



# Analysis of Teacher Learning Strategies to Improve Critical Thinking Skills of Elementary School Students

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**Abstract:** *This study aims to analyze teacher learning strategies in developing critical thinking skills in elementary school students through literature study methods. The low critical thinking skills of students in Indonesia are evident from the results of the Programme for International Student Assessment (PISA), which shows that students' abilities in analyzing information and solving problems are still in the low category. This condition is influenced by learning that is still teacher-centered and does not actively involve students. The results of the study indicate that expository, inquiry, problem-based learning, cooperative, contextual, affective, and Project Based Learning (PjBL) strategies can help students think logically, analyze problems, and solve problems independently. The inquiry strategy is considered most relevant to the Independent Curriculum because it places students at the center of learning through independent questioning, observing, discovering, and drawing conclusions. This strategy can train students' critical thinking skills more actively, systematically, and in-depth, thus becoming a solution to improve the quality of learning and student abilities, as reflected in the PISA results.*

**Keywords:** *Learning strategies, critical thinking, inquiry strategies, elementary school*

## Introduction

Law No. 20 of 2003 concerning the National Education System (SISDIKNAS) states: "Education is a conscious and planned effort to create a learning atmosphere and process so that students actively develop their potential to possess spiritual and religious strength, self-control, personality, intelligence, noble character, and the skills needed by themselves, society, the nation, and the state." Critical thinking skills are a person's ability to understand, analyze, evaluate, and interpret information objectively, enabling them to make accurate and logical decisions. This ability is crucial for students because it helps them understand information more deeply, solve problems based on facts, and provide clear reasons for decisions. With critical thinking skills, students can also gain a broader perspective when facing various problems and situations in everyday life ([Admfip, 2025](#)).

However, students' critical thinking skills in Indonesia are still relatively low. This is evident in the results of the latest Program for International Student Assessment (PISA), which ranked Indonesia at the bottom, around 70th out of 81 participating countries. These

results indicate that most students still experience difficulty analyzing information, evaluating arguments, and solving complex or unexpected problems. This situation indicates that students' critical thinking skills still need to be improved, as they can impact their cognitive development and adaptability in facing various challenges in learning and daily life. Students' low critical thinking skills are influenced by several factors, one of which is the teacher-centered learning process. During learning, students often receive information directly without sufficient opportunities to ask questions, discuss, express opinions, or solve problems independently. Furthermore, the use of a lack of varied learning strategies also leads to suboptimal student engagement in the learning process. As a result, students' critical thinking skills are not fully developed.

Therefore, appropriate learning strategies are needed to help improve elementary school students' critical thinking skills. Teachers play a crucial role in selecting and implementing learning strategies that actively engage students in the learning process. By using appropriate learning strategies, students are expected to be more active in analyzing problems, expressing opinions, and finding solutions logically and systematically, thereby further developing their critical thinking skills. Based on this description, it can be identified that elementary school students' critical thinking skills are still relatively low. This is evident in students' difficulties in understanding information, analyzing problems, evaluating opinions, and determining solutions appropriately and logically. This low level of critical thinking skills is further reinforced by the PISA results, which show that Indonesian students' abilities still rank low compared to other countries. Furthermore, the teacher-centered learning process and the use of a lack of varied learning strategies result in students being less actively involved in learning activities. This condition results in students' critical thinking skills not developing optimally and can impact their cognitive development and adaptability in daily life.

