
Systematic Literature Review: How Teachers Instill Critical Thinking Character During the Pandemic

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ABSTRACT

Critical thinking is an important ability for students in the 21st century. Learners who are less able to think critically will have difficulty when faced with a problem. The purpose of this study is to reveal; 1. What are the learning methods for instilling critical thinking characters in Indonesia during the pandemic, 2. What critical thinking indicators are developed in the learning model, 3. What are the results of the methods used in instilling critical thinking skills. The review method used in this paper is a systematic literature review. The search for articles on the Google scholar uses the help of the Publish or perish application because using the benefit of an application will make it easier to find articles. The selection and screening stages were carried out by analysing the article title, keywords, abstract, background of the problem, author's question, and results and discussion. The results of this study showed that (1) Teachers use varied learning methods during the pandemic, such as e-learning, online class, and blended learning. (2) The critical thinking indicators developed are formulating problems, analysing, concluding, evaluating, building basic skills, providing a further explanation, and managing strategies. (3) The learning methods used during the pandemic can instil students' critical thinking characteristics based on several indicators. However, several learning methods still need help instilling critical thinking skills. The implications of this study are: First, teachers must be skilled in using learning methods with a suitable learning model to instil critical thinking skills in students. This study reveals how teachers instil students' critical thinking skills during the pandemic.

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1. INTRODUCTION

Critical thinking is one of the abilities that every student must have at this time. According to Angga et al. [3], in the 21st century students are required to be able to think critically. Critical thinking is a person's ability in the thinking process to get a solution to a problem based on logical steps, so that students' skills for critical thinking must be trained early on so that they are accustomed to solving a problem [8].

Learners who are less able to think critically will have difficulty when faced with a problem. In learning, students must be accustomed to thinking critically. Students' critical thinking skills will appear if trained in the learning process continuously [8]. Habituation of critical thinking can be done by giving several problems then

students can provide solutions to these problems. Teachers as educators must have the skills to teach critical thinking to students.

Teachers have an important role in developing students' critical thinking skills. The role of the teacher is quite large in shaping the personality of students, so it can be said that the teacher determines the development of students [6]. Teachers in designing learning activities must be adjusted to the ongoing situation, so that the material conveyed can be maximally received.

Teachers still have difficulties in teaching students' critical thinking skills. Factors that cause difficulties in teaching critical thinking skills include, among others, media selection, methods, class conditioning, and other things such as material and assessment [9]. Critical thinking is an important skill that students must master. During the pandemic, students learn online using several media or online classes. During online learning, of course, teachers find various new problems such as unstable internet connections, not mastering to use gadgets [11]. Despite this, learning must continue and in dealing with this, of course, teachers must adapt to the situation that is happening so that learning can continue even though students are not at school.

During the covid-19 pandemic, the implementation of learning in Indonesia has changed from face-to-face to online learning [7]. In learning, teachers must immediately adapt to the situation that is happening by designing innovative learning models. The use of learning models aims to make it easier for teachers to deliver material.

Some of the relevant articles used in the review for the literature review focused on critical thinking skills in primary schools. Most of the relevant articles discuss the learning models used by teachers in training the critical thinking skills of students.

In the literature review of Jannah & Atmojo [12], the form of digital media innovation can be done using digital educational games, adobe flash macromedials, digital comics, e-books, and educational applications such as, ruang guru, quipper school, and smart class. Second, the literature review of Anjaya & Trifosa [4], states that research-based learning methods by utilizing technology can develop critical thinking skills. Third, in the literature review of Kurniawan et al. [14], the habituation of critical thinking is an important need in the era of independent learning, so it must be supported by supporting facilities. Fourth, according to Rahmadina's literature review [17], the think pair and share type cooperative learning model can train critical thinking skills because this model can stimulate the emergence of critical thinking aspects, such as analyzing, rethinking, or coming up with new ideas. Fifth, Komalasari et al.'s literature review [13] explains that to improve students' critical thinking skills, they can use the TPS (think, pair, share) method, scientific approach, social inquiry, problem-based, and project-based learning. Sixth, the problem-based learning model can also improve students' mathematical critical thinking skills in the literature review [15]. Third, in Jaya's literature review [6], an inquiry learning model that emphasizes critical and analytical thinking processes to solve a problem. Finally, Fahrurrozi et al.'s literature review [8] states that utilizing the problem-based learning method can help train and improve students' critical thinking skills.

