CASE METHOD LEARNING FOR IMPROVING CRITICAL THINKING SKILLS AMONG ELEMENTARY SCHOOL STUDENTS

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Abstract/Izvleček

This study aimed to analyse students' critical thinking profiles and assess teachers' needs for case method learning to improve critical thinking skills. The research method used was qualitative. The study's results reveal that most students' mastered critical thinking skills profiles are indicators of reveals existing facts and drawing conclusions. However, indicators that students have not fully mastered critical thinking are formulating the key issues, selecting logical arguments, conducting analysis, and conducting evaluations. As a result, teachers require a learning method, precisely the case method, to encourage critical thinking skills.

Učenje z metodo primera pri izboljšanju sposobnosti kritičnega mišljenja osnovnošolcev

Namen te študije je bil identificirati profile kritičnega razmišljanja učencev in oceniti potrebe učiteljev po učenju metode primera pri izboljšanju veščin kritičnega mišljenja. Uporabljena raziskovalna metoda je bila kvalitativna. Rezultati študije razkrivajo, da so obvladani profili veščin kritičnega mišljenja večine učencev pokazatelji razkrivanja obstoječih dejstev in sklepanja. Kazalniki, da učenci kritičnega mišljenja niso povsem obvladali, pa so oblikovanje glavnih vprašanj, izbira logičnih argumentov, analiza in ocenjevanje. Posledično učitelji potrebujejo učno metodo, natančno metodo primera, da bi spodbudili sposobnosti kritičnega mišljenja.

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Introduction

One of the skills required for 21st-century learning is critical thinking (Kim et al., 2019; Özelçi, 2023). These critical thinking skills need to be acquired because they can provide solutions to problems, carry out tasks in new ways, help in work, and influence future income (Li, 2022). Analysing and assessing information, solving issues, making decisions, and drawing conclusions are all examples of critical thinking (Çelik et al., 2018). Students also need critical thinking to develop a combination of theoretical knowledge with practical learning (Varenina et al., 2021). In addition, the purpose of critical thinking is to increase the skills of students to use reason in answering more complicated questions or finding and solving more complicated problem cases (Handayani, 2020). Critical pupils are more engaged in problem-solving, have self-corrective thinking, and can better detect and manage their emotions (Suhirman et al., 2021).

However, critical thinking skills among Indonesian students still need to be improved to match the expectations of the twenty-first century (Sarwanto et al., 2021). According to a World Economic Forum (WEF) study on the 2016-2017 Global Competitiveness Index (GCI), Indonesia placed 41st out of 138 nations, below Malaysia and Thailand's GCI (Nababan, 2019). Previous research also revealed that Indonesian students' critical thinking skills still needed to be improved (Susetyarini and Fauzi, 2020). Preliminary studies conducted by Mustika (2020) revealed that pupils' critical thinking skills in Indonesia are inadequate because subject matter questions do not allow pupils to think critically and instead focus on learning ideas (Mustika et al., 2020). Furthermore, students' critical thinking skills in scientific learning are still lacking, particularly in tasks that require fundamental clarification, basic decision-making, conclusions, advanced categorization, assumptions, and integration (Sari, R. M. et al., 2019). Research reveals that student critical thinking skills with indicators of primary clarification, fundamental support, conclusions, advanced clarification, and strategy and tactics still need to be higher (Hidayati and Sinaga, 2019).

According to the findings of interviews with fifth-grade instructors in July 2023 from multiple elementary schools in Surakarta, Indonesia, pupils' critical thinking skills still needed to be improved and should be improved. It can be seen from the results of student assignments, which are still low. Students still rely on memorization in

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answering questions and have yet to be able to work on questions in the analytical and evaluative categories. In addition, when students are faced with problems, they cannot overcome them. Based on the results of interviews, students were less active in the learning process. Teachers have not used variations in learning methods. This is because teachers who can vary learning impact create a learning environment that draws attention, allowing students to be active and engage in every step of the learning process, resulting in a more successful learning experience (Casetama and Utami, 2023).