Various studies have shown that the use of student-centered learning models can improve the critical thinking skills of elementary school students. One widely used model is Inquiry Learning. This model positions students as active subjects in the learning process through activities such as observing, asking questions, investigating, analyzing data, and drawing conclusions. Research conducted by [Linsih, Soepriyanto, and Praherdhiono \(2025\)](#) shows that the implementation of Collaborative Inquiry-Based Learning has a positive effect on the critical thinking skills of elementary school students because it encourages students to actively explore information and solve problems independently. In addition to Inquiry Learning, Problem-Based Learning (PBL) has also been proven effective in improving critical thinking skills. PBL uses real-life problems as a starting point for learning, requiring students to identify problems, seek information, analyze data, and determine appropriate solutions. Research by [Darmawati and Mustadi \(2023\)](#) shows that students who learn using the PBL model have better critical thinking skills than students who learn using the expository model. The results of this study indicate that PBL can improve the analytical, evaluation, and problem-solving skills of elementary school students. Another study conducted by [Pohan and Indarini \(2024\)](#) also found that Problem-Based Learning and Inquiry Learning models were effective in improving critical thinking skills and science

learning outcomes in elementary school students. Both models provide opportunities for students to actively engage in the learning process, thereby developing higher-order thinking skills. Furthermore, Project-Based Learning (PjBL) is a learning model that focuses on project completion as a learning tool. Through project activities, students are trained to plan, collect information, process data, collaborate, and produce products related to real-life problems. The results of a Systematic Literature Review conducted by [Putri, Sumarno, and Widianingrum \(2025\)](#) indicate that PjBL is effective in improving critical thinking skills in elementary school students because it encourages active student involvement in problem-solving and decision-making processes. Research by [Selasmawati and Lidyasari \(2023\)](#) also shows that the implementation of PjBL can improve critical thinking skills in elementary school students, a key 21st-century competency. Through project-based learning, students not only understand the learning material, but are also able to analyze information, evaluate various alternative solutions, and produce work that is relevant to the context of everyday life.

Based on various previous studies, it can be concluded that Inquiry Learning, Problem-Based Learning (PBL), and Project-Based Learning (PjBL) are effective learning models for developing critical thinking skills in elementary school students. However, most previous research has focused on only one specific learning model. Therefore, this study aims to provide a more comprehensive analysis of various learning strategies that emphasize active student engagement, such as expository learning, inquiry learning, PBL, cooperative learning, affective learning, contextual learning, and PjBL. Through this in-depth analysis, this article aims to map how these strategies can help students develop the ability to analyze problems, evaluate information, and determine solutions critically and systematically. Research on teacher strategies for developing critical thinking skills is a crucial challenge in advancing education in Indonesia, particularly in supporting the implementation of the Independent Curriculum. Therefore, the novelty of this article is expected to serve as a comprehensive practical reference for elementary school teachers to improve students' higher-order thinking skills, so that the learning process is no longer simply memorizing material but also building contextual and meaningful understanding.

## Methodology

This research uses a literature study, searching for theoretical references relevant to the case or problem identified. A literature study, or library research, is a series of activities related to data collection, reading, recording, and processing of research materials ([Zed, 2014](#)). According to [Creswell, John W. \(2016\)](#), a literature review is a written summary of articles from journals, books, and other documents that describe theories and information, both past and present, by organizing the literature into the necessary topics and documents.

These activities are carried out systematically to collect, process, and summarize data using specific methods to find answers to the problems encountered ([Sari, 2020](#)). The data obtained are then analyzed using descriptive analysis methods. Descriptive analysis is carried out by describing facts, followed by analysis, not merely describing but also providing sufficient understanding and explanation.

## Results and Discussion

Research on teacher learning strategies for developing critical thinking skills in elementary school students is a critical challenge in improving the quality of education in Indonesia. Indonesian education currently implements the Independent Curriculum (Curriculum Merdeka), a learning system that emphasizes the development of students' thinking skills, not just memorizing material but also understanding, analyzing, and solving problems in the learning process. Therefore, teachers are required to be able to select and implement learning strategies that can encourage active and critical thinking skills in students from elementary school.

Developing critical thinking skills in elementary school students requires learning strategies that are appropriate to student characteristics and learning objectives. Teachers play a crucial role in creating an active, interactive learning process that encourages students to ask questions, express opinions, and solve problems. Based on research findings, several learning strategies are used by teachers to develop students' critical thinking skills. Each strategy has its own advantages, disadvantages, and impacts on student engagement in learning. The following is a discussion of each of these learning strategies.

