A STUDY OF GUIDED INQUIRY LEARNING MODEL AND ITS INFLUENCE ON STUDENT LEARNING OUTCOMES

Risna Artati

MA Negeri 1 Kerinci
E-mail : risnaartati99@gmail.com

ABSTRACT

Based on the results of observations conducted with teachers and students of MA Negeri 1 Kerinci in Class XI IPS, it was obtained information that the average value of the odd semester daily test of construction engineering for class XI IPS MA Negeri 1 Kerinci, many students obtained scores below the Minimum Completion Minimum (KKM). The KKM value of the construction engineering subject at MA Negeri 1 Kerinci is 75. In the construction engineering learning, the learning model used is still centered on the teacher, making students less active in the learning process. The purpose of this study is to determine the influence of the Guided Inquiry learning model on the learning outcomes of construction engineering for class XI IPS MA Negeri 1 Kerinci students. This type of research is an *Experimental study* with a *Pre-Experimental form,* the research design is *One Group Pretest Posttest Design*. The population in this study were all class XI IPS students totaling 23 students, consisting of 13 female students and 10 male students. The sample was taken using the *Purposive Sampling technique,* which is a sampling technique by determining characteristics that are in accordance with the research objectives, so that the sample in this study was all 23 students of class XI IPS. From the calculation results, the average value of the *Posttest results was* 79.43 while the average value of the *Pre-test results* was 46.70. Because $t_{hitung} = 17{,}24$ and $t_{tabel} = 1{,}72$ means H_0 rejected and H_1 accepted. so it can be concluded that there is an influence of the guided inquiry learning model on the learning outcomes of construction engineering of class XI IPS students of MA Negeri 1 Kerinci on the concept of static stone and concrete construction engineering in the 2024/2025 academic year.

Keywords : *Ability, Problem Solving, Problem Based Learning, Middle School.*

INTRODUCTION

Good education is a process of effort that successfully brings all students to the desired goals. Achieving these goals will affect the quality and standard of education that has been the hope of the Ministry of National Education. The quality and standard of education will be formed if the learning process is carried out well. Learning is a process of creating conducive conditions for the interaction of communication and teaching and learning between teachers, students, and other learning components to achieve learning goals (Hosnan, 2014: 18). According to Jufri (2013: 7) states that"Learning is an effort to help students to learn." Furthermore, Aqib and Murtadlo (2016: 1) state"Learning is a term that has a very close relationship and cannot be separated from each other in the learning process."

Based on the results of observations carried out at MA Negeri 1 Kerinci, the actual conditions that occur in the teaching and learning process at the school are: (1) the learning model used is still centered on the teacher; (2) Students are less active in the learning process; (3) limited practical tools for construction engineering; (4) Low learning outcomes for students in construction engineering, as seen in Table 1.

Table 1. Average Value of Daily Test of Construction Engineering Semester 1 for Class XI IPS Students of MA Negeri 1 Kerinci in the 2024/2025 Academic Year.

No.	Class	Average Daily Test Score	Completed		Not Completed	
			Number of Students	%	Number of Students	%
1.	XI Social Studies	59.78	6	26	17	74

Source: Construction engineering subject teacher, MA Negeri 1 Kerinci.

Table 1 shows that the average value of students' development techniques is still relatively low because the value has not reached the minimum completion criteria (KKM) set by the school, which is 75. Therefore, a learning model is needed that can make students active in the learning process so that learning outcomes can improve. One alternative learning model is by using a guided inquiry learning model.

Based on the description above can concluded that learning is an interaction process participant educate with educators and resources learning. In learning create conducive conditions are very necessary for this to happen interaction communication Study teach For reach objective learning. Learning No can separated One each other because own very close relationship with the educational process. One of them learning that takes place at school that is technique development.

Learning model is framework conceptual / operational, which describes systematic procedures in organize experience Study For reach objective Study specific and functional as guidelines for teachers in planning and implementing activity learning (Hosnan, 2014: 337). According to Aqib and Murtadlo (2016: 2) stated that" Learning Model is framework conceptual depiction systematic procedures in organize experience Study For reach objective learn". Next Joyce (in Trianto, 2007: 5) stated that" Learning Model is something planning or something the pattern used as guidelines in plan classroom learning or learning in the tutorial and for determine devices learning including books, films, computers, curriculum, etc.

From the explanation above, it can be concluded that a learning model is a form of conceptual framework planning that describes the systematic procedures of the learning process and serves as a guide for educators in designing and implementing the learning process, and aims to achieve satisfactory learning outcomes. This learning model is designed by an educator and then applied to students. Furthermore, a learning model can also be defined as a method or pattern, which has the goal of presenting a message to students that must be understood. One learning model used by educators in learning activities is inquiry.

Inquiry comes from the English word *Inquiry* (conducting an investigation). According to Shoimin (2014: 85),"The inquiry learning model is one that can encourage students to be active in learning." Meanwhile, Hosnan (2014: 341) states," *Inquiry learning* is a series of learning activities that emphasize critical and analytical thinking processes to seek and find answers to a problem being questioned."