One of the elements contributing to the inadequate capacity to think critically is an inefficient learning process, method, strategy, and models (Bustami et al., 2018). Learning methods that are still conventional are ineffective in improving critical thinking skills (Anwar & Setyaningrum, 2021; Jatmiko et al., 2018). This is because conventional learning methods are based on teacher-centred learning and do not allow pupils to use analytical abilities, practice problem-solving, or assess challenges (Roza and Luthan, 2022). Moreover, conventional methods may not provide pupils with the skills necessary to acquire and remember information (Aldarmahi, 2016).

Based on the findings of the interviews, the teacher's learning method consists of questions and answers, and debates. This strategy has yet to improve elementary school pupils' critical thinking skills. As a result, teachers must encourage improvement in critical thinking skills through learning methods. Examples and non-examples are two types of learning approaches that can help develop critical thinking (Jackson et al., 2022; Nurunissa and Abdullah, 2023), along with the experimental method (Hamdani et al., 2019), and the concept map method (Barta et al., 2022; Tseng, 2020). Apart from that, methods that can improve students' critical thinking skills include the case method (Alsaleh, 2020; Cotugno, 2018; Mahdi et al., 2020).

The case method is a learning method that involves investigating instances to grasp circumstances, concepts, and procedures for making case-solving judgments (Nurkhin et al., 2022). This method presents narrated content accompanied by questions and activities to encourage students to participate in group discussions and solve complex problems (Sagala et al., 2022). The case method is also intended to help students enhance their critical thinking skills and capacity to solve issues and discover answers (Nurkhin et al., 2022). This method gives students a holistic perspective on challenges via critical thinking, teamwork, and communication (Puri,

2022). Aside from that, the potential influence of teaching and learning activities should be investigated through an empirical and holistic examination (Roza and Luthan, 2022). The case method is unique in that it is based on real-life circumstances, includes supporting data and papers for examination, and gives solutions to the open issues or challenges addressed (Mahdi et al., 2020).

The benefits of the case method are that it relieves students from the burden of rote learning or passive learning and focuses on self-discovery to form students' perspectives and collaboration from other perspectives, which play an essential role in clarifying and consolidating ideas (Nkhoma et al., 2017). The steps of the case method include the teacher forming groups of students, each group observing and investigating the agreed case or topic, each group conducting data or case analysis through discussion, each group presenting or communicating the results of group analysis, the groups respond to the cases discussed, and the teacher and students provide conclusions on solutions to the problems discussed (Harahap and Yusra, 2022).

Therefore, based on the preceding, this study is crucial in determining the necessity for the case method to promote students' critical thinking. The capacity to think critically will assist pupils in tackling numerous challenges they may face today or in the future (Bernadetha and Lamhot, 2020). According to improved knowledge of theory, the case method is a learning method that may help students develop and employ critical thinking skills, problem-solving, assessing problems, and offering practical solutions (Haryati et al., 2022). Critical thinking skills are needed to solve problems (Yeung et al., 2023). The case method can focus on training students to solve problems and can become a medium for students to evaluate critically (Bridgman et al., 2018).

Previous research on this topic includes the influence of problem-based learning (PBL) on creative and critical thinking (Leasa et al., 2023; Reyk et al., 2022; Ulger, 2018). According to the findings of this study, PBL can help students with nonroutine problem-solving processes by retaining uncertainty and fostering inventive thinking. An equivalent conclusion, however, could not be obtained for the critical thinking disposition. Second, there has been research on the effective use of the case study method to increase students' critical thinking (Cotugno, 2018). Third, the guided inquiry learning method has been explored for its role in improving critical thinking skills (Murnaka et al., 2019). The results of this study said that experiments using guided inquiry learning methods increased critical thinking

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skills in mathematics. Fourth, there has been research on improving critical thinking skills through case-based textbooks (Telaumbanua et al., 2022).

This study, however, varies from past research in that it will examine the need for learning methods to increase one of the key 21st-century talents: critical thinking. Unlike the previous study, the researcher used case-based method learning in this study. Furthermore, this study was conducted in the activator program's primary schools. The Activator School Program is utilized to help each school produce a generation of lifelong learners with Pancasila student profiles (Marmoah et al., 2023). This research will help teachers and stakeholders in improving critical thinking skills using case method learning. In addition, the results of this study provide solutions for the use of learning methods in class so that students are active in the learning process. So, the research questions in this study are as follows:

a. What is the profile of students' current critical thinking skills from the teacher's perspective?
b. What is the need for the case method in teacher learning to improve critical thinking skills?