### Expository Learning Strategy

Expository learning strategies are used by teachers to help students optimally understand and master subject matter through direct explanation. In this strategy, the teacher plays a dominant role in delivering learning material in a structured manner, making it easier for students to grasp the concepts being studied. Students are expected to be able to comprehend the material, re-explain information, and answer questions based on the teacher's explanations. The learning media or methods used include lectures, direct explanations, question-and-answer sessions, textbooks, educational videos, diagrams, pictures, maps, and physical examples. Analysis shows that the expository strategy is effective for delivering material quickly, systematically, and in a focused manner. Teachers can control the learning process and ensure that all material is delivered according to the learning objectives. Furthermore, the use of learning media can help improve students' understanding of the material explained by the teacher. This strategy is also suitable for elementary school students, who still require direct guidance and explanation to grasp learning concepts. However, the expository strategy tends to make students more passive if it is not accompanied by active interaction. This occurs because learning is more teacher-centered, so students' opportunities to ask questions, express opinions, and analyze problems are limited. Consequently, students' critical thinking skills are not optimally developed if teachers consistently use the lecture method.

### Inquiry Learning Strategy

The inquiry learning strategy is used by teachers to develop students' independent critical, systematic, and logical thinking skills. In this strategy, students not only receive information from the teacher but also actively search, discover, and understand the core material independently through a process of thinking and exploration. Students are

expected to have the ability to interpret problems, analyze data, evaluate information, and draw logical conclusions. The media or learning methods used include questions and answers, discussions, experiments, discovery, problem-solving, observation, and projects. Through these methods, students are given the opportunity to seek information, observe a problem, and find answers based on their own thoughts and learning experiences. In this case, the teacher acts as a facilitator who accompanies the learning process, not as the sole source of information. The analysis results show that the inquiry learning strategy is very effective in developing critical thinking skills in elementary school students. This inquiry learning strategy shows that its main focus is on developing critical, logical, and systematic thinking skills. Students are trained to solve problems, ask questions, search for data, and formulate their own conclusions. However, implementing the inquiry learning strategy requires teachers to be prepared in managing the learning so that all students can be actively involved. This strategy also requires more time than the expository strategy because students must go through the process of observation, data collection, and analysis before reaching conclusions.

### **Problem-Based Learning Strategy**

Teachers use the Problem-Based Learning Strategy to develop students' thinking and problem-solving skills, both independently and in groups. This strategy places real-life problems at the center of learning, encouraging students to think actively in finding solutions to the problems presented. From a cognitive perspective, students are able to understand and analyze problems and determine appropriate solutions. From an affective perspective, students demonstrate active, responsible behavior and are able to collaborate in group discussions. Meanwhile, from a psychomotor perspective, students are able to conduct observations, seek learning resources, and present discussion results effectively.

Learning media and methods used include books, environmental conflicts, and social phenomena in the community. The issues raised are usually related to students' daily lives, making learning more contextual and understandable. Through discussion, observation, and problem-solving activities, students learn to connect learning material to real-life situations they encounter in their environment. Analysis shows that the problem-based learning strategy is highly effective in developing elementary school students' critical thinking skills. Students are trained to identify problems, seek information, analyze the causes of a problem, evaluate various solutions, and make logical decisions. This process helps students become more active thinkers, confident in expressing their opinions, and able to collaborate with their peers in completing group assignments. The expected outcome of implementing Problem-Based Learning is improved critical thinking and communication skills. Furthermore, students become more independent, creative, and accustomed to working collaboratively with others. However, implementing a problem-based learning strategy requires teachers to be prepared to design problems appropriate to the developmental level of elementary school students. Teachers also need to guide students during discussions to ensure learning remains focused and all students can actively participate.

