LEARNING STRATEGIES ORIENTED TO CRITICAL THINKING SKILLS

(Development of a Problem Based Learning Model)

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Abstract

Learning is an important element in school education. Through apprenticeship, the ability to think critically can be enhanced. The ability to think critically plays an important role in the academic success of the student as an attempt to face life in the future. Critical thinking is one of the demands of the 21st century skills. Objective of critical thinking so that students can find solutions to the problems they face. Critical thinking involves the ability to analyze, evaluate, and synthesize information to make decisions and solve complex problems effectively. One way of improving critical thinking skills is by applying a problem-based learning model strategy. The objectives of this study are: 1) design of learning strategies oriented towards critical thinking using a problem-based learning model, 2) the effectiveness of learning strategy design using a problematic learning model and 3) the level of critical thought ability of the learners. This research uses developmental research methods. This research data consists of a learning plan using a problem-based learning model, implementation results of the learning plan with the use of problem- based learning models, the effectiveness of a problem based learning strategy, as well as the level of critical thinking ability of the students. The findings of this study suggest that the design of learning strategies oriented towards the ability to think critically using a problem-based learning model can be implemented with several revisions by experts. Implementation of effective problem-based learning strategy plans at a rate of 85%, as well as critical thinking skills increased by 81%.

Keywords : ***Learning strategies, Critical thinking, Problem based learning.***

Introduction

Learning is an important element in education. Through learning, critical thinking skills can be improved (Jaja, Rahayu, & Pujiatna, 2021; Jubaedah, Rozak, & Gloriani, 2023). Research on critical thinking skills shows that critical thinking is a demand of the 21st century. Thinking skills need to be developed by students to face problems and their solutions as ideal decisions to face the challenges of life in a globalized world. To improve this ability, there needs to be practice and habituation by using concrete cases/issues to be solved as learning discoveries. (Rahmadtullah, 2015; Sopia et al., 2017; Nugroho, 2017 Supani, 2016; Hariyanto et al, 2016; Afifah et al., 2018)

Critical thinking goes beyond memorizing and retelling. Critical thinking skills enable students to formulate problems, identify problems, and find solutions to problems by providing logical discussions (Sakti, 2014). Critical thinking can be seen as a multidimensional cognitive structure which means inductive and deductive thinking, and creative processes that interact at various stages of the problem solving process (Salim et al. 2014; Salari et al, 2018). Therefore, increasing students' critical thinking abilities can be obtained through problem-oriented learning strategies. One of them is the problem-based learning model (PBL).

The PBL model is observational learning that is built based on students' previous knowledge experiences (Susilawati & Murni, 2018). This learning model emphasizes the level of understanding. Through this model, students will be faced with a problem that will be solved analytically, both individually and in

groups. The PBL model can help students solve their problems in the future, which is assisted by teacher involvement. By asking challenging questions, students will develop the ability to think broadly because they are required to think critically so that the final results can be seen realistically (Andersen et.al., 2019; Nafiah & Suyanto, 2014; Pane & Darwis Dasopang, 2017; Mardiah et al, 2016; Moutinho et al; 2015; Yew & Goh, 2016; Balan et al. 2019)

The relationship between critical thinking and the PBL model can be used as material for developing learning strategies oriented towards critical thinking skills in this research. The problem formulation for this research is 1) what is the learning strategy oriented towards critical thinking skills using the PBL model? 2) Is the learning strategy design using the PBL model effective? and 3) What is the level of students' critical thinking abilities using the PBL model?

In line with this research question, the objectives to be achieved are 1) designing a learning strategy oriented towards critical thinking skills using a problem-based learning model, 2) the effectiveness of the learning strategy design using a problem-based learning model, and 3) the level of students' critical thinking abilities.

