



## Implementation Of The Inquiry Learning Learning Model To Develop Students' Critical Thinking Abilities In The Ppkn Subject For Grade X

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### Abstract

*This study aims to determine Implementation of the Inquiry Learning Model to Develop Students' Critical Thinking Skills in the Civics Subject of Grade X Students of Sma Negeri 1 Borbor. Based on the results of research and discussion regarding the implementation of the Inquiry Learning model on students' critical thinking skills in the Civics subject in grade X of Sma Negeri 1 Borbor, it can be concluded that the implementation of the Inquiry Learning model has a significant influence on improving students' critical thinking skills. This is evidenced by the results of the pretest and posttest data analysis which show that the initial abilities of students in the experimental class and the control class are at a relatively similar level. However, after being given treatment, the experimental class using the Inquiry Learning model experienced a much higher average increase in scores compared to the control class using conventional learning methods. This difference is reinforced by the results of the hypothesis test which shows a significance value of less than 0.05, so it can be stated that there is a significant difference between the two groups after the treatment is given. Overall, this study proves that the Inquiry Learning model is able to create a more active, interactive, and student-centered learning process, so it can improve critical thinking skills in Civics learning.*

*Keywords: Implementation, Learning Model, Inquiry Learning, Students' Critical Thinking Skills*

## INTRODUCTION

Learning is a process by which individuals or groups acquire new knowledge, skills, understanding, or attitudes through experience, study, instruction, or interaction with the environment (Margunayasa, Dantes, Marhaeni, & Suastra, 2019). This process is fundamental and lifelong, and can occur in various contexts, including formal, informal, and non-formal education. Learning is also central to individual development. In the classroom, learning requires educators with in-depth mastery of the material. Furthermore, educators are required to teach using a variety of methods, which requires teachers to be creative in their teaching approaches (Wijaya & Handayani, 2021).

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material. Furthermore, educators are required to teach using a variety of methods, which requires teachers to be creative in their teaching approaches (Haristian, 2019).

Learning is the process by which individuals or groups acquire new knowledge, skills, understanding, or attitudes through experience, study, instruction, or interaction with the environment (Wati, Al Idrus, & Syukur, 2021). This process is fundamental and lifelong, and can occur in various contexts, including formal, informal, and non-formal education. Learning is also central to individual development (Verawati, Harjono, Wahyudi, Gummah, & Prayogi, 2023b). In the classroom, learning requires educators with in-depth mastery of the material. Furthermore, educators are required to teach using a variety of methods, which requires teachers to be creative in their teaching approaches.

## **METHOD**

This research is a quantitative research using an experimental research design. quasi - experimental design. Experimental research pseudo used Because researchers No can do control full to subject research, however still give treatment certain to group experiment For see its influence to variables tied (Verawati, Harjono, Wahyudi, Gummah, & Prayogi, 2023a).

This research own objective For knowing the influence implementation models Inquiry Learning on students' critical thinking abilities, and analyzing difference ability think critical after given treatment using the Inquiry Learning model in the subject PPKn. This research model uses a One Group Pretest - Posttest Design, namely do test (pretest), ii providing it treatment (treatment) in the form of Inquiry Learning, and tests final (posttest) to see the improvement in thinking ability student criticism after treatment given (Hasmi Syahputra Harahap & Harahap, 2021).

This type of research including explanatory, because aim explain the relationship between the independent variables and the dependent variables that have been set through treatment in learning. The object of this research is implementation model i learning ii Inquiry iii Learning in the learning process Civics and its influence on the ability to think critically students in class IIX as many as 60 people (Febiyanti, Srisudarso, & Utami, 2021).

The subjects of this research are all the students of class XII of SMA I Negeri i Habinsaran who were involved in activity learning PPKn in the current semester. Total student in class used as sample study (Du & Qian, 2022). According to Sugiyono (2018:55) research variables are everything that in any form determined by the researcher uantuki i dipelajari i se hingg a obtained information and drawn conclusions.

