IMPLEMENTATION OF PROBLEM-BASED LEARNING TO IMPROVE STUDENTS' CRITICAL THINKING SKILLS

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Abstract

The research aims to improve students' problem solving and critical thinking skills. The research stages consist of planning, carrying out activities, observing and reflecting. The target students of the 2021/2022 Pancasila and Citizenship Education study program were 22 students, political science courses. The data collection used tests and non-tests. Instruments in the form of observation sheets and esay tests. The data analysis technique is quantitative and qualitative. The results showed an increase in the ability of lecturers from initially good (80.60%) to very good (93%), the ability to solve problems from initially none in the excellent category to none, namely 5%, good category 15%, good enough category 2%, critical thinking ability there was an increase in the percentage of students from none who thought very critically to none by 18.18%, critical thinking 68.18%, thinking quite critically 13.64%.

Keywords: problem based learning; critical thinking skills

1. INTRODUCTION

The low ability to solve problems and critical thinking of students is a problem in learning. Students tend to think linearly, mastering concepts but weak in their application, the ability to formulate and solve problems is very low, the lack of ideas in solving problems, the courage to express opinions is low. The causative factor is that in learning students are not accustomed to critical thinking in solving problems and learning is still dominant using conventional models.

From the initial observation, the following information was obtained: 1) students prefer to do memorized questions rather than being asked to analyze a problem. Of the 15 students who took the Political Science course, as many as 3 students (20%) were able to analyze and solve problems rationally. 2) The scientific insight possessed by students is still minimal. When asked to express their ideas or thoughts in responding to problems, only 2 students (13%) were able to provide critical and rational answers. The above phenomenon, if not immediately resolved in the future, will have an impaction the low quality of graduates produced so that they are unable to compete in entering the world of work. Ridwan, Ramansyah and Wawan (2019) stated, learning in schools must be able to equip graduates to be skilled in higher-level thinking which includes the ability to solve problems and think critically. Critical thinking skills in the 21st century must be owned by students, so it is very necessary to be trained in the learning process (Binkley: 2012).

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Critical thinking is basically logical thinking related to the ability to reason which is more emphasized on known opinions so that it can make decisions to do something. In critical thinking according to Sutarmo (2012), someone will think seriously in solving the problem at hand or looking for several alternative actions that will be taken later, so according to Ridwan, Ramansyah and Wawan (2019) students need to recognize and define problems, make observations, ask questions, use various sources to find facts, find reliable solutions and make wise decisions.

In addition, students also need to develop problem-solving skills that are at a higher level than other thinking skills. Indicators of problem solving ability according to Nurhadi et al (2004) are the ability to recognize, compile, examine, conclude, alternative solutions, make judgments, solve and handle problems.

To produce the ability to think critically and solve problems using problem-based learning where students will be faced with problems then given the opportunity to be actively involved in exploring and finding solutions by utilizing various learning resources including from the internet. Ward (in I Wayan Dasna and Sutrisno: 2007) stated that problem-based learning motivates students to use scientific studies to deal with problems.

Problem-based learning is oriented towards a constructivist theoretical framework. Learning is more student-centered, students are given space and time to formulate, find, solve, build knowledge gradually by utilizing various learning resources, both independently and through discussions with peers collectively and collaboratively. Students are also honed to gain life skills, including critical thinking and problem solving focus, having a spirit of collaboration and the ability to work in groups, as well as being agile and adaptable (Sitanggang: 2021).

Problem-based learning can create an academic atmosphere that is fun, democratic and gives students freedom in expressing their thoughts including cooperation, discussion, collaboration in exploring and finding solutions to problems. In addition, it also better prepares students to enter the world of work which demands the ability of 4 Cs (Critical Thinking, Communication, Collaboration and Creativity and Innovation). The results of research by Reta (2012), Redhana (2013), Sunaryo (2014), Batubara (2018), Tanung (2018) stated that problem-based learning can improve problem solving skills, rational thinking and student learning outcomes. Fachrurazi (2011), Herman (2007) explained that problem-based learning classes have higher critical thinking than conventional classes.

