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The Influence of Think Talk Write (TTW) Learning Model on Critical Thinking Ability of Class VII Students of MTs Al-Ikhlas Mowewe

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Abstract

This experimental study aims to determine the effect of the application of the TTW learning model on the critical thinking skills of seventh grade students of MTs. Al Ikhlas Mowewe. The population in this study were all students of class VII MTs. Al Ikhlas Mowewe Academic Year 2020/2021. Sampling using a saturated sample technique. Learning outcomes data on students' mathematics were collected by using the test instrument given at the posttest. The results showed that the average value of critical thinking skills of student in class VIIA (31 students) and class VIIB (31 students) were 75 and 65. So, it's indicates that the critical thinking ability of students who were taught using TTW learning was higher than using conventional learning. Furthermore, the results of inferential statistics analysis on hypothesis testing using the t-test have obtained the value of $t_{count}(2{,}046) > t_{table}(2{,}0003)$, indicating that H_0 is rejected and H_1 is accepted, it means, there is a significant difference of critical thinking skills of students by TTW learning and conventional learning. So, the conclusion of this study is that the critical thinking ability of students who are taught with TTW learning has a more positive effect than the critical thinking ability of students who are taught by conventional learning in class VII MTs. Al Ikhlas Mowewe.

Keywords: critical thinking ability; conventional; TTW

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INTRODUCTION

Based on the Law of the Republic of Indonesia Number 20 of 2003 concerning the National Education System, education is a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to have religious spiritual strength, self-control, personality, intelligence, morals. noble, as well as the skills needed by himself, the community, nation and state. Based on the law, it can be seen that education is a process of creating human resources. Education is a basic need factor for every human being, good education can improve people's welfare. Improving the quality of education must be carried out in stages, planned, systematic, directed, and intensively, in order to prepare Indonesian human resources to compete in various fields of life in the era of globalization (Manullang, 2014; Nasruddin, 2020).

The results of The Program For International Student Assessment (PISA) survey in 2018 showed that in mathematics, Indonesia was ranked 73 out of 79 PISA participating countries. The achievement of Indonesia's ranking in the PISA assessment has always been constant since the beginning of Indonesia's participation in the assessment, from 2000 to 2018. The results always being at the bottom of the rankings brings the consequence of

thinking that the quality of Indonesian education is not in accordance with global community standards and below other countries (Hewi & Salih, 2020).

PISA assessment in mathematics is intended to determine students' mathematical reasoning abilities in using mathematical concepts, procedures, facts and tools when describing, explaining and predicting phenomena (Aditomo, Anindito, & Felicia, 2019). The ability to think critically is closely related to the assessment carried out by PISA. This ability is used in analyzing, evaluating, and drawing appropriate conclusions on a complex problem (Jannah, Suyitno, & Rosyida, 2019; Nasruddin, 2017).

However, to improve students' critical thinking skills is not as easy as turning the palm of the hand. Almost all students think that mathematics is a difficult subject to understand. Kholid (2018), said that critical thinking skills in learning mathematics are very important because they can improve the quality of thinking and make them more understand the content that has been studied. And, students' way of thinking will be more systematic, more understanding and able to make various solutions to solve a problem. Students who have critical thinking will be able to solve the problems in their lives (Kholid, 2018; Sejati, 2021).

We have observed at MTs. Al Ikhlas Mowewe, there is a lack of students who are actively involved in the learning process. Many materials are considered unrelated to their daily lives or the real world, so students feel trouble to make connect between objects and concepts in mathematics. The inactivity of students in the learning process is caused by 1) students not paying attention to the teacher when presenting the material, 2) students' understanding of the material is still low, 3) students are shy to ask questions, 4) students' critical thinking level is still low, so that students' problem solving abilities are also still low.