## **Cooperative Learning Strategy**

Teachers use cooperative learning strategies to develop students' critical thinking skills through fair and student-centered group collaboration. Through this model, teachers aim to foster a strong sense of responsibility in students, both for their own learning process and for the success of their teammates. Furthermore, this strategy aims to provide equal opportunities for success for all students, regardless of their academic abilities. Students are expected to be able to identify and clarify problems, analyze arguments, ask and answer clarifying questions, evaluate sources and solutions, and draw conclusions (inferring). These capabilities demonstrate that cooperative learning strategies focus not only on learning outcomes but also on students' thinking processes during the learning process. The methods and media applied in this learning are cooperative learning methods with peer tutoring techniques that utilize the concept of the zone of proximal development. Supporting instruments used by teachers as facilitators include group assignment sheets that are worked on together, as well as a dual assessment system that combines assessment of individual contributions and evaluation of the final group results. The analysis results show that cooperative learning strategies are effective in building students' responsibility and social skills through giving group assignments that are worked on together. The implemented peer tutoring system has been proven to be able to foster positive interactions, where members who understand are obliged to help members who are struggling before asking for help from the teacher. This condition helps students become more active in discussions, asking questions, expressing opinions, and respecting different views within the group.

## **Affective Learning Strategies**

Teachers use affective learning strategies to train students to make wise decisions based on their positive values, while also instilling character traits such as responsibility, discipline, cooperation, self-confidence, honesty, respect for others' opinions, and self-control. Furthermore, the learning objectives of this strategy are also aimed at enabling students to understand a problem from various perspectives, express opinions logically, and demonstrate social awareness for their surroundings. Students are expected to develop the ability to identify problems, analyze situations, justify their opinions, consider the impact of decisions, and conclude solutions based on moral and social values. Students also demonstrate critical thinking skills when they respect differences of opinion, actively ask questions, and provide responses to issues discussed during the learning process. The media or learning methods used include instructional videos, illustrations, inspirational stories, case studies, and displays of social situations related to students' daily lives. Frequently used learning methods include group discussions, role-playing, problem-solving, question-and-answer sessions, simple debates, and case studies. Through this method, students not only receive theoretical material but also learn to understand values and attitudes through direct experience in the learning process. Analysis shows that affective learning strategies can help students become more active in expressing their opinions and more confident in making decisions. Furthermore, students are better able to

understand the feelings of others, work collaboratively in groups, and solve problems by considering moral and social values. This strategy has been proven to support the development of critical thinking skills because students are trained to analyze problems, provide logical reasons, and determine appropriate solutions based on sound value considerations. However, implementing affective learning strategies requires teachers to be prepared to guide and direct students' attitudes during the learning process. Teachers must be able to create a comfortable learning environment so that students can confidently express their opinions and respond to problems openly.

### **Contextual Learning Strategies**

Contextual learning strategies are used by teachers to train students to understand material by relating it to everyday life. In this strategy, learning focuses not only on delivering theory but also on how students can connect the subject matter to real-life situations they encounter in their surroundings. Students are expected to be able to analyze real-life problems based on the learning material and apply their knowledge to solve problems in their environment. In addition, students are also expected to be able to identify problems, provide logical reasons or opinions, analyze information, draw conclusions, and provide solutions to a problem. These abilities show that contextual learning strategies not only help students understand the material but also train critical thinking skills in greater depth. The media or learning methods used are through discussions, questions and answers, problem solving, observation, and assignments. In its application, teachers provide problems or situations related to students' real lives so that learning becomes more active and meaningful. The analysis results show that contextual learning strategies make students more active and easier to understand the material because learning is linked to real life. Students become more interested in participating in learning because they feel the material being studied is related to everyday experiences. However, the implementation of contextual learning strategies requires teachers' creativity in linking learning materials to real conditions that are appropriate to the experiences of elementary school students. Teachers also need to prepare interesting learning activities so that students can be actively involved during the learning process.