Methodology

This research uses development research or R&D (Research and Development) methods. The aim of this research is to develop a learning strategy design oriented towards critical thinking skills through the PBL model. In this research, the R&D method was used, the initial stage carried out was conducting preliminary research. This research aims to collect information on both problems and potential that can be developed. This information is then collected and analyzed by researchers as material for consideration in developing the product that will be produced. This research includes preliminary studies, product design, product development, product validation, and product testing. This researcher is trying to produce a learning strategy design oriented towards thinking skills through the PBL model.

This research uses the ADDIE development model. The ADDIE model in this research refers to the main processes of the development process. The ADDIE stages in this research consist of five procedures, namely, analyze, design, develop, implement, and evaluate.

The data needed in this research is in the form of analysis of learning strategy design needs, results of expert validation of learning strategy designs oriented towards critical thinking skills through the PBL model, and tests of the effectiveness of using learning strategies through the PBL model.

Data analysis techniques in developing learning strategies oriented towards critical thinking skills are qualitative and quantitative. Qualitative data analysis techniques are used to analyze data resulting from research into the development of learning strategy designs oriented towards critical thinking skills through the PBL model. Meanwhile, quantitative data analysis techniques are used to calculate the average results of news text learning tests using the PBL model.

Finding and Discussion

Problem Based Learning Strategy

Learning strategies relate to a series of activities designed to achieve certain teaching goals. The use of effective learning strategies can improve students' critical thinking abilities (Ardiansyah, 2018; Chanwong, 2018). One effort to improve students' thinking abilities, teachers can apply the PBL model.

The PBL model can develop critical thinking skills, collaboration, and

application of knowledge in real contexts (Dwijayanti & Yulianti, 2010; Gallagher & Gallageher, 2013; Karniahtunnisa et al. 2016). The use of this PBL model needs to be applied in learning news texts in Indonesian language subjects in junior high schools. Learning outcomes include exploring information, structure and language of news texts. This learning problem places news texts as real problems or approaches complex problems that require critical thinking, collaboration, and application of knowledge to be solved by students.

The steps of the PBL model are as follows;

1) Problem identification: the teacher introduces an interesting problem in the form of news text. The teacher provides several texts, one of which is not a news text, to look for important information and analyze the structure and language.

2) Problem exploration: the teacher provides instructions to students to identify what they know about the problem, what they need to know, and how they can find the information needed to solve the problem in some of the texts shared.

3) Organizing and planning: The teacher forms students into several groups. Next, students work independently and/or in groups within their groups to plan to solve problems in the form of texts distributed by the teacher.

4) Information gathering: Students look for relevant information from various sources, including textbooks, or the internet about news texts.

5) Analysis and interpretation: Students analyze information searched from various sources in depth regarding news texts.

6) Making hypotheses and solutions: Based on the results of the analysis, students develop hypotheses or solutions to solve problems in the form of texts distributed by the teacher. Students carry out a trial analysis of several texts distributed by the teacher.

7) Presentation: Students present the results of trials on several texts that have been distributed by the teacher in the form of written reports and oral presentations in front of the class.

8) Reflection: The teacher provides opportunities for students to reflect on the learning process carried out, including the difficulties faced, what has been learned, and the benefits of studying news texts.

The learning strategy design through the PBL model above was validated by experts, namely, learning experts and learning practitioners. The instruments used to assess the design of learning strategies through the problem-based learning model are as follows;

Table 1. Validation Instrument for Critical Thinking Ability-Oriented Learning Strategy Design through the PBL Model

No	Rated aspect
1.	Complete identity
2.	The basic competency that students must master is the preparation of competency achievement indicators that are described correctly.
3.	The formulation of learning objectives refers to the ABCD aspects (audience, behavior, condition and degree).

4.	Teaching materials are arranged according to learning outcomes.
5.	Teaching materials are prepared based on advanced materials.
6.	Teaching material is presented coherently.
7.	Time allocation is arranged according to the need to achieve basic competencies.
8.	The stages of learning activities: introduction, core and conclusion are arranged completely.
9.	Learning activities are arranged according to the stages of the problem-based learning model
10.	The assessment instrument is prepared completely.
11.	The assessment instrument items are arranged according to indicators of competency achievement.
12.	The assessment criteria are prepared appropriately.
13.	Selection of learning media that is interesting for students.
14.	The learning resources used are in accordance with the basic competencies to be achieved.
15.	The learning resources used are in accordance with the teaching material.