Mr. Muzakkir, S.Pd. as a mathematics teacher at MTs. Al Ikhlas Mowewe said that among several factors causing student inactivity in learning, one of them was the low critical thinking ability of students, especially in class VII. This is in accordance with the results of the initial test that was carried out in class VII MTs. Al Ikhlas Mowewe in the odd semester of the 2020/2021 academic year, namely the average value of critical thinking skills for class VIIA students is 30.1 and class VIIB is 30.7. This figure shows that the critical thinking ability of grade VII MTs students. Al Ikhlas Mowewe is relatively low.

Thus, it can be interpreted that critical thinking is an intellectually disciplined process in which a person actively and skillfully understands, applies, analyzes, synthesizes and evaluates various information that he collects or that he takes from experience, observations, reflections he does, reasoning or communication that he does. did. So, someone who thinks critically will always be active in understanding and analyzing the information.

Efforts that can be made to overcome the low level of students' critical thinking in learning mathematics, by applying the cooperative learning model. Cooperative learning refers to a learning method in which students work together in small groups and help each other in learning. the Think Talk Write (TTW) learning model is one of the cooperative learning models that can be used.

The Think Talk Write (TTW) learning model introduced by Huinker and Laughl, is basically built through thinking, speaking, and writing. This model was developed from the involvement of students from the thinking process after reading, then talking and sharing ideas with other friends or in groups then expressing in writing or summaries according to their creativity. In the learning process, there are activities of thinking, communicating and constructing ideas based on the understanding and knowledge gained. With this learning model, students are expected to be actively involved, both individually and in study groups.

Several studies have shown that the Think Talk Write learning model is effectively used in secondary schools. First, the research conducted by Kuslinar et al (2019), stated that mathematical communication skills using the Think Talk Write learning model were more effective than learning using conventional models. The two studies conducted by Khairah et al (2017) state that the Think Talk Write (TTW) learning model can be used by teachers to improve student learning outcomes. The three studies conducted by Ayuni (2015) obtained

the results that the activity of class VII F MTs N Kaleng students increased after participating in learning with the Think Talk Write learning model.

METHOD

This type of research is a type of True Experimental Design research that involves two classes, namely the experimental class and the control class, which are selected randomly from a certain population. The experimental class has been treated by applying the Think Talk Write learning model and the control class was not treated.

This research was conducted on April 05, 2021-April 22, 2021, even semester of the 2020/2021 academic year at MTs. Al Ikhlas Mowewe, Kec. Mowewe, Kab. East Kolaka, Southeast Sulawesi Province.

The population in this study is the total number of students of class VII MTs. Al Ikhlas Mowewe, 62 people, with the saturated sampling technique for determining samples if all members of the population are used as samples (Tarjo, 2019).

The design of this study was a posttest-only control group design where at the end of the lesson both classes were given a test.

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Tabel 1. Posttest-only control group design

Kelompok	Perlakuan	Postest
Eksperimen (R)	X	O_1
Kelas Kontrol (R)	-	O_2

(Sugiyono, 2015)

Dengan :
R : The experimental group and the control group were class VII MTs. Al Ikhlas Mowewe
X : Learning using the TTW model
─ : Learning using conventional learning models
O_1 : Experimental group posttest
O_2 : Posttest control group

The design of this research can be described as follows:

1. Prepare the material selected in the study, the material selected in this study is the mathematics lesson of SMP class VII semester II, namely the quadrilateral material.
2. Develop a research instrument in the form of a learning design which includes a syllabus and a lesson plan which includes a learning scenario. This learning device is designed according to the draft that has been prepared, assessed and discussed with content experts, namely the subject teacher.
3. Applying learning strategies with TTW learning models and conventional learning models. As well as observing the activities of teachers and students.
4. Conducting a post-test of students' critical thinking skills in classes using the TTW learning model and classes using conventional learning models.
5. Analyzing the post-test results of students' critical thinking skills (Data Analysis).

