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EFFECT OF THINK PAIR SHARE IN GUIDED INQUIRY ON STUDENT MOTIVATION AND LEARNING OUTCOMES

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ABSTRACT

This research is a quasi-experimental study aimed at determining the effect of the think-pair-share method in the guided inquiry learning model on student motivation and learning outcomes. The independent variable in this research is the think-pair-share method in the guided inquiry learning model. Dependent variables are learning motivation and learning outcomes in acid-base material. The sample in this research, which was selected by simple random sampling, consisted of 2 classes, which were divided into an experimental class and a control class, each consisting of 32 students, determined by using a simple random sampling technique. The research data were obtained using questionnaires of learning motivation and tests of learning outcomes in acid-base material, which were analyzed by the t-test for learning motivation and the Mann-Whitney test for learning outcomes. The result of the hypothesis was t-calculated = 1.739 at a = 0.05, obtained t-table = 1.669, so that t-calculated > t-table. It is shown that there is an effect of the think-pair-share method in the guided inquiry learning model on student learning motivation. For the learning outcomes, Z-calculated = 3.31 at a = 0.05, obtained Z-table = 1.64. Since Z-calculated > Z-table, therefore H1 is accepted and H0 is rejected. It is shown that there is an effect of the think-pair-share method in the guided inquiry learning model towards student learning outcomes.

Keywords: think pair share; guided inquiry; student motivation; learning outcomes

INTRODUCTION

The rapid development of science in this era has driven progress in various fields, including education, which is an important matter that can determine the quality of a nation. Education is defined as a human effort to develop one's personality in accordance with the values in society and culture (Hasbullah, 2005). According to the Constitution of the Republic of Indonesia Number 20 of 2003, education aims to develop the potential of students to become people who believe in and fear God Almighty, have noble character, are healthy, knowledgeable, capable, creative, independent, and become democratic and responsible citizens, therefore, the success of education must continue to be the most important thing to discuss. Enjoyable learning activities and curriculum improvements are efforts to improve the quality of education. Currently, the government requires the implementation of the Merdeka Curriculum.

Not all methods and models can be applied to all subject matter. Student engagement in the learning process depends on how teachers design learning with appropriate methods and models, one example of which is chemistry. Chemistry is the study of the composition, structure, properties, changes, and energy that accompany these changes in matter. Students generally perceive chemistry as difficult and has so many concepts to understand. Meanwhile, the models and methods used by teachers are less engaging and less motivating, particularly for the topic of Acids and Bases, a chemistry topic taught in 11th-grade high school. One of the characteristics of acid-base material is that it has relatively many and complex concepts, so it requires students to understand the acid-base concepts.

Based on observations that have been made, it is known that students have very low learning motivation in chemistry subjects, which can cause low student learning outcomes in certain materials. Moreover, the percentage of students passing the acid-base material is still very low. Some obstacles experienced by students in learning chemistry include the lack of student motivation in receiving lessons and student involvement in the learning process, which still tends to be passive. Therefore, a learning model is needed that not only makes students receive information but is able to help them understand the learning material and apply it in everyday life. Therefore, a learning model that can be applied to this material is a learning model that is oriented towards student activity, namely the guided inquiry learning model. One of the advantages of the inquiry model is that it emphasizes the development of cognitive, affective, and psychomotor aspects in a balanced manner (Shoimin, 2014). However, by using this model, there are still students who are less active in the learning process because learning is done in groups. So some of them are rely on their friends when the discussion is going on. Therefore, a learning method is needed that not only makes students receive the information but also enables them to understand the learning material and apply it in everyday life. One effective method is the Think-Pair-Share learning method.

The Think Pair Share method in this guided inquiry learning model can provide opportunities for students to think in finding their own solutions or hypotheses from the problem formulations they have made, can increase students' learning motivation because students are trained to apply concepts because they exchange opinions and thoughts with their friends to reach agreements in solving problems, and emphasizes the activeness of students in sharing thoughts with their friends. By using this method and model, it is hoped that students will increase their motivation and learning outcomes.

Students' motivation in the learning process will impact their learning outcomes. According to (Dimyati & Mudjiono, 2006), motivation is a mental drive that can direct human behaviors. Increasing learning motivation will improve learning outcomes. A significant relationship exists between learning motivation and student learning outcomes. Learning outcomes using the Think Pair Share model are more influential because they produce better results than conventional learning method(Rachmawati & Erwin, 2022). From the background above, the author is interested in studying entitled "Effect of Think Pair Share in Guided Inquiry on Student Motivation and Learning Outcomes"