The above instruments are used to assess the news text learning design through the PBL model. This instrument uses a 1-4 Likert scale. The results of the expert assessment can be seen in the following table:

Table 2. Expert Validation Results

No	Validator	Percentage
1	Learning expert	80
2	Learning practitioners	82,5
	Average	**81,25**

Based on the table above, it can be seen that the average validation results for learning designs using the PBL model is 81.25%. This proves that the design of learning strategies oriented towards critical thinking skills through the PBL model in news text material in junior high schools is in the quite valid category and can be used with several minor revisions.

Effectiveness of News Text Learning through the Problem Based Learning Model

To prove the effectiveness of learning news texts through the PBL model, a t-test was carried out. The t-test was carried out using the pre-test and post-test results. The results of the t-test showed that the average pre-test and post-test scores were 66.44 and 84.44. This shows that there is a significant difference between the pre-test and post-test results. Therefore, it can be concluded that learning news texts using the PBL model is effective.

The Relationship between Problem-Based Learning Strategies and Critical Thinking Abilities

Critical thinking is one of the skills demands of the 21st century (Reeve, 2016). The aim of critical thinking is so that students can find solutions to the problems they face. Critical thinking is an active, continuous, and thorough consideration of a belief or form of knowledge that is taken for granted by including supporting reasons and rational conclusions. The conclusions obtained occurred due to a critical and accurate thinking process. Critical thinking ability is the ability to judge in making conclusions based on concrete and accurate evidence. (Rachmadtullah, 2015; Hatari, 2016)

Critical thinking prepares students to become individuals who are confident and responsible in making decisions (Lalu, 2011). Critical thinking is an act of manipulating or managing and

transforming information in memory (Larson, 2017). Critical thinking can be done to form concepts, reason, make decisions, think creatively, and solve problems.

Students' critical thinking abilities in learning news texts can be realized using the PBL model. Students are actively involved in solving problems by collaborating both with group friends and individuals.

Critical thinking is thinking rationally and reflectively with an emphasis on making decisions about what to believe and what to do (Aini et al, 2018; Chresty, 2015; Fairianthi et al, 2016). Critical thinking indicators derived from critical activities, namely 1) being able to formulate the main issues; (2) able to reveal the facts needed to solve a problem; (3) able to choose logical, relevant and accurate arguments; (4) able to detect bias based on different points of view; and (5) able to determine the consequences of a statement taken as a decision (Hayes et al., 2008; Paul & Elder, 2007; Zhou, 2018) The results of students' critical thinking abilities using problem-based learning strategies can be seen in the following table :

Table 3. Students' Thinking Abilities in Learning News Texts

No.	Indicator	Percentage
1	able to formulate the main problem	82
2	able to express the facts needed to solve problems	81
3	able to choose logical, relevant and accurate arguments	80
4	able to detect bias based on different points of view	80
5	able to determine the consequences of a statement taken as a decision	82
Average		**81**

Based on the table above, it can be seen that the average value of students' critical thinking abilities in learning news texts is 81% in the good category. This shows that the design of problem-based learning strategies can improve students' critical thinking abilities.

Conclusions

Based on the results of the discussion, it can be concluded that learning strategies oriented towards critical thinking skills through the PBL model can be applied. The steps of the PBL model consist of 1) problem identification, 2) problem exploration, 3) organizing and planning, 4) information gathering, 5) analysis and interpretation, 6) hypothesis generation, 7) presentation, and 8) reflection. The average results of expert validation of learning strategies oriented towards critical thinking skills through the PBL model were 82.5% with the category being quite valid and can be applied with slight improvements. The effectiveness of learning news texts using the PBL model with an average value of 85%. And, the average critical thinking ability of students is 81% in the good category.

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