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THE ROLE OF COLLABORATIVE LEARNING MODELS IN ENHANCING ELEMENTARY SCHOOL STUDENTS' CRITICAL THINKING SKILLS WITHIN THE MERDEKA CURRICULUM

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Abstract

Critical thinking skills are one of the key competencies emphasized in the Merdeka Curriculum to develop Profil Pelajar Pancasila, students who are independent, reflective, and capable of collaborative problem-solving. However, classroom practices in Indonesian primary schools are still largely dominated by teacher-centered approaches, leaving limited space for students to exercise critical thinking. This study aims to describe the role of collaborative learning models in developing the critical thinking abilities of primary school students within the implementation of the Merdeka Curriculum. A descriptive qualitative approach was employed in a public elementary school in Indonesia. Data were collected through participant observations, in-depth interviews with teachers and students, and document analysis of lesson plans and students' learning outcomes. The data were analyzed using Miles and Huberman's interactive model, including data reduction, data display, and conclusion drawing/verification. The findings reveal that the implementation of collaborative learning models such as group discussions and the Think-Pair-Share strategy, played an important role in fostering active learning interactions, encouraging students to express their opinions confidently, and enhancing their critical thinking skills through activities of interpretation, analysis, and evaluation. These results highlight the essential role of teachers as facilitators in systematically managing collaborative learning processes in alignment with the principles of the Merdeka Curriculum.

Keywords: Collaborative Learning, Critical Thinking, Merdeka Curriculum, Primary School Students, Qualitative Research.

INTRODUCTION

Critical thinking is one of the essential 21st-century competencies explicitly emphasized in the implementation of the Kurikulum Merdeka (Independent Curriculum). This competency plays a crucial role not only in the mastery of academic knowledge but also in shaping the Pancasila Student Profile, which encourages learners to think critically, act independently, and collaborate effectively in solving problems (Sadiah et al., 2024). However, the reality of classroom practices in many Indonesian elementary schools remains dominated by teacher-centered approaches, where students act merely as passive recipients of information. Consequently, learning activities that stimulate higher-order cognitive processes, such as analysis, evaluation, and logical reasoning, are still very limited (Regina et al., 2025). Aligned with the student-centered learning paradigm promoted in the Kurikulum Merdeka, collaborative learning models offer a relevant and promising approach to cultivating critical thinking skills from an early age. Collaborative learning positions students as active participants who interact in small groups, exchange ideas, provide cognitive support through peer scaffolding, and complete tasks collectively under the facilitation of the teacher (Laela et al., 2024). Theoretically, this model is grounded in Vygotsky's social constructivism, which posits that knowledge is constructed through social interaction and mediated by language (Wakhidah, 2024). In the context of elementary education, collaborative activities, such as group discussions, project teamwork, or the Think–Pair–Share strategy, create spaces for students to interpret information, pose questions, analyze arguments, and evaluate their peers' responses.Empirical evidence from local studies over the past five years demonstrates the effectiveness of various collaborative strategies in enhancing critical thinking indicators among elementary students. For instance, Azzahra & Purrohman (2024) found that implementing Think–Pair–Share in Indonesian language classes significantly improved fourth-grade students' analytical and inferential abilities. Zahara et al. (2025) reported that applying the Jigsaw model in social studies encouraged students to express opinions more confidently and strengthened their evaluative skills. Similarly, Madhakomala et al. (2025) emphasized that integrating collaborative learning with inquiry-based approaches in P5 projects (Pancasila Student Profile Strengthening Projects) expanded opportunities for students to engage in reflective and contextual critical thinking. Collectively, these findings indicate that collaborative learning not only increases student participation but also directly impacts the achievement of critical thinking indicators relevant to the Kurikulum Merdeka.

Nevertheless, a gap persists between curricular expectations and actual classroom practices. Many elementary teachers still lack systematic lesson plans for collaborative models and standardized instruments for assessing critical thinking (Regina et al., 2025). Additionally, limited teacher training and the absence of a strong culture of productive group work in some schools hinder optimal implementation. Therefore, it is essential to conduct in-depth qualitative studies to explore how collaborative learning models contribute to the development of students' critical thinking skills within the real context of the Kurikulum Merdeka implementation at the elementary level. This study aims to describe the role of collaborative learning models in fostering critical thinking through classroom observations, teacher interviews, and document analysis. The findings are expected to provide comprehensive contextual insights and practical recommendations to strengthen the implementation of collaborative learning practices in elementary schools.