Variables used in study This is :

1. Variable I Free (X) = Model I P Learning II Inquiry Learning
2. Dependent Variable (Y) = Critical Thinking Ability Student

Variables free is treatment in the form of use of the Inquiry Learning learning model in learning PPKn, whereas variables bound is results or measured influence from implementation of the model in the form of Critical Thinking Ability of Grade IX Students of SMA Negeri 1 Habinsaran. aktiv qitas student during the ongoing Inquiry Learning learning process, such as involvement in investigation, ability ask, work the same, as well as the process of taking decision.

Hypothesis testing done For know whether there is difference results significant learning between student class experiments that use learning models Inquiry Learning with

student class control that uses method conventional. The test used is the Independent Sample t-test with level significance 5% ( $\alpha = 0.05$ )

## RESULTS AND DISCUSSION

This research was conducted at SMA N 1 Borbor, Borbor District, Toba Regency in classes X E1 and X E2 4. In this study, the type of research used was experimental research with a quantitative approach. Where this study only involved one experimental group without a control group. And after the intervention or treatment of Inquiry Learning was carried out on the experimental class. To determine the level of change that occurred, a pretest will be given before being given treatment and a posttest after being given treatment applying the Inquiry Learning learning model (Devi, Sulistri, & Rosdianto, 2019).

Before collecting data, the researchers conducted a pilot test of the questionnaire that would be used for the pretest and posttest. The pilot test was conducted at SMA N 1 Borbor with 71 students. The pilot test was conducted to determine the validity and reliability of the instrument. All 30 questionnaire items were found to be valid.

After the trial was conducted and the results were known, preliminary data was collected using a pretest on the control and experimental classes. The experimental class was then given a treatment, with the experimental class using Inquiry Learning, while the control class used the lecture or conventional method. After the treatment, both classes were given a posttest. This was done to determine the students' final abilities in response to the treatment (Mellyzar, Lukman, & Busyaturrahmi, 2022).

To obtain a clearer picture, the research data can be grouped into experimental and control groups. Based on the research results, a descriptive statistical picture of the pretest and posttest scores of students in the experimental and control classes was obtained.

In the experimental class, the average pretest score was 19.06 and increased significantly to 27.06 in the posttest. This indicates a significant improvement in learning outcomes after being treated using the *Inquiry Learning model*. Conversely, in the control class, the average pretest score of 18.64 only increased slightly to 19.22 in the posttest. This small increase indicates that learning using conventional methods has little impact on improving student learning outcomes.

The comparison of learning outcomes is more clearly shown in the bar graph (Figure 4.1). The graph shows that the experimental class experienced a significantly greater increase in average scores than the control class. This finding indicates that the application of the *Inquiry Learning model* is able to improve student learning outcomes more effectively than conventional methods (Bukit, 2022).

In addition, descriptive analysis can also be supplemented with measures of central tendency such as the median and mode, as well as measures of dispersion such as the standard deviation. The median and mode scores in the experimental class increased from pretest to posttest, indicating that most students achieved higher scores after the treatment. The relatively stable standard deviation also indicates that the increase in scores occurred evenly across the majority of students, not just a small minority.

Thus, it can be concluded that the *Inquiry Learning model* is not only able to increase the average learning outcomes, but also improve the distribution of student grades, so that learning becomes more effective and equitable.

Description of the comparison of pretest and posttest in the experimental and control classes. In the context of learning Inquiry Learning, Pretest and posttest are still used as

evaluation tools to measure the development of students' knowledge and abilities before and after the implementation of Probing Prompting. This method can be applied both in experimental classes that use the Inquiry Learning model as the main strategy, as well as in control classes that use conventional learning methods (Rizki, Surur, & Noervadilah, 2021).

