

Improving Critical Thinking and Communication with Deep Learning in Holistic Learning

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Abstract: This study aims to improve students' critical thinking skills using a Deep Learning approach. Based on baseline test results, students' critical thinking skills were low, with only 20.83% of fourth-grade students at SDN 46 Kelawit achieving the Learning Objectives Achievement Criteria (KKTP). The Classroom Action Research (CAR) method used consisted of two cycles, each with two meetings, involving 24 students as research subjects. Data were collected through observations, tests, interviews, and daily notes, and then analyzed descriptively using quantitative and qualitative methods. The study showed an increase in students' critical thinking skills, from an average of 67.49 in cycle I to 85.92 in cycle II. The completion rate increased from 44.16% in cycle I to 67.49% in cycle II. The results of this study indicate an increase in students' critical thinking skills after learning using the Deep Learning approach. The implementation of deep learning emphasizes in-depth conceptual understanding, the interconnectedness of ideas, and the application of real-world knowledge, while also integrating holistic learning encompassing cognitive, affective, social, moral, and spiritual aspects. This approach is expected to create meaningful, enjoyable, and balanced learning to continuously improve students' critical thinking and communication skills. The research findings can serve as a reference for teachers in designing strategies aligned with the Independent Curriculum and supporting the achievement of Indonesia's 2045 golden generation, which is critical, communicative, and has character

Keyword: Critical thinking; communication; deep learning; holistic learning; elementary school.

Introduction

Primary education constitutes a crucial foundation for shaping students' character, cognitive abilities, and learning motivation (Dadri et al., 2019). However, learning practices in schools still tend to emphasise cognitive aspects alone (Wibowo et al., 2021), resulting in the underdevelopment of critical thinking skills and communication abilities (Purwanti, 2015). In fact, in the era of globalisation and the 21st century, these two skills are essential for enabling students to respond rapidly to change, solve problems logically, and adapt to increasingly complex challenges (Suarjana et al., 2020).

In reality, learning in primary schools remains predominantly conventional, with a strong focus on information delivery and routine exercises (Nafiah & Suyanto, 2014). This condition provides limited opportunities for students to construct knowledge, express ideas, or develop critical thinking and communication skills (Ridwan & Nasrulloh, 2022). Meanwhile, social and environmental issues demand the early cultivation of caring and collaborative character traits (Nurhasnawati et al., 2023). This further reinforces the urgency of implementing learning approaches that are more in-depth and meaningful (Suarjana et al., 2020).

One relevant approach is deep learning, which emphasises profound conceptual understanding (Amijaya et al., 2018), the interconnection of ideas, and the application of knowledge in real-life situations (Prawiyogi & Rosalina, 2025). Through this approach, students learn not only “what” but also “why” and “how”, thereby fostering critical thinking skills (Nurlaeli, 2022), communication abilities, and reflective attitudes (Ramadan et al., 2025).

Furthermore, learning in primary schools needs to be designed holistically by viewing learners as whole individuals who possess cognitive, affective, social, moral, and spiritual potential (Yuliana et al., 2020). Within the context of Islamic education, a holistic approach aligns with the teachings of the Qur'an and the Sunnah, which emphasise balance between intellect, heart, and behaviour (Maghfiroh & Akhyak, 2024). Therefore, the integration of deep learning within a holistic learning framework in primary schools is expected to enhance students' critical thinking and communication skills (Sutarto, 2023), while simultaneously nurturing a generation that is intellectually capable, strong in character, and well-prepared to face the challenges of the 21st century (Widodo, 2019).

Methods

The research was conducted during the odd semester of the 2024/2025 academic year at SDN 46 Kelawit. The research method employed was Classroom Action

Research (CAR), which was implemented in two cycles, with each cycle consisting of two actions/meetings. The procedures of the classroom action research included planning, implementation of the action, observation, and reflection in each cycle.

The subjects of this study were 24 fourth-grade students. Data were collected through observation, tests, interviews, and daily journals. The data were analysed using descriptive quantitative–qualitative techniques, derived from the assessment results of observation instruments and simple statistical calculations.