During the covid-19 pandemic, learning was carried out online. With this, it is necessary to know about how to instill critical character in students during the pandemic. The purpose of this study is to reveal; (1. What are the learning methods for instilling critical thinking character in Indonesia during the pandemic, (2. What critical thinking indicators are developed in the learning model, and (3. What are the results of the methods used in instilling critical thinking skills.

The previous literature review only discusses the learning model used during the pandemic specifically or only discusses one learning model. This study discusses what methods teachers used during the pandemic to instill students' critical thinking skills. The findings of this study will be a reference material on how to instill critical skills during a pandemic.

2. RESEARCH METHODS

The review method used in this paper is a systematic literature review. The type used is a mapping review [10]. This review was conducted to identify transparently to find, evaluate articles by extracting data, analyzing, then in the last activity synthesizing [18]. This review was conducted from September 2022 to January 2023.

The field of critical thinking education is a broad field. The database used in searching for articles is Google scholar, on the grounds that it has open access and makes it easy to download relevant articles so that it can understand the application of critical education in elementary schools.

Searching for articles on scholar uses the help of the Publish or parish application, because using the help of the application will make it easier to find articles. The search was carried out by writing several keywords in the title and discussion and limiting the study conducted to 2020-2022. The keywords used in the title search were "Integration Critical Thinking" with the keyword elementary school pandemic, "Indonesian Critical Thinking" with the keyword elementary school pandemic, "Online Learning Strategy" with the keyword elementary school critical thinking, "Use of critical thinking media" with the keyword elementary school pandemic, "Critical thinking e-learning" with the keyword elementary school.

Searching for articles on Google Scholar using the Publish or parish application found 34 articles. Furthermore, the articles were selected and filtered to get articles that were appropriate for the literature review. Irrelevant articles were identified by their incompatibility with the cultivation of critical thinking characters in elementary schools.

The selection and screening stages were carried out by analyzing article titles, keywords, abstracts, problem backgrounds, author questions, and results and discussions. Furthermore, it was reviewed in depth and obtained 5 articles published to answer the questions in this study. Articles in the search were limited to the years 2020-2022.

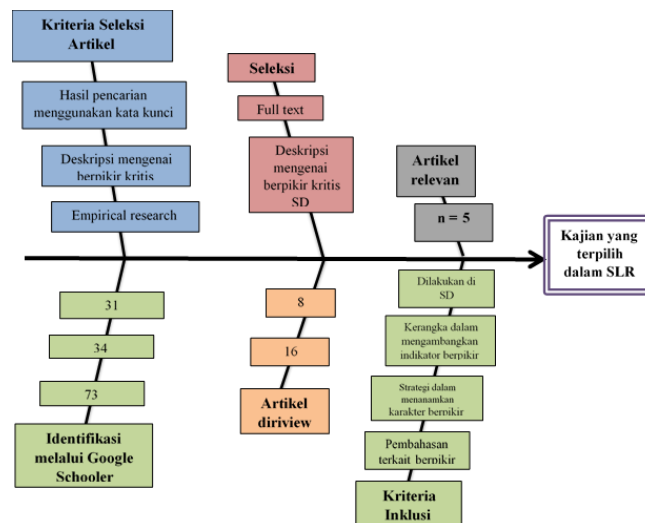


Figure 1. Stages of the Study

3. RESULT AND DISCUSSION

During the pandemic, learning that was originally done face-to-face changed to online, so there was no learning done at school because it was feared that it would be one of the things that caused the transmission of the covid-19 virus. During online learning, of course, teachers use several learning methods that are used to convey material to students.