The problem so far is that not all lecturers have implemented problem-based learning even though it can foster and develop students' higher-level thinking skills, independence and autonomy in solving problems, so research was conducted to find out the implementation of problem-based learning in learning political science and obtain information about improving students' problem solving and critical thinking.

2. METHODS

The research was conducted in 2 cycles, with two meetings per cycle. The course developed Political Science with the material of political parties and general elections. The research procedure consists of planning, action, observation, and reflection.

The research subjects were students of class 2021-2022, semester 4 of the 2022/2023 academic year, as many as 22 students. Using test instruments in the form of esay tests to determine students' problem-solving and critical thinking skills and non-tests in the form of observation sheets to observe lecturer and student activities. Using qualitative techniques to determine the activities of lecturers and students and

quantitative to determine the test results of students' ability to solve problems and student critical thinking.

3. RESULTS AND DISCUSSION

1. Cycle 1 Research Results

a. Planning stage

Preparing teaching tools, making problem-based learning scenarios, making observation sheets, compiling test essays and reviewing the content of the material that will be delivered to students, namely about political parties. Dividing the material into several meetings. Meeting 1 discusses the meaning, characteristics, objectives, functions, classification of political parties. Meeting 2 discusses the existence of political parties in Indonesia.

b. Implementation Stage

The first meeting was held with material on the definition, characteristics, objectives, functions, classification of political parties. Followed by the second meeting discussing the material on the existence of political parties in Indonesia. Carry out learning activities that have been planned according to learning. Observation activities are carried out by research members using observation sheets.

c. Observation Stage

1) First meeting

Introductory activities provide apperception, explain the objectives, scope of discussion material, and the synthesis of problem-based learning. Core activities begin with explaining the material using power point media interspersed with questions and answers. Propose problems to be analyzed and answered through group work. The class was divided into 3 groups, each group consisting of 5 students. Group 1 analyzes the meaning and characteristics of political parties, group 2 analyzes the functions and objectives of political parties, group 3 analyzes the classification of political parties. Under the guidance of lecturers, students work together, discuss, collaborate in analyzing and solving problems. Group representatives present their work in turn to be discussed together with other group members. The closing activity of the lecturer gives reinforcement by explaining a number of issues that still need to be sharpened and emphasized. This includes evaluating the learning process and student activities in solving problems. At the end of learning, students are given the task of finding information about the existence of political parties in Indonesia to be discussed at the next meeting while still applying the problem-based learning model.

2) Second meeting

In the introductory activities, apart from making apperceptions, it also checks the assignments that have been given at the previous week's meeting. Core activities explain the material with the help of power point media, interspersed with questions and answers. Giving problems to analyze and find solutions through group discussions. The class remained divided into three groups, each group consisting of 5 people where the members in one group were different from the previous meeting. Under the guidance of the lecturer, students complete the tasks that are the responsibility of their groups.

Representatives of each group were asked to present their work to get responses from o her group members. At the end of the activity, in addition to evaluating the learning process, the lecturer also gave reinforcement by discussing several things that were considered important and had not been

discussed in the discussion. At the end of cycle 1, an evaluation was carried out to determine the ability to solve problems and critical thinking of students in solving problems.

d. Reflection stage

1) Lecturers' ability to implement problem-based learning

From the observation of cycle 1, it is known that the problem orientation ability stage is rated good (73%), the stage of organizing students in learning is rated good (71%), the stage of guiding individual and group investigations is rated good (70%), the stage of developing and presenting data is rated good (75%), the stage of analyzing and evaluating the problem solving process is rated good (77%).

2) Problem Solving Ability

From the results of the silus 1 test, it is known that the ability of students to solve problems is categorized as good (31.82%), quite good (45.45%), less good (22.73%). Details can be seen in the explanation below.