RESEARCH METHODS

This research is a quasi-experimental study. The independent variables are the Think Pair Share method in the Guided Inquiry learning model and the Guided Inquiry Learning Model without the Think Pair Share method, while the dependent variables are student learning motivation and learning outcomes. The instrument used in this study was a learning motivation questionnaire consisting of 20 statements, both positive and negative. The objective test consisted of 25 numbers of multiple-choices that has been validated through a content validation process by competent parties and item

validation through trial questions on students. To calculate the results of student learning motivation, the following formula is used:

$$\text{Motivation Score} = \frac{\sum Score\ obtained}{\sum maximum\ score} \text{ x } 100$$

The results of the student learning outcomes are converted into scores using the following formula:

$$\text{Value} = \frac{\text{Score obtained}}{\text{maximum score}} \text{ x } 100$$

Table 1.Student Learning Completion Criteria

Score	Category
≥ 70	Completed
< 70	Not Completed

$$\text{\% completion} = \times\ 100\% \frac{\text{Amount of students who completed}}{\text{the total amount of students}}$$

The hypothesis of this research is:
1. There is an effect of the Think Pair Share method in the Guided Inquiry Learning Model on Student Learning Motivation
2. There is an effect of the Think Pair Share method in the Guided Inquiry Learning Model on Student Learning Outcomes

RESULTS AND DISCUSSION
Research Results
Descriptive Statistical Analysis
The aim of descriptive statistical analysis is to provide a general description of the characteristics of motivational achievement and learning outcomes of students in the experimental and control classes.

Table 2 . Statistical Score of Student Motivation

Descriptive Statistics	Statistical Value	
	Experiment Class	Control Class
Sample Size	32	32
The highest score	95	90
Lowest Value	60	50
Average value	76.75	73.34
Standard Deviation	8.17	8.21

Based on Table 2 above, it shows that there is a difference between the learning motivation of students in the experimental class and the control class. The average value obtained in the experimental class was higher than in the control class. Meanwhile, statistical data on student learning outcomes are presented in Table 3.

Table 3. Statistical Score of Student Learning Outcomes

Descriptive Statistics	Statistical Value	
	Experiment Class	Control Class
Sample Size	32	32
The highest score	92	92
Lowest Value	44	28
Average value	80.9	71.15
Standard Deviation	9.86	12.8

Table 3 shows that the average value obtained by the experimental class was 80.9, which is higher than that of the control class, namely 71.15.

Inferential Statistical Analysis

The normality test is conducted to determine whether the population being used is normal or not. The normality test uses the chi-square test statistic. (χ^2), the data is said to be normal if $\chi^2_{count} < \chi^2_{table}$. From the results of the inferential statistical analysis calculations for student learning motivation in the experimental class, X^2 count = 0.8921 was obtained and the control class obtained X^2 count = 4.8508. The value for X^2table at the confidence level (α) = 0.05 and degrees of freedom = 3 obtained the value of X^2table = 7.81. In the experimental class and the control class X^2count<X^2table, it is concluded that learning motivation in the experimental class and the control class is normally distributed. Meanwhile, for student learning outcome data in the experimental class, X^2count = 27.193 was obtained and the control class obtained X^2count = 6.3915. The value for X^2 table at the confidence level (α) = 0.05 and degrees of freedom = 3 obtained the value of X^2table = 7.81. In the experimental class and control class, X^2 count< X^2 table, it can be concluded that the learning outcomes in the experimental class are not normally distributed, and the control class is normally distributed.$\chi^2_{hitung} < \chi^2_{tabel}$.

The homogeneity test was conducted to determine whether the data from both classes were homogeneous or not. The homogenity test criteria were: Based on the results of the homogeneity test of learning motivation using the variance from the control class as the most significant variance and the variance from the experimental class as the most minor variance, the Fcount data was obtained = 1.01. The F-table value is $F_{count} < F_{table}$, at a confidence level of 0.05, with 1.84. Because the Fcount value < Ftable, it is concluded that the variance of the experimental class and the control class comes from a homogeneous population. Meanwhile, for learning outcomes data using the variance of the control class as the most significant variance and the variance of the experimental class as the most minor variance, the F count data obtained was 1.68. The F table value, at a confidence level of 0.05, is 1.84. Because the F-count value < F-table, it can be concluded that the variance of the experimental class and the control class comes from a homogeneous population.

Based on the results of the prerequisite test for learning motivation, since the data for the experimental class and the control class were normally distributed and both classes had homogeneous variances, a hypothesis test was carried out using a parametric test (t-test), yielding t_{count} = 1.739 and t_{table} = 1.669. Therefore, H_0 is rejected and H_1 is accepted. Thus, there is a positive influence of the Think Pair Share method in the guided inquiry learning model on students' learning motivation.

Based on the results of the prerequisite test for learning outcomes, because the data was not normally distributed in the experimental class, hypothesis testing could not be carried out using parametric tests (t-tests), so hypothesis testing was carried out using non-parametric statistical tests, namely the Mann-Whitney test.

