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Implementation of Learning Models To Improve Elementary School Students' Critical Thinking Abilities

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Abstract. Critical thinking ability is one of the core skills that must be developed in elementary school education, considering its importance in forming analytical thinking and effective problem solving. The right learning model can be the key to facilitating the development of students' abilities. This research aims to identify the role of learning models in improving students' critical thinking abilities, by emphasizing the importance of these abilities in the current educational context. The literature review method is used to collect data from various related literature sources. This type of research is analytical descriptive which examines theories about learning and critical thinking. The results of the literature review show that the application of relevant learning models can significantly influence the development of students' critical thinking skills, especially through student-centered learning (Contextual Teaching and Learning (CTL), flipped classroom, and technology-based learning), collaborative learning (jigsaw and integration STEM), and the use of problem solving models (Problem Based Learning (PBL), inquiry-based learning, and project-based learning). The implication of this research is the importance of integrating learning models that support the development of critical thinking in learning design in schools. This research provides a strong theoretical basis for the development of more effective learning strategies in the context of elementary school education. Further research is recommended to empirically test the effectiveness of these learning models in different classroom contexts.

Keywords: earning model, critical thinking, elementary school students

INTRODUCTION

Critical thinking skills are the ability to interpret data, make conclusions, explain information clearly, analyze and evaluate. Ennis (2000) describes several components of critical thinking skills, namely FRISCO (Focus, Reasons, Inferences, Situation, Clarity, and Overview). Focus means being able to focus attention on the core of the problem. Reasons is defined as the ability to provide arguments related to relevant data and facts. Inferences, able to make appropriate conclusions based on the identification process in the completion step. Situation, meaning being able to collect relevant information and utilize concepts to answer questions according to the problem. Clarity , language clarity , communicative, and understandable. Overview, namely being able to double check the results (review) as a whole regarding the coherence of the problem with the decisions that have been taken. Critical thinking ability is an ability that is not only crucial to apply in learning but is also necessary in everyday life.

Students' critical thinking abilities at the basic education level in Indonesia currently still face various challenges that need serious attention. Based on various research and observations, there are several findings that indicate the current level of critical thinking abilities of elementary school students, including: 1) Low ability to analyze information. Many elementary school students show difficulty in analyzing complex information. They tend to accept information passively without questioning the validity or source of the information. Research by Wulandari (2019) shows that only around 30% of elementary school students are able to identify valid arguments and analyze evidence critically in the context of science learning (Wuladari, 2019). 2) Limitations in Asking Critical Questions . Elementary students are often not trained to ask deep and critical questions. They ask more about simple facts than exploring questions that encourage higher-order thinking. According to research by Purwanto and Santosa (2020), only around 25% of students consistently ask critical questions in class discussions (Purwanto & Santosa, 2020). 3) Lack of Reflection and Evaluation . Elementary students' ability to reflect and self-evaluate is also still low. Students rarely evaluate their own learning processes or consider ways to improve their understanding. Research by Andayani (2018) found that only around 20% of students were involved in reflection activities regularly after the learning process (Andayani, 2018). 4) Learning that focuses on memorization . A curriculum that emphasizes memorization and repetition of information rather than developing critical thinking skills is also an inhibiting factor.

Research by Setiawan (2017) revealed that the dominant learning approach currently still focuses on mastering textual material without providing sufficient space for students to develop critical thinking skills (Setiawan, 2017).

Based on the above, this research aims to identify the role of learning models in improving students' critical thinking abilities, by emphasizing the importance of these abilities in the current educational context.

METHOD

This research uses a literature study method to examine the application of learning models to improve elementary school students' critical thinking skills. This method was chosen because it allows researchers to collect, identify and analyze various relevant and reliable literature sources related to the topic under study.

Kuhlthau (2002) describes the steps in library research as a systematic and structured process. In his book, *"Teaching the Library Research Process,"* Kuhlthau describes the stages that must be followed in conducting library research. These steps are Topic Selection, Information Exploration, Determining Research Focus, Collecting Data Sources, Preparing to Present Data, Preparing Reports

The analysis technique used in this research is descriptive content analysis. Content analysis is used to obtain valid inferences that can be re-examined based on the context. According to (Eriyanto, 2013:46), in this analysis the process of selecting, comparing, combining and sorting various meanings is carried out until relevant data is found. Descriptive Content Analysis, namely analysis used to describe in detail a message, or a particular text. This analysis design is not intended to test the relationship between variables, this analysis is only intended to describe the aspects and characteristics of a message.

