Making Thematic Learning Modules Based on Problem Based Learning (PBL) Models in Improving Critical and Creative Thinking (CCT) Skills in Class V Students of State Elementary Schools

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Abstract. The purpose of this study was to determine and analyze the needs of teachers and students in developing modules that are able to improve students critical and creative thinking skill in understanding the material. The research design used a qualitative descriptive method with a case study approach. Data collection was obtained through interviews with fifth grade teachers and distribution of non-test questionnaires and tests filled in by 100 fifth grade students of elementary school in Bandar Lampung as research subjects. The data collection technique used a questionnaire containing 10 statements and 10 description questions on the CCT initial ability test. The results of the questionnaire analysis found that the teacher had never made a module in the learning process and the result of the analysis stated the need to develop a module that was able to help students in the learning process and the module was also able to improve students critical and creative thinking skills during the learning process.

Keywords: Module · Problem Based Learning Model · Critical and Creative Thinking (CCT) Skills

1 Introduction

Education is a field that plays a key role in developing 21st century talent. In order to achieve the skills of the 21st century, not only intellectual thinking through memorization activities, but also intellectual thinking through habituation such as problem-solving and creative thinking is required. In 21st century education, students must process the information they learn through analysis, evaluation, and creative activities.

Creativity, critical thinking, communication, and collaboration are the skills students need in the 21st century. Students should be able to use the information they receive to create something new, express rational opinions, communicate knowledge gained, and collaborate with other students to build more optimal skills.. Educators not only maintain, but develop creative thinking skills.[1] Students have not been able to argue to solve problems related to the real world, explain facts based on experiments, and draw conclusions based on evidence related to ongoing material. To make this happen we can apply the problem based learning model because it is a learning model characterized by the use of real life problems as something that students must learn to improve students Critical and Creative Thinking (CCT) Skills.[2] The ability to think creatively is a skill students need to be able to solve a variety of problems. Instilling 21st century skill learning in students is critical. [3] Based on the 21st Century Skills Partnership, Critical and creative thinking skills (CCT) are very important skills for students to have and students must be able to develop critical and creative thinking skills.[4] The ability to think creatively is therefore crucial to empowering students in the 21st century.

Every individual has the potential to generate creativity. The potential exists because each individual can think creatively. The ability to think creatively in a person can be developed and trained through the learning process. An educator must be able to plan learning concepts, strategies, and teaching materials based on models that facilitate students to develop their thinking skills.

Through problem-based learning learning models, students are trained not to rely entirely on the teacher's learning activities, thus encouraging students to learn actively, challenging their thinking and making them more enjoyable It motivates you to keep finding and creating learning processes. Finally, students will be able to apply the knowledge gained in their daily lives.

The learning process will run effectively and efficiently if it is supported by the availability of teaching materials as supportive learning media. In an effort to realize active and creative learning, an educator is required to master several strategies and learning models that can provide strengthening thinking for students. But in reality the opposite is true, educators still do not understand the importance of using strategies and teaching materials in the learning process. Educators not only master what must be learned (content) but how to teach students that are challenging, fun, motivating, and inspiring and provide space for students to perform process skills, namely observing, asking questions, and finding out. Indirectly, various problems arise from the application of teaching materials as a medium for delivering messages.

Educators use only printed books/texts purchased from publishers as the sole source of educational materials. The learning process in the classroom teacher only explains concepts and theories then gives examples of questions to students. When an educator gives an assignment that is not the same as the example, it becomes confusing and difficult to complete. The basic competencies (KD) attained by the learner do not meet the minimum maturity standards (KKM).

More Learning applies a teacher-centered approach, where the teacher becomes the center of information for students. Learning has not yet constructed students' knowledge and supports the actualization of their academic potential, personality, and creativity so that it shows evidence that students have not created critical and creative thinking.

Based on this description, the researcher wants to stage a research entitled "Making Thematic Learning Modules Based on Problem Based Learning (PBL) Models in Improving Critical and Creative Thinking (CCT) Skills in Class V Students of State Elementary Schools".

2 Research Method

2.1 Type of Research

This study used a qualitative approach where the research was conducted by conducting interviews with grade teachers and 100 hundred students at the elementary school in Bandar Lampung. Analysis of the research data using descriptive analysis techniques.

2.2 Place and Time of Research

This research took place at the elementary school in Bandar Lampung Academic Year 2021/2022 Semester Two. Research activities consist of pre-research and field observations to find out what is needed and the stage of making the product.

2.3 Research Subjects

The subjects of this teachers and 100 hundred students at the Elementary School in Bandar Lampung. In addition, researchers made observations on activities at school. Observations were made before distributing the questionnaire to the learning process, the needs of the teacher and students, then the teacher was given an interview questionnaire consisting of 5 questions and students were given a non-test questionnaire consisting of 10 questions and 10 description questions on the initial ability test which was made according to critical indicators and creative (CCT) skills. After that the results of the questionnaire were then analyzed based on the percentage of answers given by students in answering the questionnaire. The results of the questionnaire were analyzed to determine the needs of teachers and students for the modules to be developed in which this module is able to improve students critical and creative thinking skills.