Methods

The research design used in this study was qualitative. A case study was chosen as the research approach in this study. A case study is a piece of research that seeks to explore cases in depth within certain predetermined boundaries (Creswell and Poth, 2016). The case in this study is the problem of students' critical thinking and the need for teachers to improve these skills through the case learning method.

The subjects of this study were fifth-grade teachers from the activator program of elementary school, totalling six people in Surakarta City, Central Java, Indonesia. The activator program elementary schools that were used as research sites included the innovative Ta'Mirul Islam Elementary School, Al-Firdaus Elementary School, Bibis Luhur II Elementary School, and Muhammdiyah 4 Elementary School Kandang Sapi, Bayan Elementary School, and Rejosari Elementary School. This research was conducted in July-August 2023.

The technique used to collect research subjects was purposive sampling. This sampling technique is also known as the judgment sampling method since it involves selecting study samples depending on sample quality and criteria in research (Etikan

et al., 2016). The elementary school activator program was selected because the activator school focuses on holistically developing student learning outcomes, so it is of intrinsic interest. In addition, this research focuses on the city of Surakarta, Indonesia, which was chosen as the location for the study because it is a cultural city that is rich in local wisdom.

Interviews were used as data-gathering methods. Interviews were used to determine the profile of students' critical thinking skills from the teacher's point of view and the teacher's needs for the case method. Critical thinking indicators used in this study were adapted from (Ennis, 1996; Facione and Facione, 2013) and consist of the following: indicators formulating the main issues, disclosing existing facts, selecting logical arguments, conducting analysis, conducting evaluation, and drawing conclusions.

The following is a table of interview instruments showing teachers' need for the case method (Table 1):

Table 1. Teachers' need for the case method

Interview purpose	Indicator
Obtain information about the characteristics of the learning method used	Types of learning methods
	Learning method criteria
Obtain information about the need for case-based learning methods (case-method) to improve critical thinking skills.	The need for learning methods to improve critical thinking

Adapted from (Wulandari, 2022)

The data validity technique in this study was content validity. The instrument is valid if it meets the content validity determined by expert judgment. Expert judgments from those with expertise in the field, acknowledged by others as certified experts, and offering information, facts, judgments, and assessments are often utilized to carry out this sort of validity (Caligiore-Ge and Ison-Zintilini, 2021). The experts who conducted this validity assessment are lecturers in learning evaluation. The credibility test or reliability used critical reviewers. Such reviewing is a way to determine the credibility of data by compiling research data that will be used in an orderly manner to facilitate review and increase the reliability of research information (Sutopo, 2002).

This study's analytical method was a flow model of analysis, which covers the processes of data gathering, data reduction, data display, and conclusion (Miles et

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al., 2019). Research data was collected using interviews. After that, the data reduction step was completed by summarizing, choosing, concentrating, grouping, and categorizing research material based on the generated topic or pattern. Following that, the stage of study data presentation was completed, which was deemed critical since it would make it simpler for researchers to grasp the information obtained, allowing them to draw more suitable conclusions or take action in the future. Brief descriptions, charts, tables, correlations between categories, graphs, and so on can all be used to display qualitative data. Finally, conclusions were made to determine the significance of the data obtained by identifying similarities and differences to determine the solution to the problem that arose. During the research, the conclusion was also validated.

The procedure in this study was conducted by seeking problems or research topics that occurred to students in the field and conducting literature studies on current topics in international journals. Next, we formulated the problem and research objectives. After that, research instruments and data collection were developed. After that, the researcher conducted data analysis and data validity testing. Then, if the data was said to be valid, the research conclusions were made.

Result and Discussion

Based on the data collection, the following research results were obtained:

Profile of Critical Thinking Skills
Based on the results of the interviews, the profile of students' critical thinking skills in class V is as follows:
The indicators formulate the main problems for students, consisting of sub-indicators that identify problems in learning and formulate the main problems. Respondents said the skills of most class V students did not allow them to formulate the key issues in detail. Students still need guidance in formulating and understanding problems and solving problems. One of the respondents said,

> *Students are only able to know the initial problems and are still assisted by the teacher in finding solutions*

The learning methods used by the teacher included the question-and-answer method, discussion, and the inquiry cycle. The teacher's technique involved formulating the subject matter by asking simple questions. Teachers utilize those

methods to help pupils develop their critical thinking skills in the classroom. However, those methods have not been shown to improve pupils' overall critical thinking.