### **Project-Based Learning (PjBL) Strategy**

Teachers use the Project-Based Learning (PjBL) strategy to develop students' critical thinking, creativity, collaboration, and problem-solving skills through project work. This strategy provides students with the opportunity to engage directly in the learning process by designing, working on, and completing projects related to real-life situations. Learning focuses not only on the final outcome but also on students' thinking processes and collaboration throughout the project. Students are expected to identify and map real-world problems in their environment, and develop collaboration skills, creativity, learning motivation, and critical thinking skills in problem-solving. The learning media or methods used include project-based learning, group discussions, and presentations. During the learning process, students work collaboratively in groups to determine project themes,

gather information, develop work plans, and present the results of their projects. The teacher acts as a facilitator, guiding students throughout the project process to ensure optimal learning objectives are achieved. Analysis shows that Project-Based Learning (PjBL) through group discussions and presentations has proven effective in transforming students into active, independent, and highly motivated learners. This project hones higher-order cognitive abilities through the process of identifying, mapping, and analyzing real-world problems in the surrounding environment to generate logical solutions. Project-Based Learning strategies also develop students' critical thinking skills because they are trained to seek information, analyze data, determine solutions, and make decisions throughout the project process. However, implementing Project-Based Learning (PjBL) strategies requires careful planning and time management from teachers, as the project process takes relatively longer than traditional learning. Teachers also need to ensure that each student is actively involved in the group to avoid unequal distribution of tasks.

Based on the discussion of the learning strategy analysis, the most relevant learning strategy used in teacher learning strategies is the inquiry learning strategy. The inquiry learning strategy is most relevant to the Independent Curriculum because it places students at the center of learning (student-centered learning). In this strategy, students not only receive material from the teacher but also actively seek information, discover concepts, analyze problems, and draw conclusions independently. This aligns with the objectives of the Independent Curriculum, which emphasize the development of critical thinking skills, creativity, problem-solving, and student engagement in the learning process.

Through the inquiry strategy, students are trained to ask questions, observe, evaluate information, and solve problems logically and systematically. The learning process becomes more meaningful because students gain direct learning experiences through observation, discussion, experimentation, and discovery. Furthermore, the teacher in this strategy acts as a facilitator, guiding students through the learning process, rather than as the sole source of information. This role also aligns with the characteristics of the Independent Curriculum, which provides students with the freedom to explore knowledge according to their abilities and learning experiences.

The analysis shows that the inquiry learning strategy is able to develop students' critical thinking skills more optimally than other strategies because students are actively involved throughout the learning process. Students not only understand the material but are also able to analyze information, interpret problems, provide logical reasoning, and draw conclusions based on their own thinking. Therefore, the inquiry learning strategy is considered the most relevant strategy for implementing the Independent Curriculum in developing critical thinking skills in elementary school students.

Based on the analysis of the seven learning strategies implemented by teachers, a common thread (synthesis) emerged: strategies that require independent and collaborative activities are significantly more effective in boosting elementary school students' critical thinking skills than conventional strategies. While expository strategies tend to limit cognitive acceleration due to their teacher-centered nature, inquiry, Problem-Based Learning (PBL), and Project-Based Learning (PjBL) strategies simultaneously integrate

students' metacognitive abilities through data collection activities, contextual problem-solving, and group decision-making.

## Conclusion

The implementation of various student-centered learning strategies especially inquiry strategies has crucial implications for reforming the quality of primary education in the Merdeka Curriculum era. These findings confirm that the shift from conventional (expository) models to active methods such as inquiry, Problem-Based Learning (PBL), and Project-Based Learning (PjBL) has proven effective in stimulating students' analytical thinking skills, thereby boosting global literacy and numeracy achievements, such as PISA scores. As a practical recommendation, elementary school education practitioners are advised to consistently integrate guided inquiry methods and develop more thorough time management and project planning to ensure equitable student participation. Meanwhile, for further research, it is recommended to conduct field experiments or classroom action research (CAR) empirically to quantitatively measure the comparative effectiveness of these combined strategies in improving elementary school students' metacognition.

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