Data analysis in this study used descriptive analysis and T test. The analysis intended to describe the characteristics of the research variables through the average score, standard deviation, and variance. As for the T test using the Polled variance formula with $db = n_1 + n_2 - 2$.

$$t = \frac{\overline{X}_1 - \overline{X}_2}{\sqrt{\frac{(n_1-1)s_1^2 + (n_2-1)s_2^2}{n_1+n_2-2}\left(\frac{1}{n_1}+\frac{1}{n_2}\right)}}$$

With :
t : Statistical test price
$\overline{X}_1$: The average posttest of the experimental class students

$\overline{X_2}$: The average posttest of control class students

n_1 : Number of experimental class samples

n_2 : Number of control class samples

S_1^2 : Experimental class data variance

S_2^2 : Control class data variance

RESULTS AND DISCUSSION

A. The Results

the analysis results in this study include: (i) Descriptive analysis consists of: Analysis of teacher activity observation sheets, Analysis of student activity observation sheets, and students' critical thinking skills, (ii) Inferential analysis.

1. Analysis of teacher activity observation sheets

The teacher's observation sheet is used to see the learning process according to the syntax in the Think Talk Write learning model and the Conventional Learning model. The results of the observation sheet are presented in the following table:

Table 2. The results of the observation sheet are presented

Meeting	teacher activity	
	Class Control	Class Experiment
I	87,5%	87,5%
II	87,5%	93,8 %
III	100%	100%
Average	91,7%	93,8%

Based on the table above, it can be seen that every teacher meeting has followed the learning steps according to the learning model that has been applied.

2. Analysis of student activity observation sheets

Student activity assessment sheets are used to see student activity during the learning process. The results of the observation sheet are presented in the following table:

Tabel 3 The results of the observation sheet are presented

Meeting	student activity	
	Class Control	Class Experiment
I	75%	75%
II	83,3%	84,4%
III	91,7%	92,2%
Average	83,3%	83,8%

Based on the table, it can be seen that the student activities are classified as good or in other words students are active during the learning process.

3. Analysis students' critical thinking skills

The recapitulation of the posttest scores for students' critical thinking skills is shown in table 4. below.

Tabel 4. Posttest recapitulation of students' critical thinking skills

Analysis	Class Control	Class Experiment
Data Number	31	31
Average	75	65
Variance	304,199	434,438
Standard Deviation	17,441	20,843

Based on the table, it can be seen that the average value of students' critical thinking skills in quadrilateral teaching for the experimental class is higher or better than the average value of students' critical thinking skills for the control class..

Based on the prerequisite tests that have been carried out, the results of the data are normally distributed and homogeneous, then the hypothesis testing uses the Polled Variant t-test. Based on the results of the analysis of hypothesis testing using the t test, it is obtained $t = 2{,}046$ and $t_{tabel}(\alpha = 0{,}05 : dk = n_1 + n_2 - 2 = 60) = 2{,}0003$. Because $t_{hitung} > t_{tabel}$ (2,046 > 2,0003), so H_0 is rejected, in other words, there is a significant difference in the average value between the control class and the experimental class, meaning that the TTW learning model affects students' critical thinking skills.

B. Discussion

This research was conducted in MTs. Al Ikhlas Mowewe, who took two classes, namely the control class and the experimental class. In the experimental class students are taught by the Think Talk Write learning model, while in the control class students are taught using the conventional learning model. The Think Talk Write model is a learning model that starts with thinking through reading materials (listening, criticizing, and alternative solutions), the reading results are communicated through presentations, discussions, and then make a report on the results of the presentation.

The discussion that has been described above includes a discussion of the results of descriptive analysis and inferential analysis. The discussion includes students' critical thinking skills, teacher's ability to manage learning, student activities in the learning process, and the influence of learning models. The discussion will be described as follows:

Based on the results of the study, it was found that descriptively the critical thinking skills of students who were taught using the Think Talk Write learning model consisting of 31 students showed an average value (mean) of 75. While students who were taught using the conventional learning model consisted of 31 students. shows an average value (mean) of 65. This is due to differences in the learning model used, the experimental class uses a cooperative learning model so that students are more active while the control class uses a conventional learning model that causes students to be more silent and listen, and can identify relationships -relationships between statements, questions, and concepts given in the questions shown by making the right mathematical model and giving the right explanation so that students' critical thinking skills are taught with the Think Talk learning model Writing is higher than the critical thinking ability of students who are taught using conventional learning models. And inferentially the results of hypothesis testing using the t-test concluded that there was a significant difference between the Think Talk Write learning model and the conventional learning model. This means that the value of students' critical thinking skills using the Think Talk Write learning model is better than the conventional learning model.