In the analysis of several studies on critical thinking skills during the pandemic, teachers use several different learning methods. The results of the studies conducted are several learning methods that show the achievement of critical thinking indicators in students through the methods used. Arif et al.'s study [5] shows that the use of Quizizz media with website-based crossword puzzles can shape critical thinking when answering quiz questions. Furthermore, the study of Wibowo et al. [20], states that online learning strategies through Zoom meetings can increase students' curiosity so that PBL supports students to think critically. Finally, in the study of Wahyuningtias et al. [19], the blended learning model with telegram has an influence on students' critical thinking skills and learning outcomes in social studies learning subjects. So it can be concluded that during the pandemic teachers can develop students' critical thinking skills with several indicators developed.

In the study of Agustina & Hidayati [1], one of the learning methods used by teachers during the pandemic is e-learning. E-learning is a learning method that is applied with the help of digital media to create, help develop, assess, and make the teaching and learning process more effective where learning can be done without distance and time limits. During online learning there are several indicators developed by the author including, 1). Analyzing is the skill in deciphering a problem, 2). Synthesize by developing important parts of the learning material into a new summary, 3). Recognize and solve problems, 4). Summarizing. The indicators developed in instilling critical thinking skills also vary. A study conducted by Ainun Nikmah et al. [2], stated 3 indicators of critical thinking, namely analyzing problems, evaluating, and providing conclusions. From these studies, it can be concluded that critical thinking indicators include formulating problems, answering problems, and evaluating.

From the articles I found, there are 5 articles that discuss critical thinking indicators in analyzing problems. Analyzing a problem is understanding all the components that exist in a problem using deep thinking. In the study of Agustina & Hidayati [1], analyzing includes students' skills in describing a problem based on students' assumptions. Analysis is identifying the relationship of several statements. In the study of Arif et al. [5], students can pay attention to Quizizz questions and crossword puzzles in order to answer questions correctly. In online learning with the PBL method through Zoom meetings, the teacher provides a problem to students that will support critical thinking skills, where students will analyze the problems that are displayed [20]. Teachers can invite students to analyze problems by posting questions, and provide opportunities for students to answer

(Ainun Nikmah et al. [2]. In the study of Prafitasari et al. [16], analyzing can be done by identifying the elements of the problem.

Concluding is one of the indicators developed in training students' skills in critical thinking. Concluding is writing briefly which includes the core of the problem at hand. The activity of the human mind is based on the knowledge it has to conclude something [1]. In addition, the study of Arif et al. [5] states that concluding includes making deductions and inductions and then considering the results. After analyzing the problem, students will make a conclusion and then make a decision [20]. According to Ainun Nikmah et al. [2], the last critical thinking indicator is writing conclusions.

Evaluating includes activities to review the decisions that have been made or a series of activities to confirm the answers made. According to Agustina & Hidayati [1], evaluating is the skill to assess something with various criteria. After analyzing the problem, an evaluation is carried out [2]. Evaluating is done by checking the results again [16].

Formulating problems is the initial activity carried out before students solve a problem. Formulating problems can be interpreted as an understanding of the problems given. Formulating problems can be done by writing what is known and asked in a problem [16]. In the study of Wibowo et al. [20], through PBL activities will arouse curiosity in students so that students will conduct investigations. Learners understand the material provided to respond and solve a problem [1].

Synthesize means to combine or unify. In education, it can also mean combining the material being studied. According to Agustina & Hidayati [1], students combine and develop the material that has been received and then write a summary of the material. With this, students will find it easier to remember and understand the material that has been given.