The results of the Mann-Whitney test analysis show a calculated Z value of 3.31 and a Z table value at a confidence level of 0.05 of 1.64. From the analysis of this hypothesis test, Z_{count}>Z_{table} was obtained, so H_0 was rejected and H_1 was accepted. Thus, the Think Pair Share method has a positive influence on student learning outcomes within the guided inquiry learning model.

Discussion

The study was conducted to determine the effect of the Think Pair Share method in a guided inquiry learning model on the motivation and learning outcomes of students at SMAN 2 Parepare in acid-base material. The sample in this study consisted of two classes.

The Effect of the Think Pair Share Method in the Guided Inquiry Learning Model on Students' Learning Motivation

The results of descriptive analysis of student motivation show that the learning motivation of students taught using the Think Pair Share method in the guided inquiry learning model in the experimental class is higher than the learning motivation of students in the control class. Based on the hypothesis testing obtained t count = 1.739 and t table = 1.669, it can be concluded that there is a positive influence of the think pair share method in the guided inquiry learning model on student learning motivation in the primary material of acids and bases solution. The treatment given to each class resulted in differences in student learning motivation in the two classes. The results obtained also shows that the learning motivation of students in the experimental class is better than the control class taught using the guided inquiry learning model without the Think Pair Share method.

This is because the Think Pair Share method is able to involve students actively in the learning process in class, because students only work in pairs and do not form large groups which can result in some students being inactive in the learning process.

Based on the percentage of categorization of students learning motivation indicators in indicator 1, indicator 2 and indicator 3, the results obtained in the experimental class were higher than the control class. This indicates that the intrinsic learning motivation of students in the experimental class was higher than that of the control class. Likewise, for indicators 4, 5, and 6, so that the extrinsic learning motivation of students in the experimental class was also higher than the control class. This can be caused because in the experimental class at the thinking stage (think) in the problem orientation phase, students think first, based on their initial knowledge of the problem orientation given, so that students are motivated to learn. One of the advantages of Think Pair Share, according to (Shoimin, 2014), is providing thinking time to improve the quality of student responses. In line with (Isjoni, 2009), who stated that in Think Pair Share, students not only work in groups, but also work alone, providing more opportunities for students to show their participation to others.

The use of the Think Pair Share method in the guided inquiry learning model can increase students' learning motivation because by using this method students are divided into pairs so that students can be more active in exchanging opinions and thoughts with their discussion partners and can be more active in thinking about learning topics during discussions with their partners and also provide opportunities for students to think about solving a problem. Using this method does not form large groups, which can cause some students not to be actively involved in exchanging opinions and thoughts in the learning process.

The Effect of the Think Pair Share Method in the Guided Inquiry Learning Model on Student Learning Outcomes

The results of the descriptive analysis of student learning outcomes shows that the learning outcomes of students taught using the Think Pair Share method in the guided inquiry learning model in the experimental class are higher than the learning outcomes of students in the control class. This demonstrates the differences in learning outcomes achieved by the experimental and control classes. The treatment given to each class resulted in differences in student learning outcomes in the two classes.

The results of hypothesis testing using the Mann-Whitney test for learning outcomes obtained a Z_{count} value of 3.31 and a Z_{table} value at a confidence level of 0.05 of 1.64. This shows that there is a positive effect of the Think Pair Share method in the guided inquiry learning model on the learning outcomes on the primary material of acids and bases.

The percentage of class completion in the experimental class was 87.5% and in the control class 62.5%. This indicates that the learning outcomes of students taught using the Think Pair Share method in the guided inquiry learning model in the experimental class were higher compared to the learning outcomes of students in the control class who were taught using the guided inquiry learning model without using the Think Pair Share method. This is because the Think Pair Share method can improve students' ability to think about a problem so that students are trained to think independently. (Arki et al., 2017) stated that the Think Pair Share of cooperative learning method can improve student learning outcomes.

The results of hypothesis testing using the Mann-Whitney test for learning outcomes obtained a Z_{count} value of 3.31 and a Z_{table} value at a confidence level of 0.05 of 1.64. This shows that there is a positive effect of the think pair share method in guided inquiry learning model.

CONCLUSIONS

Based on the results of the analysis and discussion, it can be concluded that: 1) There is a positive influence of the Think Pair Share method in the Integrated Inquiry Learning Model on Student Learning Motivation, and 2) There is a positive influence of the Think Pair Share method in the Integrated Inquiry Learning Model on Student Learning Outcomes. Based on the results of this study, several suggestions that can be given are: 1) Chemistry teachers are advised to consider using the Think Pair Share method in the integrated inquiry learning model to improve student motivation and learning outcomes, 2) The Think Pair Share method in the integrated inquiry learning model can be considered for implementation in school learning for other learning materials, and 3) Researchers who are interested in conducting further research are expected to be able to manage their time well so that learning takes place optimally.

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