RESULTS AND DISCUSSION

Critical thinking skills are one of the critical aspects of education that prepare students to face the complexities of the modern world. At the elementary school level, these abilities are not only the foundation for intellectual development, but also skills that support lifelong learning. In the context of learning in elementary schools, the importance of choosing the right learning model not only has an impact on students' academic abilities, but also on the development of their social skills and independence. Through a review of the literature, we can identify the successes and challenges of each learning model in improving students' critical thinking. This becomes the basis for designing effective and sustainable learning approaches in the future.

The following are the results of a literature study from several studies regarding the application of learning models to improve elementary school students' critical thinking skills.

In discussing the research results that have been presented, we can see that each research makes a valuable contribution in improving elementary school students' critical thinking abilities. The following are several discussion points that can be taken from the research results presented:

Student-Centered Learning

This approach provides freedom and facilities for students to explore their own knowledge so that they will gain in-depth knowledge *(deep learning)* and be able to improve the quality of students. Karsen (2008) states that through the implementation of student-centered learning, students are expected to be able to participate actively, always be challenged to have critical powers, be able to analyze and be able to solve their own problems. *Student-centered* learning is learning that places students at the center of the learning process. Student-centered learning is different from teacher-centered learning *which* emphasizes the relatively passive transfer of knowledge from teachers to students. Research conducted by Dewi. L. (2018) describes that experience-based learning prioritizes students' direct experience to improve their critical thinking skills. Student-centered research was also conducted by Intan, R. (2018) and Putra, H. (2019) who described that ***Contextual Teaching and Learning*** **(** CTL) connects learning with students' real context, encouraging them to think critically in relevant situations. CTL helps students relate concepts to real situations, promoting critical thinking through practical application in everyday life. Apart from research conducted by Fajar, M. (2020), the flipped classroom allows students to learn independently and encourages critical thinking through discussion and reflection on the material studied. Utami, L. (2020) research also shows a student-centered learning model. Technology-based learning opens up access to information and facilitates the development of students' critical thinking skills through interaction with technology.

Table 1. Results of article analysis

No.	Researcher Name	Year	Research Title	Research methods	Research result
1	Dewi, L.	2018	The Influence of Experiential Learning on Students' Critical Thinking Ability	Case study	Experience-based learning improves students' practical skills and analytical abilities.
2	Intan, R.	2018	Contextual Teaching and Learning for the Development of Critical Thinking	Meta-Analysis	CTL increases the relevance of learning to real life and students' critical thinking.
3	Mira, T.	2018	The Influence of the Jigsaw Type Cooperative Learning Model on Critical Thinking	Field Experiment	Jigsaw type cooperative learning increases students' cooperation and critical thinking.
4	Sari, N.	2018	The Influence of Inquiry-Based Science Reading on Students' Critical Thinking	PTK	Inquiry-based science reading improves text analysis and critical thinking skills.
5	Budi, R.	2019	The Effectiveness of Project-Based Learning on Elementary Students' Critical Thinking Abilities	Case study	Project-based learning increases students' creativity and critical thinking in completing assignments.
6	Gita, P.	2019	Use of STEM in Improving Critical Thinking of Elementary School Students	Field Experiment	STEM integration enhances critical thinking and technical problem solving skills.
7	Kurnia, D.	2019	Effectiveness of Problem Solving in Science Learning	Meta-Analysis	Problem-solving based learning improves analytical and critical thinking skills.
8	Putra, H.	2019	Effectiveness of Contextual Teaching and Learning in Elementary Schools	PTK	CTL improves students' abilities in connecting concepts with real situations and thinking critically.
9	Ahmad, S.	2020	Application of the Inquiry Learning Model to Improve Critical Thinking Ability	Experiment	The inquiry model improves students' abilities in analyzing and solving complex problems.
10	Fajar, M.	2020	Application of the Flipped Classroom to Improve Students' Critical Thinking	Case study	Flipped classroom improves understanding of concepts and critical thinking skills through independent learning.
11	Joko, S.	2020	The Effect of Inquiry-Based Learning on Critical Thinking Ability	Field experiment	Inquiry-based learning improves students' investigative and critical thinking skills.
12	Oktaviani, F.	2020	The Influence of Project Based Learning Models on Science Subjects	Meta-Analysis	The project-based model enhances investigative and critical thinking skills in science.
13	Utami, L.	2020	The Effectiveness of Technology-Based Learning in Developing Critical Thinking	Case study	Technology-based learning increases students' access to information and critical thinking skills.
14	Cahya, T.	2021	Implementation of Problem-Based Learning in Grade 5 Elementary School	PTK	PBL improves students' ability to think logically and systematically in dealing with real problems.
15	Hadi, A.	2021	Discovery Learning and Improving Critical Thinking Abilities of Elementary School Students	Field Experiment	Discovery learning improves students' ability to identify and solve new problems.
16	Lestari, E.	2021	Using Mind Mapping Techniques to Improve Critical Thinking	Field Experiment	Mind mapping techniques help students organize information and think critically.
17	Rina, A.	2021	Using the Reciprocal Teaching Learning Model for Critical Thinking	Meta-Analysis	Reciprocal teaching improves critical thinking skills through group discussion and reflection.
18	Endah, W.	2022	Collaborative Learning and Development of Critical Thinking in Elementary School Students	Case study	Collaborative learning improves communication and critical thinking skills through group discussions.
19	Nia, K.	2022	Application of Blended Learning to Improve Critical Thinking Ability	PTK	Blended learning increases access to information and critical thinking skills through a combination of online and offline.
20	Taufik, H.	2022	Use of Problem-Based Learning in Mathematics Learning	Meta-Analysis	PBL in mathematics improves critical thinking skills in solving numerical problems.

