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CRITICAL THINKING SKILLS ON STUDENTS IN PHYSICAL LEARNING PHYSICS IN SMP

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Abstract- This study aims to determine whether there are differences in students 'critical thinking skills learned using inquiry learning models with students' critical thinking skills taught using discovery learning models. This research was conducted in 02 SMP Negeri Gorontalo city in 2018/2019 school year. The method used is an experimental method with a posttest only control group design. Sampling in research using cluster random sampling, research data were analyzed using t-test analysis Independent Sample Test using SPSS software (Statistical Product and Service Solution) 16.0 obtained that Asymp. Sig. (2- tailed) = 0.137 and level = 0.05. With the testing criteria, accept H0 if A-Symp. Sig. (2-tailed)> 0.05 and accept H1 if A-symp. Sig <0.05. Based on the calculation results obtained by A-Symp. Sig. (2-tailed)> 0.05. thus H1 is rejected and accepts the hypothesis H0, so it can be concluded that there is no significant difference between students 'critical thinking skills taught using guided inquiry learning models and students' critical thinking skills that are learned using discovery learning learning models.

Keywords: Guided Inquiry, Critical Thinking Skills

1. INTRODUCTION

Thinking skills at secondary education (SMP) are left entirely to the subjects, there is no clear coordination. Thinking education at the elementary and secondary education levels has not been dealt with systematically and implemented partially, as a result the thinking ability of elementary and high school graduates is still low, especially with changes in curriculum that are always changing [1]. Critical thinking as a way of reflective thinking that makes sense or based on focused reasoning, to determine what must be believed and done. Critical thinking means thinking clearly and smartly. In the classroom this critical thinking ability is used to understand the arguments and beliefs of others, critically evaluate arguments and beliefs, and develop and defend their own arguments [2].

The field of physics studies as part of Natural Sciences (IPA) is an interesting subject object and requires a strong basic understanding. Physics lessons focus more on the ability of students to analyze the knowledge possessed by natural events or phenomena that he experiences in everyday life. Physics studies require students to be able to think logically, critically, creatively, and be able to argue properly. But the tendency of learning physics at this time students only study physics as a product, memorizing concepts, theories and laws. Learners only learn physics in the lowest cognitive domain so that it impacts the learning outcomes obtained. The development of students' potential can be achieved by creating an atmosphere of well planned learning.

Based on observations during the implementation of the Field Practice Program (PPL II) at SMP Negeri 02 Gorontalo City, it was found that the lack of attention of students in participating in learning, besides students experiencing learning difficulties, especially in the subjects of natural

science physics. Learning difficulties are due to the many physics learning science using formulas that are difficult to understand by students. Another problem, the existing learning process is still dominated by the teacher, so students tend to be passive and less active in participating in teaching and learning activities in this case students only accept material that has been submitted by the teacher without developing it independently. This causes students to not be able to train their thinking potential and the knowledge gained is only temporary so that it is easy to forget the material that was taught before. As a result, students' critical thinking skills are neglected and result in low student learning outcomes.

Guided inquiry is a learning model where students are given the opportunity to work on formulating procedures, analyzing results and drawing conclusions independently, while in terms of determining topics, questions and supporting materials, the teacher only acts as a facilitator. The guided inquiry learning model is one way to develop critical thinking skills in learning physics. With this activity, students can learn actively to present problems, make or present hypotheses, conduct experiments to obtain information or data, collect and analyze data, and make conclusions. In this learning the role of the teacher does not look dominant, the teacher acts as the organizer and facilitator [3].

This study aims to determine whether there are differences in students' critical thinking skills that are taught using the guided inquiry learning model with the critical thinking skills of students who are taught using discovery learning models.

II. RESEARCH METHODS

This research was conducted on students of class VIII at SMP Negeri 2 Gorontalo City by adjusting physics science hours. This research was conducted to see the differences in critical thinking skills using the guided inquiry learning model as an experimental class with discovery learning as a control class. The method used in this study is an experimental method. Then, the research design used is the posttest only control group design [4].

III. RESULTS AND DISCUSSION

Based on the test results obtained by hypothesis that there is no difference in the critical thinking skills of students who are taught using guided inquiry learning models with critical thinking skills of students who are taught using discovery learning learning models. T-test results obtained that Asymp. Sig. (2- tailed) = 0.137 and level = 0.05, the test criteria are accept H0 if A-Symp. Sig. (2-tailed)> 0.05 and accept H1 if A-symp. Sig <0.05. This can be seen based on the results of data analysis on hypothesis testing, where A-Symp. Sig. (2-tailed)> 0.05. thus H1 is rejected and accepts the hypothesis H0, so it can be concluded that there is no significant difference between the critical thinking skills of students who are taught using guided inquiry learning models and the critical thinking skills of students who are taught using discovery learning learning models.