Results And Discussion

Contains a presentation of data and information obtained and the results of the study of the information according to the method and purpose of the article. Authors can also add subtitles according to the problem under discussion. Sub-headings are written with the letters thick and slanted. If there are subtitles, then the subtitles are italicized but not thick. Description of Results and The discussion must contain references/references. Discussion must be focused. If the article conduct trials of learning products, then the test results should be displayed in the form of graphs or tables.

Table 1. Performance Indicators of Critical Thinking Skills of Grade IV Primary School Students at the End of Phase B

Aspect / Skill	Critical Thinking Indicators	Examples of Primary School Student Behaviour
Interpretation (understanding meaning)	– Identifying the main idea of a story, question, or problem. – Classifying objects or information based on their characteristics.	– Identifying the main character in a story. – Grouping animals based on their type of food.
Analysis (breaking down information)	– Identifying differences and similarities. – Demonstrating simple cause-and-effect relationships.	– Explaining the difference between day and night. – Explaining the consequences of not completing homework.
Inference (drawing conclusions)	– Drawing conclusions from a short text. – Making predictions based on simple pictures or data.	– Concluding the moral message of a story. – Predicting what will happen when heavy rain occurs.
Evaluation (assessing information)	– Determining whether an answer is correct or incorrect. – Evaluating opinions with simple reasoning.	– Stating that a classmate's opinion is correct because it matches the text.

		– Rejecting information because it is illogical.
Explanation (communicating results)	– Explaining answers using one's own words. – Providing simple suggestions to solve problems.	– Explaining how to calculate an answer. – Giving suggestions to keep the classroom clean.
Self-Regulation (reflection)	– Acknowledging when an answer is incorrect. – Revising answers after receiving guidance.	– Saying, "My answer was wrong; it should be...". – Changing an answer after rereading the question carefully.

The classification of students' critical thinking ability levels employed the range method (equal interval) within descriptive statistics, with qualitative adjustments to the score thresholds. The minimum score for the "fair" (C) category was set at 70, in accordance with the Criteria for Learning Objective Achievement (KKTP).

Table 2. Table 2. Interpretation of Students' Levels of Critical Thinking Ability

Score Range	Interpretation
90-100	Very Good
80-89	Good
70-79	Fair
0-69	Needs Guidance

The results of the analysis of the lesson plan (RPP) implemented using the Deep Learning approach fell into the very good category, as indicated by the average implementation percentage of 92% in Cycle I and 95% in Cycle II. Based on the analysis of the learning process assessment using the Deep Learning approach, the implementation was also classified as very good, with implementation percentages of 91.5% in Cycle I and 93.5% in Cycle II.

The results of observations of student activities showed that the average percentage of students engaged in physical activities was 78.46% in Cycle I and 80.38% in Cycle II. The percentage of mental activities was 63.85% in Cycle I and increased to 71.54% in Cycle II, while the average percentage of students demonstrating emotional activities was 78.40% in Cycle I and 82.31% in Cycle II.

The results of the test of students' critical thinking skills in learning through the Deep Learning approach are presented in the following table.

No	Indicators	Cycle 1			Cycle 2		
		P1	P2	X	P1	P2	X
1.	Developing existing ideas into new,	72,44	68,58	70,51	74,36	85,90	80,13

	critical, and imaginative forms in order to express ideas or feelings through work or actions, as well as appreciating and evaluating the resulting work or actions.							
2.	Exploring and expressing thoughts and/or feelings according to interests.	62,02	67,31	64,67	88,94	89,42	89,18	
3.	Identifying various alternative solutions to problems when the chosen strategy is unsuccessful, based on an analysis of the situation.	65, 38	69,23	67,31	88,46	88,46	88,46	
Average		66,61	68,37	67,49	83,92	87,93	85,92	
Percentage of Learning Mastery		46,15%	42,31%	42,31%	84,61%	100%	96,15%	

Explanation:

P1 = Meeting 1

P2 = Meeting 2

X = Mean

The results of the students' creative thinking skills test in Cycle I showed a mean score of 67.49. The mean score for the element of generating original ideas was 70.51, while the element of producing original work and actions obtained a mean score of 64.67. The element of cognitive flexibility in seeking alternative solutions to problems recorded a mean score of 67.31. In terms of mastery, the percentage of students achieving mastery in Meeting 1 reached 46.15% (12 students) and in Meeting 2 reached 42.31% (11 students).