Table 1: Problem solving ability Cycle 1

Score	Category	Student (person)	%
76 - 100%	Very good	-	-
51 - 75%	Good	7	31,82 %
26% - 50%	Good enough	10	45,45 %
0 % - 25%	Less Good	5	22,73 %

3) Critical Thinking Ability Cycle 1

Based on observation data on students' critical thinking skills in solving problems in cycle 1, it is categorized as critical 3 students (13.63%), quite critical 12 students (54.55%), less critical 5 students (22.73%), and not critical 2 students (9.09%). The complete data presentation can be seen in the following table.

Table 2: Students' critical thinking

Score	Category	Student (person)	%
92% - 100%	Very critical	-	
75% - 91%	Critical	3	13,63 %
50% - 74%	Critical enough	12	54,55 %
25% - 49%	Less critical	5	22,73 %
0% - 24 %	Not Critical	2	9,09 %

2. Cycle 2 Research Results

a. Planning Stage

Together with colleagues to discuss and work together to develop scenarios of problem-based learning models and examine the material to be delivered, make observation instruments and compile esay tests. The material presented is general elections and the implementation of general elections in Indonesia.

b. Implementation Stage

Cycle 2 was carried out 2 times face-to-face with the following material. Meeting 1 discusses the meaning, purpose, principles, benefits and foundation of general elections in Indonesia. Meeting 2 discusses material on the implementation of general elections in Indonesia. Learning activities are carried out in accordance with the syllabus and lesson plan. Observation activities are carried out by researcher members using observation format tools.

c. Observation Stage

1) First meeting

Introductory activities begin with apperception, followed by giving information on the objectives and points of material presented in learning, explaining again the steps of implementing problem-based learning. Core activities explain the material about general elections shown through power point, interspersed with questions and answers. Propose problems to be analyzed and answered through group discussions. The class was divided into 5 groups, each group consisting of 3 students, with the division of tasks as follows. Group 1 discusses the definition of general elections and the purpose of general elections. Group 2 discusses the legal basis and principles of general elections in Indonesia. Group 3 discussed the issue of citizen participation in general elections. Group 4 discussed the implementation of the electoral system. Group 5 discusses the importance of general elections in a democratic country. With the guidance of the lecturer, students are asked to discuss, cooperate, and collaborate on tasks that are their responsibility. Representatives of each group take turns presenting their work to be discussed together with members of other groups. At the end of the activity, an evaluation of the learning process is carried out and emphasizes the discussion of several issues that still need to be deepened. Students are given the task of finding references from various learning sources about the implementation of general elections in Indonesia.

2) Second meeting

Explaining the material on the implementation of general elections in Indonesia using power points, accompanied by questions and answers. The next activity, students are given problems to analyze and find solutions by utilizing various learning resources through group work. The class is divided into 5 groups, each group has 5 members heterogeneously, the members are different from the groups in meeting 1. Students are asked to discuss, cooperate and collaborate on tasks that are the responsibility of their groups. After completing the task, representatives of each group are asked to present their work in turn to be responded to by other members. The final stage of the activity evaluates the course of the learning process, helps provide explanations and reinforcement and emphasizes several issues that are deemed to have not been discussed thoroughly in the discussion, and ends with an evaluation of the implementation of cycle 2.

d. Reflection

Reflection activities are carried out by analyzing and discussing the results of observations made during the learning process, the results are as follows:

1) Lecturer's ability to implement problem-based learning Cycle 2

Lecturers have implemented problem-based learning steps and are generally categorized as good. Based on the results of observations about the ability of lecturers for the problem orientation stage is rated good (82%), the stage of organizing students in learning is rated good (75%), the stage of guiding individual and group investigations is rated good (82%), the stage of developing and presenting data is rated good (79%), the stage of analyzing and evaluating the problem solving process is rated good (85%).