LITERATURE REVIEW

Collaborative Learning Models

Collaborative learning models place students in small groups to exchange ideas, explain concepts, and build shared understanding, with teachers acting as facilitators. A range of local studies and reviews have shown that strategies such as Jigsaw, Think–Pair–Share (TPS), Student Teams–Achievement Divisions (STAD), and project-based collaboration are effective in enhancing student participation and the quality of learning interactions at the elementary and madrasah ibtidaiyah (Islamic elementary school) levels. These strategies provide structured spaces for discourse and peer scaffolding, leading to more meaningful engagement.

Evidence from literature reviews in madrasah ibtidaiyah contexts confirms that Jigsaw, TPS, and Group Investigation approaches strengthen students' involvement and conceptual understanding by assigning clear roles and responsibilities within each group ('Ula et al., 2025). At the practical level, numerous implementation reports of TPS in elementary schools, both in thematic instruction and subject-specific lessons, have demonstrated improvements in student motivation, willingness to express opinions, and overall classroom activity. These outcomes are consistent with findings from teacher training programs, which have documented the procedural steps of TPS (thinking–pairing–sharing) and their impact on classroom dynamics. Moreover, Setiyani (2020) concludes that collaborative learning plays a crucial role in fostering critical thinking and problem-solving abilities. These competencies serve as essential foundations for implementing effective learning strategies at the elementary level, supporting students' cognitive development and active participation in the learning process.

Critical Thinking Skills of Elementary School Students

Critical thinking is one of the core competencies that must be cultivated from the elementary level to prepare students for the challenges of the 21st century. Haniva et al. (2024) demonstrated that the implementation of problem-based learning (PBL) can significantly enhance elementary students' critical thinking skills, particularly in the domains of interpretation, analysis, and evaluation. Through open-ended questioning and investigative activities, students are encouraged to engage in reflective and systematic reasoning processes. Fitriyani et al. (2021) emphasized the effectiveness of guided inquiry approaches in fostering critical thinking skills, especially within science learning contexts. This approach provides a structured exploratory framework that encourages students to identify problems and draw logical conclusions from empirical data. Similarly, Maysara et al. (2024) found that collaborative learning supported by scaffolding strategies improves critical thinking abilities by actively involving students in small-group discussions and the elaboration of ideas. Hendracipta et al. (2021) showed that activity-based learning strategies promote the development of analytical and evaluative skills through problem-solving tasks embedded in thematic contexts. Agustina et al. (2022) reinforced these findings through experimental research in elementary schools, indicating that the inquiry model has a positive impact on all critical thinking indicators, particularly in students' abilities to reason and evaluate information. Taken together, the integration of problem-based, inquiry-based, collaborative, and context-driven learning approaches has proven effective in fostering students' critical thinking skills in a comprehensive manner.

Independent Curriculum (Kurikulum Merdeka)

The Kurikulum Merdeka represents a new national curriculum policy in Indonesia that emphasizes flexibility, differentiated learning, and character development through active and contextual learning approaches. At the elementary school level, this curriculum is designed to cultivate the Pancasila Student Profile, particularly by fostering students' critical reasoning abilities and collaborative skills. Within this framework, teachers are granted autonomy to design instructional processes that align with local contexts and students' learning needs, thereby encouraging active participation and higher-order thinking (Ifalahma & Fachruniza, 2021). A growing body of local research indicates that the implementation of Project-Based Learning (PjBL) within the Kurikulum Merdeka has had a positive impact on student engagement. Teachers are able to design cross-thematic, contextually relevant activities that encourage students to explore real-world phenomena, collaborate in groups, and engage in reflective learning. Findings by Oktaviani et al. (2023) demonstrate that PjBL implementation within the Kurikulum Merdeka context enhances students' confidence in expressing opinions and strengthens their analytical abilities when addressing authentic problems.

Moreover, the study conducted by Kusno et al. (2022) underscores the importance of teachers' pedagogical readiness in managing collaborative learning under the Kurikulum Merdeka. Teachers who are capable of designing project-based and differentiated learning activities tend to significantly increase students' participation and critical thinking skills. These findings are consistent with Norisa et al. (2022), who assert that the success of Kurikulum Merdeka implementation at the elementary level is strongly influenced by teachers' roles as facilitators and enablers of students' exploratory thinking. In summary, the Kurikulum Merdeka represents more than a structural change in curriculum content; it signifies a paradigm shift toward active, collaborative, and reflective learning processes. Within this context, collaborative learning models emerge as a key pedagogical strategy for developing elementary students' critical reasoning abilities in alignment with the Pancasila Student Profile.