Before conducting a hypothesis test, prerequisite analysis tests are first performed, including normality and homogeneity tests. These prerequisite tests are important because the results of the hypothesis test are only valid if the analyzed data meets the basic assumptions of a normal distribution and has homogeneous variance. In other words, if these two requirements are met, the analysis can proceed using a parametric test (*Independent Sample t-test*), which is more accurate in comparing two data groups.

From the data obtained, a normality test was then conducted to determine whether the data distribution was normally distributed or not. The normality test used to determine the distribution of pretest and posttest data was the Shapiro-Wilk normality test with normal or non-normal distribution rules. The normality test in this study can be seen in the table below (Hajerina, 2018).

The normality test aims to determine whether student learning outcome data comes from a normally distributed population. In this study, the normality test was conducted using the Shapiro-Wilk Test at a significance level ( $\alpha$ ) of 0.05. The testing criteria are:

1. If the significance value (Sig.)  $> 0.05 \rightarrow$  the data is normally distributed.
2. If the significance value (Sig.)  $\leq 0.05 \rightarrow$  the data is not normally distributed.

In table 4.10 above, it can be seen that the experimental class learning of  $n = 35$ , obtained with the *Shapiro-Wilk statistical pretest price* = 0.920,  $df = 35$  and  $sig. = 0.080$ . The sig. price of  $0.080 \geq sig. a = 0.05$  states that the experimental pretest learning is normally distributed and in the experimental posttest data with the *Shapiro-Wilk statistical price* = 0.893,  $df = 35$  and  $sig. = 0.073$  The sig. price of  $0.073 > sig. a = 0.05$  indicates that the experimental posttest learning is normally distributed. In the control class pretest table with the *Shapiro-Wilk statistic value* = 0.937,  $df = 36$  and  $sig. 0.080$ . The sig. value of  $0.080 > sig. a = 0.05$ , it states that the pretest learning in the control class is normally distributed, and in the posttest data of the control class with the *Shapiro-Wilk statistic value* = 0.970,  $df = 36$  and  $sig. = 0.424$ . The sig. value of  $0.424 > sig. a = 0.05$  then states that posttest learning in the control class is normal (Nuryana & Chaidar, n.d.).

1. In the homogeneity test *based on mean*, the Sig. value was obtained =  $0.141 > 0.05$ , so the data variance is homogeneous.
2. In the test *based on the median*, the Sig. value was obtained =  $0.161 > 0.05$ , so the data variance is homogeneous.
3. In the test *based on trimmed mean*, the Sig. value is obtained =  $0.141 > 0.05$ , so the data variance is homogeneous.

Thus, all Levene's test results showed a significance value greater than 0.05, thus concluding that the variance of student learning outcomes in the experimental and control classes was homogeneous. This means that the differences in scores obtained between classes were not caused by differences in variance, but rather purely by the treatment given.

## Hypothesis Testing

Hypothesis testing was conducted to determine whether there was a significant difference in learning outcomes between students in the experimental class using the Inquiry Learning model and students in the control class using conventional methods. The

test used was an **Independent Sample t-test** with a significance level of 5% ( $\alpha = 0.05$ ) (Larasati, 2020).

The testing criteria are:

1. If  $|t_{hitung}| > t_{tabel}$  and  $p\text{-value} < 0.05 \rightarrow$  there is a significant difference.
2. If  $|t_{hitung}| \leq t_{tabel}$  and  $p\text{-value} \geq 0.05 \rightarrow$  there is no significant difference.

The degree of freedom (df) is determined by the formula  $df = n_1 + n_2 - 2$ . In this study,  $n_1 = 35$  (experimental class) and  $n_2 = 36$  (control class), so  $df = 35 + 36 - 2 = 69$ . With  $\alpha = 0.05$  and  $df = 69$ , the t table is obtained = 0.67806

The pretest mean equality test with a two-tailed t-test is a statistical technique used to test whether two sample groups have the same or significantly different pretest mean scores. With a sig level  $< 0.05$ , there is a difference between the pretests of the control and experimental classes. Meanwhile, if the sig value is  $> 0.05$ , there is no difference between the pretests of the control and experimental classes. In the pretest mean equality test (two-tailed t-test) conducted in this study, the table below can be seen:

In the data in table 4.12, based on the results of the Group Statistics analysis, the average pretest score for the control class was 19.22 with a standard deviation of 3.84, while the average pretest score for the experimental class was also 19.22 with a standard deviation of 3.84. This shows that descriptively, the initial abilities between the control class and the experimental class were at almost the same level (Salehha, Khaulah, & Nurhayati, 2022).