Based on the description above, it can be concluded that the inquiry learning model is a series of learning activities that emphasize active student involvement in learning experiences in discovering material concepts based on the problems posed. Using the inquiry learning model requires students to go beyond simply answering questions or finding the correct answer. This model requires students to utilize and develop their potential. The inquiry learning model has several levels, one of which is guided *inquiry.*

guided inquiry learning model is a student-centered learning model, where students are trained to develop their thinking skills and critical thinking. Furthermore, it can stimulate students' enthusiasm for learning (Sumarni, 2017). Fathurrohman (2015, 202) defines"guided inquiry learning as an inquiry learning model in which the teacher provides extensive guidance or instructions to students." At this stage, students work (not just sitting, listening, and writing) to find answers to problems posed by the teacher under the teacher's intensive guidance. The teacher's task is more like 'luring' students to do something. The teacher comes to class with a problem for students to solve, then they are guided to find ways to solve the problem (Anam, 2017: 17). The stages of the guided inquiry learning model can be seen in Table 2 below (Wahyuni, 2016).

Table 2. Syntax of the Guided Inquiry Learning Model.

No	Phase	Teacher Behavior
1.	Presenting questions or problems	- The teacher guides students to identify problems and the problems are written on the board. - The teacher divides students into groups.
2.	Making a hypothesis	- The teacher gives students the opportunity to brainstorm in forming hypotheses and provides guidance. - The teacher guides students in determining hypotheses that are relevant to the problem and prioritizing which hypotheses become educational hypotheses.
3.	Designing an experiment	- The teacher gives students the opportunity to determine the steps that are in accordance with the hypothesis that will be carried out.

		- The teacher guides students in sequencing the steps of the experiment.
4.	Conducting experiments to obtain information	- The teacher guides students to obtain information through experiments.
5.	Collect and analyze data	- The teacher guides students to collect and analyze data. - The teacher gives each group the opportunity to present the results of processing the collected data.
6.	Making conclusions	The teacher guides students in making conclusions.

Source: Wahyuni, 2016

METHODS

In accordance with the problems and objectives stated previously, this type of research is an *experimental research* with a *pre-experimental form.* According to Sugiyono (2009: 107) states that"Experimental research is used to find the effect of certain treatments on others under controlled conditions." In this experimental research, the researcher used one study group to be studied. This study group is called the experimental study group, where in this group the researcher deliberately provided treatment using a guided inquiry learning model assisted by simple teaching aids. The research design used is *One Group Pretest Posttest.*

Table 3. *One Group Pretest Posttest* Research Design

Pretest	***Treatment***	***Posttest***
O_1	X	O_2

Source: Sugiyono (2012: 110)

Information :

O_1 *Pretest* value (before treatment)

O_2 *Posttest* score (after treatment)

X = Treatment

In this design, observations were conducted twice, namely before the experiment and after the experiment. The observation conducted before the experiment (O_1) is called *the Pretest* and the observation after the experiment (O_2) is called *the Posttest* (Sugiyono, 2012: 110). According to Arikunto (2014: 173) defines that"Population is the entire research subject". The population in this study was all students of class XI IPS MA Negeri 1 Kerinci in the 2024/2025 academic year with a total of 23 students consisting of 13 females and 10 males. For more details, see Table 4.

Table 4. Number of Class XI IPS Students at MA Negeri 1 Kerinci in the 2024/2025 Academic Year

No	Class	Number of Students		Amount
		L	P	
1	XI Social Studies	10	13	23

Source: Construction Engineering subject teacher, MA Negeri 1 Kerinci.

Arikunto (2014: 174) defines that"A sample is a portion or representative of the population being studied." The sample of this study was all 23 students of class XI IPS. The technique used in sampling was *Purposive Sampling.* According to Sugiyono (2011: 85)" *Purposive Sampling* is a technique for determining samples with certain considerations." One sampling technique is by determining characteristics that are in accordance with the research objectives. To see the differences in the learning outcomes of students' development techniques statistically, a t-test was conducted with the following steps:

1. Normality Test

The normality test aims to determine whether the data from each class in this study is from a normally distributed population or not and this test applies to the initial test and the final test with the condition that it will be said to be normal if the results are $\chi^2_{hitung} < \chi^2_{tabel}$. To calculate the normality of the data in this study, Chi-Square Statistics were used, with the formula proposed by Sugiyono (2013: 107), namely:

$$\chi^2 = \sum_{i=1}^{k} \frac{(f_0 - f_h)^2}{f_h}$$

Information:

χ^2 = Statistics Chi-Square
f_o = Observed frequency
f_h = Expected frequency

2. Homogeneity Test

The homogeneity test aims to determine whether students' learning outcomes in construction engineering have homogeneous variance or not. According to Hasan (2013: 290), the following formula is used to test homogeneity:

$$F = \frac{varians\ terbesar}{varians\ terkecil}$$

The criteria for testing homogeneity of variance are reject H_0, if $F_{hitung} > F_{tabel}$ in other words, if $F_{hitung} < F_{tabel}$, at the real level α = 0.10, then the learning outcomes of students' development techniques have homogeneous variance at a 90% confidence level, which $F_{\frac{1}{2}a(v_1,v_2)}$ is obtained from the F distribution list with probability $\frac{1}{2}$ α while the degrees of freedom $v_1 = n_1 - 1$ and $v_2 = n_2 - 1$ respectively correspond to the dk of the numerator and denominator.

