The results show positive impacts across these dimensions. Students demonstrate increased learning engagement, improved collaboration skills, and positive learning attitudes. Portfolio assessments and learning records indicate progress in students' critical thinking and problem-solving abilities.

Table 2. Summary of Product Evaluation Results

Outcome Aspect	Observed Results
Learning engagement	Increased student participation and motivation
Character development	Improved responsibility, collaboration, and confidence
Critical thinking	Growing ability to analyze and express ideas

These outcomes support Darling-Hammond et al. (2020), who argue that student-centered and deep learning-oriented curricula contribute to holistic student development. The bilingual learning environment

further enhances cognitive flexibility and communication skills when supported by appropriate instructional strategies.

Overall, the findings indicate that the implementation of the Merdeka Curriculum with a deep learning approach at Palm Kids Primary School has been effective in achieving its contextual and outcome-oriented goals. However, challenges in the input and process components—particularly teacher competency and instructional depth—limit the full realization of deep learning principles.

By applying the CIPP model, this study provides a comprehensive understanding of how curriculum alignment, teacher readiness, instructional practices, and learning outcomes interact in a bilingual primary school context. These findings contribute to the refinement of curriculum implementation strategies and support the development of a more effective model for bilingual elementary education

5. CONCLUSION

This study aimed to analyze the implementation of the Merdeka Curriculum with a deep learning approach at Palm Kids Primary School, Muara Enim, a bilingual elementary school, using the CIPP evaluation model. The findings indicate that, in terms of context, the curriculum is well aligned with the school's bilingual vision and students' learning needs. Regarding input, the study reveals challenges related to teacher readiness, particularly among educators with non-linear educational backgrounds, highlighting the need for strengthened pedagogical and professional competencies. In the process dimension, learning activities are generally active, contextual, and student-centered; however, the consistent application of higher-order thinking skills through deep learning strategies has not yet been fully optimized. In terms of product, the implementation of the Merdeka Curriculum has positively impacted student engagement, character development, and critical thinking abilities.

These findings have important practical and theoretical implications. Practically, they emphasize the urgency of continuous professional development to enhance teachers' capacity in implementing deep learning within bilingual instructional contexts. Theoretically, this study reinforces the relevance of the CIPP model as a comprehensive framework for evaluating curriculum implementation, particularly in complex educational settings such as bilingual primary schools. Methodologically, the study demonstrates the effectiveness of a qualitative evaluative approach in capturing the multifaceted nature of curriculum implementation.

The main contribution of this study lies in its systematic evaluation of the Merdeka Curriculum in a bilingual primary school context, an area that remains underexplored in existing literature. By integrating deep learning principles with the CIPP evaluation framework, this research provides empirical insights into how curriculum alignment, teacher competence, instructional processes, and student outcomes interact in bilingual elementary education.

Despite its contributions, this study has several limitations. The research was conducted in a single school, which may limit the generalizability of the findings. In addition, the qualitative nature of the study relies on observational and interview data, which may be influenced by researcher interpretation and participant subjectivity. These limitations suggest that the results should be interpreted cautiously.

Future research is recommended to involve multiple bilingual schools to allow for comparative analysis and broader generalization. Further studies may also employ mixed-methods approaches to quantitatively measure the impact of the Merdeka Curriculum and deep learning strategies on student achievement. Additionally, research focusing on the long-term effects of teacher professional development programs in bilingual settings would provide valuable insights for policy and practice.

In conclusion, the implementation of the Merdeka Curriculum with a deep learning approach at Palm Kids Primary School has shown promising outcomes, particularly in enhancing student engagement and character development. However, strengthening teacher competence remains a critical factor in optimizing curriculum effectiveness. Addressing this aspect will be essential for ensuring the successful and sustainable implementation of the Merdeka Curriculum in bilingual primary school environments.

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