Data on the results of students' critical thinking skills analyzed in this study consisted of two groups namely in the experimental class that was taught using the guided inquiry learning model and the control class was taught using the discovery learning learning model. The students' critical thinking skills test data were assessed using an essay test with a total of 11 questions

Then the average posttest score acquisition between the experimental class and the control class has a different value, where the experimental class scores 68.92 and the control class scores 64.84. This shows that the critical thinking skills of students in the experimental class taught using the guided inquiry learning model are higher than the control class taught using the discoveri

learning learning model. The following average score acquisition in the experimental class and control class can be seen in Figure 1 below:

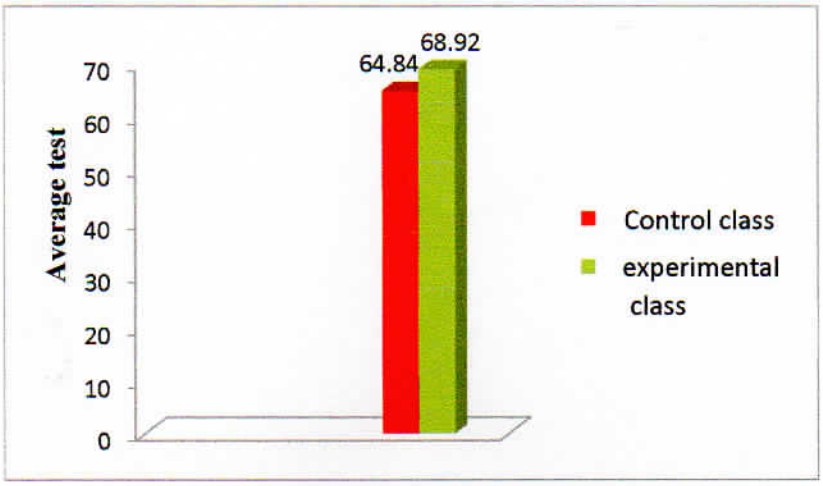

Figure 1. Average critical thinking skills test of the experimental class and control class students

In this study, students' critical thinking skills were measured by giving a critical thinking skills test in the form of a description of 5 items.

First, the Indicator provides a simple explanation of getting the highest score this is because student learning activities are also good, in addition to being influenced by student activities teacher activities are also very important in the success of the learning process. Teacher guidance and direction can increase student involvement and activeness during the learning process. Students understand the skills of the problem very well, students are able to understand what is meant from the problem and find the answers to the questions themselves so that students can provide simple explanations correctly. This is proven by many students who get the maximum score on the indicator. Indicator provides a simple explanation of this experimental class obtains a higher score than the control class score where the experimental class is taught using the guided inquiry learning model with the control class taught using the discovery learning model, This is in line with the opinion [6] suggesting that the guided inquiry model is a model which prepares students in situations to conduct their own extensive experiments to see what is happening, wants to do something, ask questions, and look for the answers themselves.

Second, Indicators build the basic skills of trained students to formulate problems by writing down what is known and what is asked in the problem. Indicator builds these basic skills students are able to respond to the questions given well, this is because students are taught using guided inquiry learning models that are in line with opinions [7] Guided inquiry learning models are learning models in which the teacher guides students to do activities by giving initial questions or instructions instructions that can lead students into a learning discussion to find a solution to a problem. in this indicator the experimental class score is higher than the control class score where the experimental class is taught using the guided inquiry learning model with the control class taught using the discovery learning model.

The indicator concludes the control class gets the highest score compared to the experimental class, This is because students still have difficulty in understanding the purpose of the problem so students are less able to analyze and write the conclusion of the answer to the problem.

Fifth, the Indicator provides further explanation that the experimental class obtains higher scores than the control class, guidance and direction of the teacher can increase student involvement and activity during the learning process. Students' skills in understanding questions are very good. Students are able to understand what is meant by the problem so students can provide further explanation correctly, this is in line with the opinion [8] which states that the guided inquiry learning model is a series of learning activities that emphasizes the process of thinking critically and analytically to look for and find out for yourself the answer to a problem in question. The indicators governing the strategies and tactics of the experimental class get higher scores than the control class, in this indicator students have not been meticulous in counting but students have been able to set the right strategies and tactics to solve a problem. The calculation process is done correctly it's just that the accuracy of students is still lacking in counting. [9] states that the series of activities in guided inquiry learning maximally involves the entire ability of students to search and investigate systematically, critically, logically, analytically, so that they can find their own findings with confidence.

The indicator concluded that the experimental class received a low grade and the control class got the highest grade, but overall the students' critical thinking skills were classified as good in each indicator for the experimental class taught using the guided inquiry learning model. The results obtained are in accordance with the results of previous studies which concluded that the guided inquiry model can improve students' critical thinking skills.

In physics learning using guided inquiry learning models can improve students 'critical thinking skills, because learning models that involve all students' abilities to the maximum to search for and investigate events or phenomena that exist systematically, critically, logically, so students can formulate their own discoveries. In addition, the level of understanding obtained by students is deeper because students are directly involved in the process of finding answers to existing problems and directly practicing them.

The guided inquiry learning model is designed with the aim of developing students to have scientific abilities, and also to motivate students to be directly involved mentally and physically in the learning process, both in solving problems and making decisions. This model also provides opportunities for students in groups, so that the guided inquiry model can improve the ability of students to argue in solving problems with their groups and have learning experiences so that it is easy to understand the concepts learned.

IV. CONCLUSIONS AND SUGGESTIONS

CONCLUSION

Based on the results of research and discussion, it can be concluded that, there is no difference in the critical thinking skills of students who are taught using guided inquiry learning models with the critical thinking skills of students who are taught using discovery learning learning models.

SUGGESTION

From the research that has been done, the researchers put forward some suggestions for improvement in the future, namely as follows:

1. In learning activities, the teacher should choose a model that matches the characteristics of the material to be taught to students.

2. Learning activities should use learning models that can create a pleasant atmosphere that can support students to learn actively and actively, one of which is a guided inquiry learning model because it is proven in this study that guided inquiry models can improve students' critical thinking skills.
3. Discovery learning learning models need attention and responses, serve as an alternative class learning model as a learning model that can improve students' critical thinking skills.

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