3. Hypothesis Testing

Data analysis is a crucial step in research. Data analysis allows us to prove hypotheses and draw conclusions about the problem being studied. Experimental research aims to determine the impact of a treatment, namely by trying something and then observing the consequences of that treatment. The data analysis used is parametric analysis, which is used when the data collected is normally distributed. The data analyzed are *pretest* and *posttest scores.* To analyze the results of an experiment using *a one-group pretest and posttest, the t-test* formula proposed by Arikunto (2014: 349) is used:

$$t = \frac{Md}{\sqrt{\frac{\sum x^2 d}{N(N-1)}}}$$

Information:

t = coefficient of difference

Md = the average (M) of the deviations (d) between the pre-test and post-test.

$\sum x^2 d$ = sum of squares of deviations

Xd = deviation of each subject (d-Md)

N = subjects in the sample

df = or db is N - 1

This formula is used for single-subject research designs, where observations are conducted before and after the subject has received treatment. The resulting data is then analyzed using the t-test formula, which then indicates whether the treatment has an effect. If the t-test is $t_{hitung} > t_{tabel}$ true, the hypothesis is accepted, and if the t-test is false, the hypothesis is rejected. $t_{hitung} < t_{tabel}$ then the hypothesis is rejected.

RESULTS AND DISCUSSION

Construction engineering is a branch of natural science (IPA), a systematic effort to build and organize knowledge into testable explanations capable of predicting natural phenomena. This means that predicting natural phenomena requires observational skills, followed by investigation through scientific methods, which ultimately lead to a sound understanding of concepts.

Based on the overall data analysis results of the students' learning outcomes in building techniques, the average *pretest score* was 46.70, where *the pretest* given to students consisted of 20 questions that had been pre-tested and had been tested for validity, discriminatory power, difficulty level, and reliability. Then, they were given treatment using a guided inquiry learning model assisted by simple teaching aids, and the average *posttest score* was 79.43. Furthermore, normality and homogeneity tests were carried out as a requirement for conducting hypothesis testing.

The next step is testing the hypothesis that there is an influence of the guided inquiry learning model assisted by simple teaching aids on the learning outcomes of construction

engineering students of class XI IPS MA Negeri 1 Kerinci. At a confidence level of 95%, $t_{hitung} =$ 17.24 and $t_{tabel} = 1.72$ are obtained so that $t_{hitung} > t_{tabel}$. This means that H_0 it is rejected and H_1 accepted so that it can be concluded that there is an influence of the guided inquiry learning model assisted by simple teaching aids on the learning outcomes of construction engineering students of class XI IPS MA Negeri 1 Kerinci on the concept of static stone and concrete construction engineering in the 2024/2025 Academic Year. The influence of students' learning outcomes of construction engineering between *the pretest* and *posttest results* is due to the treatment given by applying the guided inquiry learning model assisted by simple teaching aids in the process of learning construction engineering. During the treatment given by applying the guided inquiry learning model assisted by simple teaching aids, students appear more active in following the process of learning construction engineering, especially when doing practicums. This is in line with research conducted by Budiman (2016) which found that students' interest in learning was high so that most students were active in learning activities such as asking questions, recording each experimental result, and completing practicums well. Furthermore, research conducted by Nomleni and Manu (2024) found that the physical appearance of teaching aids and audio-visual media that were designed simply but systematically were proven to be able to attract students' attention in learning so that students became active in class. However, students experienced difficulties in formulating hypotheses at the beginning of learning and in carrying out practicums, many students were still noisy.

CONCLUSION

From the analysis of the final test data, it can be seen that there is an influence of the guided inquiry learning model assisted by simple teaching aids on the learning outcomes of construction techniques of class XI IPS students of MA Negeri 1 Kerinci on the concept of static stone and concrete construction techniques in the 2024/2025 academic year. It can be seen from the t-test obtained $t_{hitung} = 17.24$ and $t_{tabel} = 1.72$ so that $t_{hitung} > t_{tabel}$. This means H_0 rejected and H_1 accepted. From the results of the study above it can be concluded that:"There is an influence of the guided inquiry learning model assisted by simple teaching aids on the learning outcomes of construction techniques of class XI IPS students of MA Negeri 1 Kerinci on the concept of static stone and concrete construction techniques in the 2024/2025 academic year".

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