2) Problem Solving Ability Cycle 2

In silus 2 the ability of students to complete is categorized as very good 5 students (22.73%), good 15 students (15%), quite good 2 students (9.09%). The complete data presentation is presented in the table below.

Table 3: Problem solving ability Cycle 2

Score	Category	Student (person)	%
76 - 100%	Very good	5	22,73 %
51 - 75%	Good	15	68,18 %
26% - 50%	Good enough	2	9,09 %
0 % - 25%	Not so good	-	-

3)   Critical Thinking Ability Cycle 2

Based on data on students' critical thinking skills in solving problems in cycle 2, it is assessed that 4 students (18.18%) are very critical, 15 students (68.18%) are critical, 3 students (13.64%) are quite critical. The complete data presentation is in the data below.

Table 4: Critical Thinking Ability Cycle 2

Score	Category	Students (people)	%
92% - 100%	Very critical	4	18,18 %
75% - 91%	Critical	15	68,18 %
50% - 74%	Critical enough	3	13,64 %
25% - 49%	Less critical	-	-
0% - 24 %	Not Critical	-	-

Based on the results of reflection and evaluation of cycle 1, it is known that the average percentage of success in implementing the learning model is 80.60% in the good category. This is because the problems posed by lecturers are less provocative and have not been able to foster higher-level thinking skills in solving problems, still provide a lot of assistance and student input in solving problems so that students are not independent in doing the task, the membership of each group is too much and not heterogeneous so they do not focus on doing the task. After reflection and improvement in cycle 2, the implementation of problem-based learning was in accordance with the indicators and experienced an increase in percentage of 93% in the very good category. Nurhadi et al (2004) explain the purpose of problem-based learning is more humanizing, producing autonomous and independent humans and actively involving in real experiences, producing students have critical thinking skills and intellectual skills. Wynn Sr et al. (2014) in the research findings explained that the learning atmosphere in the PBL model is very conducive and encourages students to think and express their thoughts, so that involvement in cooperation, discussion and collaboration is very high.

From cycle 1 and cycle 2, there was an increase in the percentage from initially no one had the ability to solve problems in the excellent category to 5%, good category 15%, good enough category 2%. This is because students already have creativity in exploring, searching and finding information so that they can add and expand scientific insights, deepen and sharpen answers in solving problems. Including being able to find, formulate and think of various alternative solutions to the problems studied, even having the courage to compare, compare and compare their thoughts with other students during discussions in an effort to find the truth in solving problems. The findings of the research results are in accordance with the indicators of mathematical problem solving according to Polya (in Ariani, Hartono, & Hiltrimartin: 2017), namely the ability to understand, find solutions and test the truth of the answer. Winkel (1984) also explained, the steps in solving the problem at hand are understanding the problem, formulating the problem, testing the hypothesis as well as finding the best alternative soulsi to solve the problem.

In cycles 1 and 2 there was an increase in the percentage of students from no one who thought very critically to 18.18%, 68.18% critical thinking, 13.64% critical thinking. Students have been able to analyze and discuss the results of their thinking in solving each problem, including the courage to express their thoughts and argue at the time of

discussion. Answers in solving problems are very comprehensive and rational. The findings of this study are in accordance with the opinion of Arends (2008) that problem-based learning aims to foster and develop skills in solving problems, thinking skills and intellectual skills.

4. CONCLUSION

From the results of the study it can be concluded that there is an increase in the ability of lecturers to carry out learning from what was originally good (80.60%) to very good (93%), the ability to solve problems from no one in the excellent category to 5%, good category 15%, good enough category 2%, critical thinking ability there is an increase in the percentage of students from no one who thinks very critically to 18.18%, critical thinking 68.18%, thinking quite critically 13.64%.

5. ADVICE

To improve the quality of learning that aims to produce and improve students' ability to solve problems and think critically, it is better to apply a constructivistic- oriented learning model. In addition, it can use IT-based teaching materials and learning media, using inquiry methods so that learning is more qualified.

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