Furthermore, the results of the Independent Samples Test show a Sig. (2-tailed) value of 1.000, which is greater than the significance level of 0.05. Thus, the null hypothesis ( $H_0$ ) which states that there is no difference in the pretest average between the control class and the experimental class is accepted. This means that statistically there is no significant difference between the two groups before being given treatment.

In conclusion, these pretest data indicate that the control and experimental classes had equivalent initial abilities. This is important to ensure that differences in posttest results can later be attributed more to the treatment or learning method used, rather than differences in students' initial abilities.

### **Posttest mean equality test (two-tailed t-test)**

The pretest mean equality test with a two-tailed t-test is a statistical technique used to test whether two sample groups have the same or significantly different pretest mean scores. With a sig level  $< 0.05$ , there is a difference between the pretest of the control and experimental classes. Meanwhile, if the sig value  $> 0.05$ , there is no difference between the pretest of the control and experimental classes. In the posttest mean equality test (two-tailed t-test) conducted in this study, the table below can be seen:

In the data in table 4.12, based on the results of Group Statistics, the average posttest score in the control class was 19.22 with a standard deviation of 3.84, while in the experimental class the average was 27.06 with a standard deviation of 1.85. This shows that descriptively, the average score of students in the experimental class was higher than that of the control class.

The results of the Independent Samples Test show that the significance value (Sig. 2-tailed) is 0.000, less than the set significance limit ( $\alpha = 0.05$ ). Thus, it can be concluded that there is a significant difference between the average posttest scores of the control class and the experimental class (Indriyani, Mawardi, & Wardani, 2019).

The average difference of 7.83 points indicates that the treatment or learning method applied to the experimental class had a better impact than the control class. In other words, the results of this analysis support that the use of learning methods in the experimental class is more effective in improving student learning outcomes.

From table 4.14, we can see the comparison between the control posttest and the experimental posttest, the control posttest class average score = 18.69 and the experimental posttest class average score = 27.06, the experimental class has the highest score.

### **N-Gain Test**

The N-Gain test is used to test the effectiveness of implementing group discussions in the independent curriculum to improve students' learning outcomes after conducting experiments on classes that were given treatment.

The N-gain category is determined based on the mean value and the N-gain value in the form of a percentage (%) which can be seen in the following table:

### **Discussion**

This research was conducted at SMA Negeri 1 Borbor on grade X students with the aim of determining the effect of the implementation of *the Inquiry Learning learning model* on students' critical thinking skills in the PPKn subject. The research used a quantitative approach with an experimental design involving an experimental class and a control class. The experimental class was given treatment in the form of the application of *the Inquiry Learning learning model*, while the control class used conventional learning methods in the form of lectures. Before the treatment was given, both classes were first given a pretest to determine students' initial critical thinking skills, and after the treatment, a posttest was given to measure students' final abilities (Unaenah & Rahmah, 2019).

Based on the results of the descriptive analysis, the average pretest score in the control class was 18.64, while in the experimental class it was 19.06. This average difference is relatively small, so it can be concluded that the initial abilities of students in both classes are at almost the same level. This is supported by the results of the pretest average equality test which showed a significance value greater than 0.05, so there was no significant difference between the initial abilities of the control class and the experimental class. Thus, both research groups can be said to be in equal conditions before being given treatment.