METHOD

This study employed a qualitative approach with a descriptive method. A qualitative design was chosen because the research aimed to provide an in-depth description of the role of collaborative learning models in enhancing elementary school students' critical thinking skills within the context of Kurikulum Merdeka (Indonesia's Independent Curriculum), rather than to statistically test hypotheses. Qualitative research emphasizes contextual and holistic understanding of phenomena, positioning the researcher as the primary instrument for data collection and analysis. This approach is particularly suitable for exploring learning processes that involve social interaction, collaborative practices, and the dynamics of students' critical thinking. The research was conducted at SD Negeri Plipiran, a public elementary school in Indonesia that has fully implemented Kurikulum Merdeka at the upper grade levels (Grades IV and V). The site was selected purposively based on the school's readiness to adopt collaborative learning practices. The research participants included one classroom teacher, 15 fourth-grade students, and one principal as a supporting informant. The teacher served as the key informant due to their central role in designing and implementing collaborative learning, while students were the main source of information to explore their learning experiences. The principal's involvement provided a policy-level perspective on the school's curriculum implementation.

Data were collected through three primary techniques: participant observation, in-depth interviews, and documentation. Participant observation was conducted to obtain a direct depiction of how the collaborative learning model was implemented in the classroom. The researcher recorded teacher and student activities during learning, including facilitation strategies, interaction patterns, and emergent indicators of critical thinking. In-depth interviews were conducted with teachers, students, and the principal to explore their perceptions, experiences, and challenges in implementing collaborative learning. Documentation included lesson plans, teaching modules, teacher notes, and students' work, which served as supporting evidence for data triangulation. The data were analyzed qualitatively using Miles and Huberman's interactive analysis model, consisting of three main stages: data reduction, data display, and conclusion drawing/verification. Data reduction involved selecting information relevant to the research focus, such as collaborative activities, student responses, and indicators of critical thinking. Data display was conducted through thematic narratives and tabulated findings to facilitate interpretation. Conclusion drawing was carried out inductively, identifying patterns between collaborative practices and the emergence of students' critical thinking skills. To ensure data trustworthiness, the study employed source and technique triangulation, member checks, and prolonged engagement. Source triangulation involved cross-checking data from observations, interviews, and documents. Member checks were conducted by asking teachers and students to verify interim findings to ensure alignment with their actual experiences. Prolonged engagement was achieved through multiple visits to the school to confirm the consistency of observed behaviors and learning practices. In sum, this descriptive qualitative research design enabled the researcher to obtain a deep and contextualized understanding of how collaborative learning models contribute to fostering elementary students' critical thinking skills in the era of Kurikulum Merdeka.

RESULTS AND DISCUSSION

Description of Collaborative Model Implementation

The implementation of the collaborative learning model in this study was conducted in Grade IV of an elementary school that had fully adopted the Merdeka Curriculum. The teacher designed instructional activities by integrating the Think–Pair–Share (TPS) and Project-Based Learning (PjBL) models into thematic learning topics relevant to students' daily lives. The selection of these two models was based on the developmental characteristics of elementary school students, who require strong social interaction, cooperative engagement, and concrete learning experiences. Initial classroom observations indicated that, prior to the application of the collaborative model, classroom interactions were predominantly one-way, teacher-centered, and involved only a few students actively responding to questions. Therefore, collaborative learning was introduced as a strategy to foster active participation, idea elaboration, and the habituation of critical thinking through group activities. The implementation began with a well-structured planning process. The teacher first developed a Lesson Implementation Plan (RPP) aligned with the Merdeka Curriculum, explicitly embedding collaborative elements such as role distribution within groups, open-ended triggering questions, and structured reflection sessions at the end of each activity. During the learning process, the teacher opened each session with a contextual problem stimulus related to students' real-life experiences, such as issues of school environment cleanliness. In the "thinking" stage of TPS, students individually observed the situation and wrote down their initial ideas. This was followed by the "pairing" stage, where students formed small groups of four to five members to discuss their ideas collaboratively. The "sharing" stage involved group presentations in front of the class, followed by inter-group question-and-answer sessions.