2.4 Research Objects and Procedures

The object of this research is modules based on problem based learning (PBL) models in improving critical and creative thinking (CCT) skills in class V students. Analysis of the research data using descriptive analysis techniques. Data analysis activities start from the stages: (1) data reduction, namely sorting data according to the researcher's focus; (2) display data, namely the results of structured reduction and (3) data verification, namely checking data from the field to reach strong conclusions. [5].

3   Results and Discussion

3.1   Results

The purpose of this study is to describe the needs of teachers and students for the development of modules that can support students critical thinking skills in conducting learning. The needs assessment results serve as the basis for developing learning resources in the form of modules. The modules developed serve as teaching materials for students during their studies. A module is a piece of printed material that is systematically structured using language that is easy for students to understand based on the level and age of the student, and can be used as an independent study material with minimal guidance from an educator[6] Based on the analysis of interviews with educators by elementary school in Bandar Lampung, teachers find it difficult to train their students' critical and creative It shows that you are struggling to find the right learning model so that you can develop your competencies. Students' skills can train thinking skills, but teachers still find it difficult to train students and guide them to form hypotheses.Criticism of 100 students in a public elementary school in Bandar Lampung Results of a questionnaire test on critical and creative thinking skills (CCT) also showed that students critical and creative thinking skills were in the category of severely deficient. Shown in Table 1:

The results of the students needs non-test questionnaire analysis are presented in Fig. 1.

**Table 1.** The Result of the Students Needs Non-Test Questionnaire Analysis

No.	CCT Assessment Aspects	Average
1	*Problem Sensitivy*	37,75
2	*Analysis*	36,625
3	*Make Elaboration*	42,875
4	*Evaluation*	44,8
5	*Novelty*	40
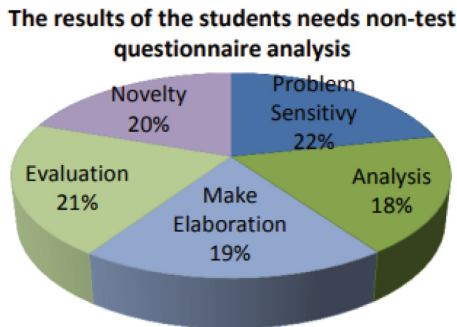
Fig. 1. Results of the Students Needs Non-test Questionnaire

Table 2. Results of the Students Needs Test Questionnaire

No.	CCT Assessment Aspects	Average
1	*Problem Sensitivy*	37,75
2	*Analysis*	36,625
3	*Make Elaboration*	42,875
4	*Evaluation*	44,8
5	*Novelty*	40

Results of the Students Needs Test Questionnaire
Critical and Creative Thinking Skills:
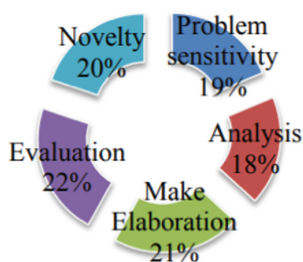
Fig. 2. Results of the Students Needs Test Questionnaire

The researcher also gave an initial Critical and Creative Thinking (CCT) Skills test to 100 fifth grade students at the public elementary school in Bandar Lampung. It also showed the students critical and creative thinking skills were included in the very lacking category. Presented in Table 2:

According to the results of the data analysis of the CCT initial ability test, it can be presented in Fig. 2:

4 Discussion

From this, it can be concluded that teaching materials should be developed by applying a learning model that actively involves students in learning activities.

From the results of the interview with teachers, it can be concluded that teachers are not developing innovative materials taught to students to improve their critical and creative thinking (CCT) skills. The lack of methods used by teachers in learning.

In developing module teaching materials, there are stages to produce modules based on Problem Based Learning models, including the Learning Implementation Plan (RPP) which is a design activity in the learning process carried out by teachers and students. The lesson plans designed in this study consisted of six lesson plans made by the author because one sub-theme consisted of six lessons. Where the RPP only consists of three components which include learning objectives, learning steps (activities), and learning assessment (assessment). The learning experience made by students can be realized

Table 3. Teacher and Student Activities

No.	Stage	Teacher and Student Activities
1.	Student orientation on issues	Describe learning objectives, explain required long term theory, and Invite students to be actively involved in the problem-solving process
2.	organize students to learn	Assist students in explaining and managing learning tasks related to problems
3.	First class individual/group experience	Encourage students to properly gather information, experiment, explain and solve problems.
4.	Develop and publish work	Help students plan and prepare appropriate tasks like reports, and sharing tasks with friends
5.	Analysis and evaluation of the problem-solving process	Enable students to reflect or evaluate the research and processes they use.

Source: Rusman (2012: 243).

through a learning model, one of the learning models used in the development of this module is based on the Problem Based Learning model which consists of several stages. According to Rusman (2012: 243) Problem Based Learning, has the following steps Table 3:

5   Conclusion

Based on this description, the researcher will try to make a module designed from the PBL syntax which includes 5 stages, including orientation to problems, organizing students to learn, guiding experiences in the form of individuals/groups, developing and presenting work as well as analyzing and evaluating problem solving process. So far, the textbooks used in schools only use textbooks from the government, so there is a need for innovation in other learning sources. The researcher chose the PBL model to create thematic learning modules because this model has advantages including being able to develop students' critical and creative thinking so that children can discover, construct and develop their insights and skills in various aspects of development independently. This model has a few drawbacks in terms of its application requiring a fairly long time allocation in the learning process and teachers often experience difficulties in becoming facilitators.

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