In Cycle II, there was a notable improvement in students' creative thinking skills, with the overall mean score increasing to 85.92. The mean score for the element of generating original ideas rose to 80.13, the element of producing original work and actions increased to 89.18, and the element of cognitive flexibility in identifying alternative problem-solving strategies reached 88.46. Furthermore, the mastery

percentage in Meeting 1 increased to 84.61%, and in Meeting 2, 100% of students achieved mastery.

1. Improvement of Critical Thinking Skills

The findings of the study indicate an increase in the mean test scores from 67.49 in Cycle I to 85.92 in Cycle II. The percentage of mastery learning also increased significantly from 42.31% to 96.15%. These results demonstrate that deep learning-based instruction is effective in enhancing students' abilities to analyse, draw conclusions, and evaluate information.

2. Analysis of Learning Activities

Students' mental and emotional learning activities also showed improvement in Cycle II. This condition aligns with the meaningful learning approach, which emphasises active student engagement in the learning process (Marifatul Azizah et al., 2018).

3. Holistic Integration

Students demonstrated increased self-confidence, willingness to collaborate, and active participation in expressing their opinions. This finding is consistent with holistic education theory, which promotes the simultaneous development of cognitive, affective, and social domains (Yuliana et al., 2020).

Overall, the study shows a consistent increase in students' average critical thinking test scores from the baseline condition through Cycle I and Cycle II. Based on the mastery percentage interpreted using the Criteria for Learning Objective Achievement (KKTP), there was also a clear improvement. Thus, the findings confirm that the implementation of Deep Learning effectively enhances the critical thinking skills of Grade IV students at SDN 46 Kelawit.

The Importance of Critical Thinking and Communication

Critical thinking is a reflective mental process that involves analysis, evaluation, and logical reasoning in problem-solving (Akmal et al., 2025). According to Yuningsih and Devi (2024), critical thinking is not merely the memorisation of theories (Dwijantie, 2025), but rather the ability to identify problems, process information, and make evidence-based decisions (Widiastuti & Kania, 2022). For instance, when students learn about social or scientific phenomena, they are encouraged to ask questions such as "Why does this occur?" or "What are the impacts on society?" (Fedi et al., 2019).

Effective communication refers to the ability to convey ideas systematically, clearly (Prasetyo & Kristin, 2020), and persuasively. This skill is essential in an era of collaboration, where interdisciplinary teamwork is increasingly common (Surya Adnyana et al., 2022). In group discussions, for example, students are required to express their opinions while respecting the ideas of others (Wulandari, 2016). Both skills are essential life skills that are not only valuable in school settings (Sinaga & Adlini, 2025), but also in social life, the workplace, and leadership contexts (Izzuddin, 2019).

The Role of Deep Learning in Skill Development

The deep learning approach differs significantly from surface learning. While surface learning emphasises memorisation, deep learning focuses on deep understanding, conceptual interconnectedness, and real-world application (Rasma et al., 2025). Its three main pillars include:

a. Meaningful Learning

Learning materials are connected to students' daily experiences to ensure relevance and deeper understanding (Marifatul Azizah et al., 2018). For example, in mathematics lessons (Siregar, 2020), students not only memorise formulas but also analyse data from their school environment to identify cleanliness levels or plastic consumption habits (Muhammad Haris Diponegoro et al., 2021).

b. Mindful Learning

Students are encouraged to reflect on their own learning processes, recognise strengths and weaknesses (Akmal et al., 2025), and improve learning strategies accordingly (Peryanto et al., 2020). For instance, after a science experiment, students write reflections on what they did well and what needs improvement (Adnyana, 2024).

c. Joyful Learning

Learning activities are designed to be enjoyable, creative, and interactive, fostering active participation and positive learning experiences (Hoiris Zuhro & Quotal, 2024).