In addition to showing positive results, there are also studies that show difficulties during the pandemic in teaching critical thinking skills. Ainun Nikmah et al.'s study [2] shows that while using the PBL and inquiry models, teachers have not been able to teach critical thinking skills because of several obstacles. In addition, learning using blended learning in elementary schools in science learning still needs to be considered because there are obstacles when implementing it [16]. In conclusion, some teachers have experienced difficulties in instilling critical thinking skills during the pandemic.

Based on the author's findings, each school uses different learning methods in instilling critical thinking skills. Three schools that the authors found used the e-learning method in stimulating students' critical thinking. This is in accordance with the literature review conducted by Jannah & Atmojo [12], the use of digital media can develop students' critical thinking skills. So that during the pandemic by using digital media assistance in learning, teachers should be able to instill critical thinking skills. Because with the help of digital media it is easier for students to learn, this is in accordance with the character of gen z, where every child prefers to use technology so that students can learn anytime and anywhere.

Overall, the critical thinking indicators developed are formulating problems, analyzing, concluding evaluating, building basic skills, providing further explanation, and managing strategies. This is in accordance with the literature review conducted by Anjaya & Trifosa [4], which shows that critical thinking indicators include understanding the problem, analysis, hypothesis, reflection, and conclusion. In the literature review by Rahmadina [17], students' critical thinking indicators can be carried out through 3 stages, namely, thinking, working together, and answering problems. Furthermore, Oktavianingrum et al. [15] and Fahrurrozi et al. [8], stated that students' critical thinking skills can be trained through an analysis of the problem then answering the given problem.

The author found several learning models used by teachers. In three schools, the author found learning models used to improve critical thinking skills, one of which is using problem-based learning. With the PBL model, teachers can provide a problem to students. This is in accordance with the literature review conducted by Fahrurrozi et al. [8] and Oktavianingrum et al. [15], PBL can train students' critical thinking skills. By solving a problem, it will help students to improve their critical thinking skills. In addition, students who are accustomed to solving a problem will also get used to thinking critically.

Besides using PBL, there are also teachers who use the inquiry learning model. This was done because the inquiry learning model was able to have a positive impact on students' critical thinking skills. In line with Jaya's study [6], states that the inquiry learning model can encourage students to search and find from the problems in question. With this, it can encourage students to think critically because active students pay attention to the material well, so they can ask teachers and friends about things that are not yet understood.

The cultivation of critical thinking will not always go well, there are several schools that experience obstacles in instilling critical thinking characters in students, this happens due to several factors including indirect communication to students and carelessness of parents during online learning. This is in line with the literature review conducted by Komalasari et al. [13], teachers still use conventional models in conducting learning so that learning is one-way. In conventional learning, students are less involved during learning activities.

In addition, Jannah & Atmojo's literature review [12] shows that the use of inappropriate media causes students' critical thinking to be less than optimal, so teachers must choose the right media to instill critical attitudes in students. The occurrence of an obstacle can be because the teacher does not use media or learning models that match the characteristics of the students, besides that the teacher has not mastered or adapted well to online learning which causes difficulties while instilling critical thinking characters.

4. CONCLUSIONS

The results of this study show that (1) Teachers use varied learning methods during the pandemic such as, e-learning, online class, and blended learning. (2) The critical thinking indicators developed are formulating problems, analyzing, concluding evaluating, building basic skills, providing further explanation, and organizing strategies. (3) There are learning methods used during the pandemic that can instill students' critical thinking characters based on several critical thinking indicators used, but there are several learning methods that still have difficulty instilling critical thinking skills. This study has several limitations. First, information was only selected from several articles, making the data less diverse. Second, the duration of the study is less than one year. Third, the author only takes about how to instill critical character to students in Indonesia. Future studies will be better if they use information searches from several countries.

This study has three suggestions. First, school principals should provide good facilities in instilling students' critical thinking skills. Second, teachers should be creative in instilling students' critical thinking skills. Third, parents should pay attention to the development of students by supervising children during learning activities from home

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