After the learning process, posttest results showed a significant difference between the two classes. The average posttest score in the experimental class increased to 27.06, while in the control class it only increased to 19.22. The increase in the experimental class was approximately 8 points, while in the control class the increase was less than 1 point. This difference indicates that the application of the *Inquiry Learning model* has a greater impact on improving students' critical thinking skills than conventional methods.

In addition to the average increase, the standard deviation in the experimental class after the treatment also decreased significantly compared to before the treatment. This indicates that the improvement in ability did not only occur in a few students, but was relatively evenly distributed across all students in the experimental class. In other words, *the Inquiry Learning model* not only increased the average score but also improved the overall distribution of student ability.

The results of the normality test indicate that all pretest and posttest data in both classes are normally distributed because the significance value is greater than 0.05. The

homogeneity test also shows that the variances of both groups are homogeneous. Because both conditions are met, the analysis can be continued using a parametric test, namely the t-test. Based on the results of the hypothesis test using the Independent Sample t-test, a significance value of 0.000 was obtained, which is smaller than 0.05. This indicates that there is a significant difference between the learning outcomes of the experimental class and the control class after the treatment was given. Thus, the research hypothesis stating that there is an effect of *the Inquiry Learning learning model* on students' critical thinking skills can be accepted (Agustin, 2019).

Theoretically, the results of this study align with constructivism theory, which states that knowledge is actively constructed by students through meaningful learning experiences. *The Inquiry Learning model* places students at the center of learning and encourages them to be directly involved in the process of discovering knowledge through activities such as formulating problems, proposing hypotheses, collecting data, analyzing information, and drawing conclusions. This process directly trains higher-order thinking skills, which are at the core of critical thinking.

In civics (PPKn) learning, critical thinking skills are crucial because students are required to analyze civic issues, evaluate information relevant to national life, and make decisions based on logical and rational considerations. Through the application of *Inquiry Learning*, students are not merely passive recipients of material but are also trained to ask questions, discuss, and present arguments. This creates a more active, interactive, and meaningful learning environment than lecture methods.

In the control class, which used conventional methods, learning tended to be teacher-centered, resulting in students receiving more information without engaging in in-depth inquiry. This resulted in relatively little improvement in students' critical thinking skills. In contrast, in the experimental class, students were directly involved in the learning process through inquiry activities and group discussions, encouraging them to develop analytical, evaluation, and conclusion-drawing skills.

The results of this study were further supported by an N-Gain analysis, which showed that the improvement in critical thinking skills in the experimental class was high and effective. This further confirms that *the Inquiry Learning model* not only provides statistical improvement but is also practically effective in the learning process.

Thus, it can be said that the implementation of the *Inquiry Learning model* has a significant influence on improving the critical thinking skills of class X students of SMA Negeri 1 Borbor in the PPKn subject. This model has been proven to be able to create more active learning, encourage students to think systematically and analytically, and improve overall learning outcomes. Therefore, *the Inquiry Learning model* is worthy of being recommended as an alternative learning strategy in an effort to improve the quality of PPKn learning and develop students' critical thinking skills.

## **CONCLUSION**

Based on the results of research and discussion regarding the implementation of the *Inquiry Learning learning model* on students' critical thinking skills in the PPKn subject in class X of SMA Negeri 1 Borbor, it can be concluded that the implementation of the *Inquiry Learning learning model* has a significant influence on improving students' critical thinking skills.

This is evidenced by the results of the pretest and posttest data analysis, which showed that the initial abilities of students in the experimental and control classes were at relatively

similar levels. However, after being given treatment, the experimental class using the Inquiry Learning model experienced an average increase. significantly higher average scores compared to the control class using conventional learning methods. This difference is supported by the results of the hypothesis test, which showed a significance value of less than 0.05, indicating a significant difference between the two groups after the treatment was administered. Overall, this study demonstrates that the Inquiry Learning model is capable of creating a more active, interactive, and student-centered learning process, thereby enhancing critical thinking skills in PPKn learning.

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