In addition to TPS, the teacher implemented simple collaborative projects that incorporated the PjBL approach. In these projects, students engaged in investigative activities, such as observing their school environment, documenting real issues (e.g., waste management or water usage), and designing simple solutions in the form of posters and group reports. The teacher acted as a facilitator, providing scaffolding through guiding questions, modeling task organization, and ensuring active participation from all group members. While groups were granted autonomy in task distribution, the teacher maintained oversight to prevent individual dominance. Throughout this process, students gradually developed habits of listening to peers, responding constructively, and articulating their reasoning in a more structured manner. Observations conducted over three instructional meetings revealed significant changes in classroom interaction patterns. Whereas previously only a few students were active, the implementation of the collaborative model led to a marked increase in student participation during discussions. Students became more confident in expressing ideas, not only to the teacher but also to their peers and the entire class. Interactions evolved from one-way exchanges to dynamic multi-directional dialogues. Moreover, the teacher shifted from the role of primary instructor to that of a facilitator, providing students with greater space to explore ideas and solve problems independently. Teacher reflections gathered through interviews indicated that, although there was initial hesitation about the effectiveness of the collaborative model, after several sessions the teacher observed notable improvements in student engagement, autonomy, and quality of thinking.

Forms of the Collaborative Model's Role in Enhancing Critical Thinking

The first role of implementing a collaborative learning model in developing students' critical thinking skills is encouraging active participation in the learning process. Through the Think–Pair–Share (TPS) strategy and small-group discussions, students are directly engaged in brainstorming, questioning, responding, and articulating ideas openly. These activities enable each student to contribute to problem solving both individually and collectively. Observational findings indicate that when teachers provide contextual problem stimuli, students actively express their initial ideas, then discuss them with peers to enrich their responses. This dynamic creates a social environment that fosters intellectual curiosity and the confidence to express opinions, essential prerequisites for the emergence of critical thinking skills. The second role involves facilitating idea elaboration and strengthening logical argumentation. During the pairing and group-sharing stages, students are encouraged not only to provide answers but also to explain the underlying reasons and supporting evidence. This process trains students to think analytically and evaluatively, two core components of critical thinking. On several occasions, students even clarified or challenged their peers' responses, demonstrating the ability to assess the coherence of arguments and collaboratively build conclusions. Such interactions are difficult to achieve in conventional teacher-centered instruction but occur naturally in collaborative contexts. The third role focuses on fostering metacognitive abilities and critical reflection. After group discussions, teachers ask each group to summarize their discussion results and compare them with those of other groups. This stage involves reflective activities where students review their reasoning, identify weaknesses in their arguments, and correct errors in logic. Teachers also actively provide feedback on students' thinking processes, not merely their final answers. Thus, collaborative learning produces not only discussion outputs but also enhances students' awareness of their own thinking strategies, an essential component in developing higher-order critical thinking skills.

The fourth and equally important role is cultivating students' intellectual courage and self-confidence in expressing ideas publicly. In primary classrooms, a lack of confidence often becomes an initial barrier to critical thinking. Through repeated collaborative interactions and a safe discussion environment, students gradually become accustomed to presenting their ideas before peers and receiving feedback without fear. Teachers play a crucial role in creating this supportive classroom climate by assigning specific group roles (e.g., moderator, note-taker, reporter), providing positive reinforcement, and applying gradual scaffolding. Interviews with teachers reveal that after several sessions, previously passive students began asking questions, offering counter-arguments, and linking ideas to personal experiences. This demonstrates that the collaborative model functions as a "social and cognitive bridge" for building critical thinking skills from the early stages of education.

Analysis of Findings in Relation to Theory and Literature

The findings of this study demonstrate that the implementation of collaborative learning models in elementary classrooms has a significant impact on the development of students' critical thinking skills. This outcome aligns closely with Vygotsky's social constructivist theory, which emphasizes that social interaction serves as a primary vehicle for cognitive development. Through group discussions, students engage within the Zone of Proximal Development (ZPD), where new concepts are internalized through peer support and teacher facilitation. Collaboration functions as a form of scaffolding that extends students' capacity to critically analyze and evaluate information. The observed collaborative learning processes also correspond to Facione's critical thinking framework, which encompasses interpretation, analysis, evaluation, inference, explanation, and self-regulation. These indicators were evident across the different stages of collaborative learning: students interpreted contextual problems during the initial stage, analyzed ideas within small groups, evaluated arguments during presentations, and reflected on their discussions at the end of the lesson. Teachers played a crucial role in facilitating each stage by posing open-ended questions, providing constructive feedback, and creating a safe environment for expressing opinions. Consequently, collaborative learning not only enhances cognitive abilities but also builds students' confidence and courage in articulating their arguments.