Collaborative Learning

Collaborative learning is an approach where students work together in groups to achieve certain learning goals. This approach emphasizes collaboration between students in creating an active and interactive learning environment. Based on the analysis of the articles that have been found, research has been obtained that applies the collaborative learning model, namely research conducted by Mira, T. (2018) which shows that the jigsaw model increases student cooperation and encourages them to think critically through collaboration in completing assignments, research by Gita, P . (2019) which shows that STEM integration teaches students to think critically and solve technical problems collaboratively. As well as research conducted by Endah, W. (2022) which shows collaborative learning improves students' communication and critical thinking through collaboration in group discussions.

Use of Problem Solving Models

Problem solving learning is an approach that prioritizes developing students' skills in identifying, analyzing and solving problems systematically. This approach not only focuses on the final result or solution to the problem, but also on the thinking process that students carry out in reaching that solution. Based on article analysis, several studies were found that used problem solving models to improve elementary school students' critical thinking skills. Research conducted by Cahya, T. (2021) and Taufik, H. (2022) used the problem based learning (PBL) model. Cahya's research results show that PBL improves students' ability to think logically and systematically in facing real problems, while Taufik's research results show that PBL in mathematics helps students develop critical thinking skills through structured numerical problem solving. Research by Sari, N. **(**2018) shows that inquiry-based learning in science reading develops students' text analysis and critical thinking skills. Kurnia, D. (2019) shows that problem-solving-based science learning improves students' analytical and critical thinking skills through a systematic approach in solving scientific problems. Joko, S. (2020) describes an inquiry-based learning approach that encourages students to develop investigative and critical thinking skills through active exploration **.** Oktaviani, F. (2020) explains that the project-based model strengthens students' investigative and critical thinking skills in the science context. Lestari, E. (2021) shows that mind mapping techniques help students organize information and promote critical thinking through concept visualization. Rina, A. (2021) shows that the *reciprocal teaching* model improves students' critical thinking skills through discussion interactions and group reflection. Meanwhile, the research results of Nia, K. (2022) show *Blended learning* combines online and face-to-face learning to improve students' access to information and critical thinking skills.

CONCLUSION

Based on the analysis of the articles obtained, there are three categories of learning that can improve elementary school students' critical thinking skills, namely: First; Student-Centered Learning. This learning model places students as the main subjects in the learning process, not just as objects receiving information from the teacher. Second; Collaborative Learning **.** This approach emphasizes cooperation between students in achieving learning goals. Collaborative learning helps students develop communication, tolerance and cooperation skills, which are important aspects in the formation of critical thinking skills. Third ; Use of Problem Solving Models **.** This learning model focuses on developing students' skills in identifying, analyzing and solving problems systematically.

The implication of this research is the importance of integrating learning models that support the development of critical thinking in learning design in schools. This research provides a strong theoretical basis for the development of more effective learning strategies in the context of elementary school education. Further research is recommended to empirically test the effectiveness of these learning models in different classroom contexts.

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