# Influence of Guided Inquiry Learning Model to Critical Thinking Skills

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***Abstract:*** *This research is a quasi-experimental research that aims to determine the effect of the application of guided inquiry learning model to critical thinking skills. The research variables consist of independent variables in the form of guided inquiry learning model and dependent variable in the form of critical thinking skills. The research was conducted at SMAN 1 Jonggat class XI IPA with population of  360 students and samples of 72 students who divided into 2 treatment classes namely experimental class and control class. Data on critical thinking skills were collected through the description test and analyzed using the ancova test at 5% significance level. The results of the analysis obtained a significance value of  0.00 <0.05 indicating that there is a significant influence of guided inquiry model on the critical thinking skills. Thus, it can be concluded that the guided inquiry model significantly influences the critical thinking skills of learners.*
***Keywords:*** *Guided Inquiry Learning Model, Critical Thinking Skill.*

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## I.  Introduction

Chemistry as one of the subjects in high school that has real differences with other subjects because it requires students to interact directly with learning resources and understand the concept well. Good understanding of the concept can be obtained through the direct experience of students performing a series of scientific activities. The existence of chemistry is also called central science which has a very important role in science because chemistry learns about the structure, properties, changes, and energy that accompanies the change [1].

Abstract chemical concepts consisting of three categories of representation [2] are macroscopic, microscopic, and symbolic. Macroscopic level representation refers to the observable phenomenon of the senses (material change, temperature change, and color). Representation of a microscopic representation that describes the motion of molecules or processes at the particle level. Symbolic illustrating signs or languages as well as other forms used to communicate observations consisting of different types of image representations, calculations and reaction equations [3]. So to be able to understand the chemistry required high-order thinking process consisting of C4 (analysis), C5 (synthesis) and C6 (evaluation).

One of the high-level thinking that must be possessed by the learners is the critical thinking process because through critical thinking will train students to analyze a problem and solve the problem in the field of science. Critical thinking skills are very important to have because critical thinking is needed to address the problems faced by life [4] so that having the ability to think critically can help us in thinking rationally in overcoming the problems we are facing and seek and develop alternative solutions to the problem [ 5]. Critical thinking as a well-directed and clear process used in learning activities such as problem solving in learning, decision making, analytical skills and scientific research [6].

One of the models that can improve critical thinking skills is Guided Inquiry because the learning activities involve the ability of students to investigate and search for something especially related to the material so that students can formulate their own invention. This learning emphasizes the process of finding and finding thus can encourage students 'activeness in learning and can foster students' thinking ability especially critical thinking ability because students can grow their potential.

Results of the study [7] [8], which showed that guided inquiry model has a significant influence on students' critical thinking skills. So this study aims to see the influence of guided inquiry model of critical thinking skills of students of SMA Negeri 1 Jonggat class XI IPA.

## II. Research Methods

This study is a quasi-experimental study. This research was conducted in August 2017 until October 2017. Variables in this study include independent variables in the form of guided inquiry learning model and the dependent variable in the form of critical thinking skills. The study population is 150 students of class XI IPA in SMA Negeri 1 Jonggat. The sample of research is 72 students divided into 2 classes, namely experimental class and control class. The sampling technique is purposive sampling. The instrument used is a description test that represents the critical thinking skills indicators analyzed in this study. The data collected were then analyzed using anacova testtions to the congress are welcome from throughout the world.

## III. Result And Discussion

Data of critical thinking skills obtained then analyzed using Anacova test. The results are shown in table 1.

**TABLE 1.** Result of ancova test

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Corrected Model | 72.982[a] | 2 | 36.491 | 22.836 | .000 |
| Intercept | 43.658 | 1 | 43.658 | 27.321 | .000 |
| Class_performance | **60.024** | **1** | **60.024** | **37.564** | **.000** |
| pretest critical thinking skills | 12.537 | 1 | 12.537 | 7.846 | .007 |
| Error | 87.886 | 55 | 1.598 | | |
| Total | 195.118 | 58 | | | |
| Corrected Total | 160.868 | 57 | | | |

Based on table 2 it is seen that the value of sig. for the influence of the treatment of students 'critical thinking skills of 0.00 <0.05, this means that $H_0$ is rejected and $H_a$ accepted, so it can be concluded that there is influence of guided inquiry model to students' critical thinking skill.