In addition to theoretical alignment, the findings are consistent with recent research in Indonesia. Wulandari et al. (2022) reported that collaborative learning within the context of the Merdeka Curriculum positively influences elementary students' critical literacy. Through group work and project-based activities, students become more actively engaged in examining, comparing, and synthesizing information, which contributes to improved reasoning quality. This indicates that collaboration is not merely a methodological strategy but an effective mechanism for cultivating higher-order thinking skills in primary education. Furthermore, Juraidah & Hartoyo (2022) underscore the critical role of teachers in facilitating discussions to ensure that collaborative learning genuinely fosters critical thinking. Teachers who can design challenging questions, manage group dynamics, and provide constructive feedback are better able to create productive classroom interactions. This finding is consistent with field observations indicating that the success of collaboration largely depends on the quality of teacher facilitation rather than the learning model alone. Taken together, these findings provide both theoretical and empirical support for the use of collaborative learning as a powerful strategy to develop students' critical thinking skills within the implementation of the Merdeka Curriculum.

Constraints and Solutions

One of the primary challenges in implementing collaborative learning models in elementary schools lies in the varying levels of academic ability and social skills among students within groups. Observations revealed that in several groups, students with higher academic abilities tended to dominate the discussion process, while those with lower abilities participated passively without making meaningful contributions. This situation potentially hinders equal opportunities for critical thinking within the group. To address this issue, teachers adopted a structured role-allocation strategy, assigning specific roles such as note-taker, presenter, timekeeper, and mini-facilitator. By doing so, each student was given a clear responsibility that encouraged proportional active participation. This approach made the collaborative process more inclusive and ensured that all group members engaged in the thinking process. The second challenge relates to time management during collaborative learning activities. In the initial stages of implementation, group discussions and presentations often exceeded the allocated time. This was mainly due to students' limited experience in working collaboratively and teachers' tendency to provide overly flexible discussion time. As a result, some learning sessions could not adequately reach the reflection or closing stages. To overcome this, teachers improved their time management by providing clearer and more structured discussion guidelines, such as worksheets with guiding questions and time allocations for each phase. Teachers also actively monitored the discussions to ensure that each group followed the workflow efficiently.

The third challenge stemmed from psychological factors, particularly students' lack of confidence in expressing their opinions. Some students exhibited hesitation when speaking in front of their groups or the class, especially during the sharing (group presentation) stage. This is common among students who are not accustomed to speaking openly or who fear giving incorrect answers. To address this, teachers implemented a gradual scaffolding approach: initially encouraging students to speak in pairs, then in small groups, and gradually prompting them to serve as group spokespersons in front of the class. In addition, teachers consistently provided positive feedback to build students' psychological safety. This strategy proved effective in increasing student participation in subsequent sessions.

The final challenge concerned teachers' pedagogical readiness to manage collaborative learning optimally. Interviews indicated that teachers needed time to adapt to their role as facilitators rather than sole sources of knowledge. Difficulties arose in designing collaborative activities that genuinely foster critical thinking and in managing classroom dynamics to remain focused. As a solution, teachers regularly conducted reflective teaching sessions and engaged in peer discussions to refine lesson plans and facilitation methods. They also participated in internal school training programs on the implementation of the Merdeka Curriculum, including active learning strategies. These efforts gradually enhanced teachers' capacity to design collaborative activities that balanced flexibility and structure, thereby achieving the objectives of critical thinking development more effectively.

CONCLUSION

The findings of this study demonstrate that collaborative learning models play a strategic role in fostering critical thinking skills among elementary school students within the context of the Merdeka Curriculum implementation. By applying strategies such as Think–Pair–Share and project-based learning, students are encouraged to participate actively, elaborate on ideas, engage in logical argumentation, and reflect on their cognitive processes. Social interaction in small groups creates an inclusive learning environment that enables students to construct shared understanding through idea exchange, as emphasized by social constructivist theory. These findings highlight that collaborative learning is not merely a method, but an effective pedagogical approach that supports the development of critical reasoning aligned with the Profil Pelajar Pancasila (Pancasila Student Profile).

Despite these positive impacts, the implementation of collaborative learning in elementary schools faces several practical challenges, including differences in students' abilities within groups, time constraints, low student confidence, and limited teacher pedagogical readiness. However, with appropriate facilitation strategies, such as clear role division, gradual scaffolding, structured discussion guidance, and continuous teacher capacity development, these challenges can be gradually addressed. This underscores the crucial role of teachers as both designers and facilitators of effective collaborative learning processes. Based on these findings, it is recommended that teachers consistently integrate collaborative learning approaches into the implementation of the Merdeka Curriculum, particularly within thematic learning activities relevant to students' real-life contexts. Schools should also support teachers through continuous professional development programs and peer reflection forums to strengthen their pedagogical competencies. Furthermore, future research with a broader scope is encouraged to examine variations in the effectiveness of collaborative learning models across diverse school settings and student characteristics.

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