According to the interview results, most students can express the existing facts using their critical thinking skills.

Some students are able to express existing facts by conveying existing information using simple language that can be understood.

This can be seen in the learning process for conveying information in the reading text. The learning carried out to improve critical thinking skills in this research is science and social science (IPAS) learning in the Merdeka Curriculum (Independent Curriculum). However, respondents also said that some students could not distinguish between facts and opinions. The facts and opinions in question are information contained in the text reading and information obtained during the investigative learning process. The method used by the teacher to reveal the facts is the question-and-answer method, contextual and collaborative.

Teacher responses in interviews on the indicator of choosing logical arguments revealed that students were unable to find logical arguments or reasons to solve problems in the learning process.

Students cannot choose logical arguments by thinking systematically.

This can be seen when students are not able to provide reasons that are appropriate and relevant to the main problem discussed in the discussion process. Besides, some students are only able to convey information explicitly according to the reading text. Most students have not been able to think systematically and structurally. Therefore, students still need teacher guidance in selecting structured and systematic logical arguments.

Indicators of analysing fifth-grade students can already find information or lesson content. This can be seen in some students who have a good understanding. On the other hand, some students are still unable and need the teacher's guidance in analysing information, such as connecting questions with statements of the concept of the subject matter and stating informed decisions or reasons for solving problems. The point is students can understand the meaning of the information contained in the lesson material. However, students are not yet able to connect some information and interpret it. Respondents said that the teacher usually used the question-and-answer method and discussion so that students could analyse information.

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> *There are some students who can't yet connect questions with lesson concept statements. They still need guidance in carrying out the analysis.*

Indicators of evaluating student critical thinking have sub-indicators on the capacity of students to assess the credibility of information obtained from various sources. The results of the interviews revealed that almost all students had been unable to assess the credibility or trustworthiness of information obtained from the internet and social media to support problem-solving in the classroom learning process. Students immediately search for information on websites or Blogspot without checking the correctness of the information. Therefore, students still need teacher guidance in finding reliable information and evaluating it. This is proven by the results from the class teacher interviews, which reveal that

> *Grade 5 students are not yet able to assess the credibility of the information they obtain…. Students still need teacher assistance and guidance in searching for credible information on the internet and evaluating that information.*

The final indicator of critical thinking in this study is the ability to draw conclusions. Interviews with respondents revealed that some students could convey the conclusions of the subject matter using their language. Some students are also capable of compiling hypotheses. Teachers still assist students who experience difficulty drawing conclusions from available evidence or information.

> *The majority of students are capable of inferring information simply based on the language itself.*

Based on the findings of the preceding study, indicators of critical thinking skills that most students already have are expressing existing facts and concluding. Indicators that students have not fully mastered critical thinking show up in the following areas: formulating the key issues, selecting logical arguments, conducting analysis, and evaluating. Therefore, the critical thinking skills of elementary school students have not met expectations.

The findings of this investigation are consistent with earlier studies, which revealed that the profile of the critical thinking skills of the majority of students is still low, with a percentage of 30.56%, compared to only 22.22% who have a high level of critical thinking skills (M. K. Sari et al., 2021). The factor that differentiates is the research subject when the study is dealing with fourth-grade students. In contrast, this research is aimed at fifth-grade students. The intermediate stage, where the indicators of identification and explanation, recognition of context and assumptions,

evaluation and synthesis of information, and conclusion with related outcomes are still in the basic stage, require improvement (Suciati et al., 2022).

The cause behind the low skills of students is that the learning methods employed have not facilitated students' critical thinking skills. Based on the constructivism theory, the assumption reveals that students actively develop and build their knowledge and that the teacher should not use traditional or conventional ways of delivering lessons (Schunk, 2012). Constructivism theory also reveals that activity in constructivist learning consists of observing phenomena or issues occurring, collecting data, formulating and testing hypotheses, and cooperating with others. These activities are in line with the indicators of critical thinking in this study. Therefore, learning methods that facilitate constructivist activities are needed to overcome students' critical thinking problems.