Common instructional methods within deep learning include:

Project-Based Learning (PjBL): Students engage in real-world projects that develop collaboration, communication, and critical thinking skills (Atmojo et al., 2025), such as designing a plastic waste reduction campaign.

Problem-Based Learning (PBL): Students analyse authentic problems collaboratively, for example identifying solutions to flooding issues in the school environment (Kelas et al., 2025).

Integration with Holistic Education

To optimise the implementation of deep learning, it should be integrated with a holistic education approach (Sudrajat & Sufiyana, 2020). Holistic education views students as whole individuals, encompassing:

Cognitive aspects: Conceptual understanding, analysis, and critical thinking.

Affective aspects: Attitudes, moral values, empathy, and social awareness (Rohmawati, 1972).

Psychomotor aspects: Physical skills, practical activities, and application of knowledge (D. I. Sekolah et al., 2025).

In this context, character education plays a crucial role (Utomo & Rizqa, 2024). The Character-Based Holistic Education Model (PHBK) can be employed to embed moral and ethical values into all learning activities (Irfanuddin & Widodo, 2025). Values such as discipline, responsibility, cooperation, and social care are integrated contextually throughout the learning process.

Examples of implementation include:

Group work in PjBL activities that foster cooperation, communication, and tolerance (Wulung, 2025).

Classroom presentations that enhance self-confidence and public speaking skills.

Social projects that cultivate empathy, environmental awareness, and responsibility (Mahardika & Jaya, 2025).

Implications and Benefits

The integration of deep learning and holistic education offers numerous benefits (K. Sekolah et al., 2025), including:

Enhanced critical thinking skills in addressing real-life problems.

Improved communication skills, both oral and written.

The development of students who are not only intellectually capable, but also ethical, caring, and adaptive.

The creation of learning environments that are meaningful, mindful, and enjoyable (Irfanuddin & Widodo, 2025).

Thus, educational outcomes are not solely oriented towards academic achievement, but also towards preparing learners to face modern challenges with balanced intellectual, moral, emotional, and practical competencies (Dasar, 2025). Empirical evidence confirms that integrating deep learning within a holistic learning framework is effective in improving educational quality and nurturing innovative and adaptive learners (Pendidikan et al., 2025). Deep learning encourages students to become more active, creative, and capable of linking academic concepts with real-world contexts (Asmawati, 2015), thereby directly enhancing critical thinking, problem-solving, and communication skills (Wahyuni & Fitria, 2023).

At the same time, holistic education ensures that students develop into well-rounded individuals with strong character and readiness to face future challenges (Citra et al., 2024). By emphasising deep understanding (Royani et al., 2024), self-reflection, and joyful learning experiences, this integrated approach supports balanced and comprehensive student development (Numerasi et al., 2025). Therefore, the synergy between deep learning and holistic education is essential in fostering highly competitive generations capable of making positive contributions to society (Ipas et al., 2025).

Conclusion

Based on the findings of this study, the Deep Learning approach was shown to enhance the critical thinking skills of Grade IV students at SDN 46 Kelawit. There was a clear increase in the mean scores of students' creative thinking ability tests from Cycle I to Cycle II, accompanied by a substantial improvement in the percentage of learning mastery. These results indicate that Deep Learning is effective in improving the quality of instruction and in fostering a generation that is innovative and adaptive.

The Deep Learning approach encourages students to become more active and creative learners and enables them to connect academic concepts with real-world contexts. This process directly enhances students' critical thinking, problem-solving abilities, and effective communication skills. Furthermore, holistic education ensures that students develop into well-rounded individuals with strong character and

readiness to face future challenges. By emphasising deep understanding, self-reflection, and enjoyable learning experiences, this integrated approach supports the balanced and comprehensive development of students' potential.

Therefore, the synergy between Deep Learning and holistic education is essential for cultivating highly competitive learners who are not only academically competent but also capable of making positive contributions to society.

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