The results of the research on the ability of teachers to manage learning both in the experimental class and in the control class were generally carried out well, this was in accordance with the observations of the observer for 3 (three) consecutive meetings. This is because the teacher who teaches in both classes is the same teacher and when teaching in the experimental class and in the control class has created a conducive, comfortable, and friendly atmosphere. So that it can encourage students to be more motivated in learning and active in the learning process. The average value of the percentage of teacher activity in the learning process in the experimental class is 93.8%, while the average value of the percentage of teacher activity in the learning process in the control class is 91.7%. From the average value of the percentage of teacher activity in the learning process, it shows that the teacher's activities in the learning process both in the experimental class and the control class are included in the very active category. As for the percentage of the average value of student activity in the learning process using the Think Talk Write learning model of 83.8% and the

average student in the learning process using the conventional model of 83.3%. The scale shows that the students' activities are classified as good or in other words students are active during the learning process.

According to (Kholid, 2018) critical thinking is manipulating or managing and transforming information in memory. Meanwhile, Ennis (Saragih, 2008) also argues that critical thinking is a thinking process that occurs in a person and aims to make reasonable decisions about something that he can believe is true and which will be done later. According to Suherman (Hadi, 2012) the Think Talk Write (TTW) learning model is a learning model that starts with thinking through reading materials (listening, criticizing, and alternative solutions), the reading results are communicated through presentations, discussions, and then making a report on the results of the presentation. Teaching with the Think Talk Write (TTW) learning model is teaching that is built by students thinking, discussing, and copying back in the form of writing. The flow of teaching progress is seen from the participation of students in thinking after the reading process. Then discuss and exchange opinions (sharing) with their respective groups. In the next stage, students express by writing Hamdayana (Nandau et al, 2019).

Based on the explanation of the influence of the learning model on students' critical thinking skills that has been described in chapter II and defined operationally in chapter III, it can be concluded that the achievement of learning effects both on the Think Talk Write learning model and conventional learning models is effective to be applied to rectangular learning materials in MTs class students. Al Ikhlas Mowewe. However, after further analyzing by comparing the average value of students' critical thinking skills (post-test) it shows that the critical thinking abilities of students who are taught by the Think Talk Write learning model are higher than the critical thinking abilities of students who are taught using conventional learning models. This is because the Think Talk Write learning model is a cooperative learning model which in the learning process is centered on students so that students are more active in the learning process. This is also in line with research conducted by Ahmad, et al (2019) which stated that the results of the evaluation of mathematics learning using the Think Talk Write learning model tended to rise (high) with a good category.

CONCLUSION

Based on the results of the analysis and discussion, the conclusions in this study are as follows:

1. 1. The critical thinking ability of class VIIB students who are taught using the Think Talk Write learning model consists of 31 students with a mean value of 75, a variance of 304,199 and a standard deviation of 17,441.
2. 2. The critical thinking ability of class VIIA students who are taught using the conventional learning model consists of 31 students with a mean value of 65, a variance of 434,438 and a standard deviation of 20,843.
3. 3. Learning mathematics using the Think Talk Write learning model is more influential than conventional learning models, especially in quadrilateral teaching materials in class VII MTs. Al Ikhlas Mowewe.

RECOMMENDATION

The learning method using Think Talk Write can have an influence on students' critical thinking skills. Teachers can apply the model to the same material or other materials because the Think Talk Write model has a positive influence during classroom learning. Furthermore, in applying the cooperative learning model, the teacher should first pay attention to the steps or things that must be met before carrying out learning so that the implementation of learning can be better.

For further researchers who want to develop this research, they can carry it out on other material or subject matter

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