The experimental class has an average score of higher critical thinking skills that is 12.31 compared to the control class of 9.45. Hypothesis testing by using anakova test requires appropriate data interval so that post-test result data is converted into logit value. Hypothesis test results show that there are significant differences. The results of the study [9], which shows there are differences in critical thinking skills between students who follow the learning with guided inquiry learning model with students who follow the learning with conventional learning. This average difference in value is presented in **figure 1.**
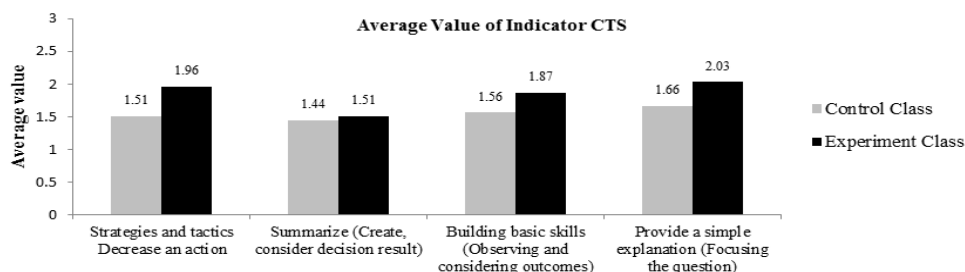


**Fig. 1:** Average Value of Indicator CTS.

Based on the figure shows that for the first critical thinking skill indicator is strategy and tactics, the average value of critical thinking skills of the experimental class is higher than the control class. This is because in the experimental class students are trained to learn independently through the problems given by teachers then directed to find solutions and information for the solution. In the process indirectly students will try to find and manage strategies and tactics to solve the problems given by teachers while in the control class students are not trained to look for methods in problem solving but students are more likely to receive information given the teacher without thinking how the information it is obtained and obtained.

Furthermore, for the second critical thinking skill indicator, the average value of critical thinking skills of the experimental class is higher than the control class but the difference in the mean value of the critical thinking skills of the two classes is not much different. This is because in the learning process the two classes are equally required to have the ability to infer what has been learned at the meeting. The third critical thinking skill indicator is building the basic skills, the average grade of critical thinking skills of the experimental class is higher with the control class. This is because in the indicators of building the basic skills of the experimental class with guided inquiry model students are trained to solve problems from the questions given by teachers so that students can train to link their skills to answer the questions presented while in the control class students are

accustomed to just waiting for information from the teacher and follow the teacher's way of addressing the given problem.

The fourth critical thinking skill indicator is a simple explanation, the average value of critical thinking skills of the experimental class is higher than the control class. This is because in the experimental class that is taught by guided inquiry is trained to think evaluate information and how to obtain information to correct the problem and explain the steps taken in solving the problem and be responsible for the answer to each given problem, seeking information from various sources in solving the problem and explain each answer of the problem given so that the students in the experimental class will not have difficulty in solving various problems although the problems presented are different while the control class students are not required to seek information but wait for the information from the teacher so that if the problem is different information received by the student will be difficult to solve.

The results of this study are supported by [10] states that inquiry is one of the learning strategies that provides an opportunity for students to find their own knowledge and play an active role in learning in order to be able to understand the concept well and can develop critical thinking. Through guided inquiry learning students are given the opportunity to know and actively engage in finding concepts from existing phenomena from the environment with teacher guidance. [11] Revealing Inquiry strategies provide students with opportunities to maximize their learning activities. [12] suggests that it seems that the guided Inquiry learning model allows students to develop their own ideas that involve all of their senses. guided inquiry emphasizes the discovery process so that students are given the opportunity to participate in the learning process [13].

The findings in this study provide clues that the guided inquiry learning model has advantages over conventional learning models in terms of growing critical thinking skills. In guided inquiry learning, students will be involved in learning, always trained to solve problems related to the environment. The results of this study are in line with the research undertaken by [14] suggesting through the inquiry model of learning, the critical thinking ability of the students develops in each step/step in the learning, especially in the stage of identification and formulating problems, formulating hypotheses, designing and conducting experiments and formulates the conclusions of the experimental results. Guided inquiry can build the knowledge that students will acquire through the discovery process in the classroom, so that the answers to the proposed problem are found directly by the students more clearly [15]. Inkuiri can encourage scientific thinking habits of students and students are more open to new ideas in the group or trained critical thinking skills because in learning teachers do question and answer and guide students to formulate the related facts. Inquiry can encourage students' scientific thinking habits and students are more open to new ideas in groups or classes, in the hope that students think about the process not just the end result [16].

## IV. Conclusion

Based on the objectives, data analysis and discussion that has been described can be concluded that there is influence of guided inquiry model significant to critical thinking skills of learners.

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