The results of this study are in line with previous research which revealed that students who were taught using conventional methods, including lecture, discussion, and assignment methods, had lower critical thinking skills compared to other methods such as RICOSRE (Reading, Identifying a problem, Constructing the solution, Solving the problem, Reviewing the solution, and Extending the solution) (Mahanal et al., 2019). Other methods used to develop critical thinking skills include the argument mapping method (Dwyer et al., 2012), the digital game-based learning method (Hussein et al., 2019), and the snowball throwing method (Khotimah and Nurhasanah, 2024).

The Need for the Case Method in Improving Critical Thinking Skills

The results of interviews on the implementation of learning in class revealed that learning used the Merdeka Curriculum. The Merdeka curriculum will begin to be implemented in 2020, where teachers have the freedom to contribute to implementing the curriculum, including designing the learning process according to environmental conditions (Mustofa et al., 2023). The lesson plan is called a teaching module based on the flow of learning objectives.

The learning method used by most teachers involved question-and-answer, discussion, and contextual methods. One of the teachers stated the following:

> *We use discussion and question and answer methods during the learning process with a problem-based learning model.*

The technique used by the teacher when asking questions uses trigger questions. Presentation of material involved the use of learning media such as books, learning

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videos, power points, and worksheets. The time allocation used in the learning process follows the subjects, usually taking two lesson hours (70 minutes). Based on the outcomes of the experience, this time was not employed effectively to apply learning methods to increase critical thinking skills. This is because the question and response, discussion, and contextual procedures must be repeated to sustain critical thinking skills. Elementary school pupils aged 5-11 years generally remember things quickly and quickly forget them (Limbong et al., 2024).

According to the research, the critical thinking skills of most pupils remain inadequate and do not meet the expected standards. The standards used in this study to measure critical thinking skills were taken from Ennis (1996) and Facione and Facione (2013), which consist of indicators formulating the main issues, disclosing existing facts, selecting logical arguments, conducting analysis, conducting evaluation, and drawing conclusions. Other research uses similar indicators: skills in interpreting, analysing, concluding, and explaining (Sarwanto et al., 2021).

Even though responding teachers stated that the learning approaches utilized were appropriate and capable of improving critical thinking, problem-solving, and active learning, fifth-grade students' critical thinking skills still did not meet expectations according to the critical thinking indicator criteria used in this study. Interviews with respondents revealed that teachers still needed learning methods that could improve critical thinking skills, in particular, case-based methods, or case methods. The teacher revealed the following in the interview:

> *The learning methods currently used still do not improve critical thinking as a whole. Students still need guidance. We need new methods to improve student's critical thinking skills.*

The findings of this study support prior studies showing that adopting the case technique may successfully increase critical thinking skills (Fauzi et al., 2023). Other studies have also revealed that case studies improve critical thinking skills (Bezanilla et al., 2019). This follows the view of constructivist learning theory, which shows that learning activities in the classroom lead to real problem-solving, which forms knowledge, reflection, and changes in understanding (Kumar Shah, 2019). Therefore, the case method follows the view of constructivist learning theory.

The findings of this study have the potential to improve 21st-century skills, particularly critical thinking and problem-solving skills, with the use of this method.

The case method can improve skills of analysis, formulation, reflection on problems, and evaluation so that decisions can be made to overcome existing problems. Previous research revealed that the case method helps students to discuss among friends to reflect on problems, to practice critical thinking, analysis, and evaluation, and to discuss potential solutions for overcoming existing problems (Song et al., 2022).

Conclusion

The findings of this investigation show that most students' mastered critical thinking skills profiles are indicators of reveals existing facts and drawing conclusions. However, indicators that students have not fully mastered critical thinking include the following components: formulation of key issues, selection of logical arguments, analysis, and conducting evaluations. Therefore, teachers need a learning method to facilitate critical thinking skills, for which the case method qualifies. The results of this study can contribute to improving 21st-century skills, especially critical thinking skills and problem-solving, as well as offering solutions for teachers in the Merdeka Curriculum learning process in schools. Future studies should evaluate the effectiveness of the case method for enhancing critical thinking skills in a broader context. Additionally, a case method to improve critical thinking skills should be developed.

Acknowledgments

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