

## The Effect of Treffinger Learning Model on Students' Critical Thinking Skill

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### ARTICLE INFO

#### Article History:

Received 03.01.2019

Received in revised form

25.03.2019

Accepted

Available online 01.10.2019

### ABSTRACT

This study aimed to determine the effect of Treffinger learning model on students' critical thinking ability. This study was an experimental study using a pretest-posttest control group design. The experimental class was treated using the Treffinger learning model, while one other class only used conventional learning model. The research data obtained shows that the results of students' critical thinking skills at the pretest in the experimental class were the same as the control class. Hence, it can be concluded that there was an effect of the Treffinger learning model on the critical thinking skills of fourth grade students in the sub-theme of my national cultural diversity in 24 Ketintang Muhammadiyah Elementary School Surabaya.

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#### Keywords:

Critical thinking skill, learning model, treffinger

### INTRODUCTION

The curriculum in Indonesia in recent years, especially in the 2013 curriculum introduces thematic learning models, namely learning models that emphasize on students' active involvement in the learning process. Thematic learning is based on the 2013 curriculum which was first used in the 2013/2014 school year (Poerwati and Amri: 2013, 282). Social studies learning for elementary school in Indonesia with the 2013 curriculum reference has used integrative thematic learning with the aim that every citizen has a deeper knowledge and understanding of the religious, honest, democratic, creative and analytical national community so that they can contribute to the development of social life and culture (Suhanadji: 2018, 18). Learning that can achieve the expected goals has several things that are emphasized such as learning must be qualified, learning methods must be in accordance with the theme, learning must be able to improve critical thinking and learning must improve student learning outcomes. However, in reality there are still several obstacles, namely, learning is still teacher-centered, learning cannot be centered on critical thinking, learning still cannot be centered on improving student learning outcomes, and learning is still monotonous and boring. In addition, the learning model used by some teachers still uses the direct learning model. The role of the learning model is very important to make it easier for students to understand the material, especially if the model used is appropriate and appropriate. (Suhanadji, 2018 p.29).

To achieve successful learning, the role of the teacher in the learning process is very supportive. In addition, the application of learning models that can be oriented towards improving student learning outcomes, both in terms of critical thinking skills and feelings of pleasure in receiving learning. The application of the right learning model basically aims to create learning conditions for students who are more active and have creative thinking. In this study the learning model that is suitable to use is the Treffinger learning model, especially if it is associated with the ability of students' critical thinking skills. (Nasution, 2011, p.30). The Treffinger learning model was first introduced by Donald J. Treffinger in 1980. He was president of the Center of Creative Learning, IncSarasota, Florida, and developed this learning model as a form to develop children's creativity. (Ifana and Dwi, 2015: .31). The Treffinger learning model defines a learning strategy developed from a creative learning model and has the nature of mental development, as well as prioritizing aspects of the process. Sunata, 2008,15 (Shoimin, 2014, p.219). Furthermore, Treffinger (1985) explained that the basis for developing this model is the development of times that are increasingly changing, so that to overcome these problems, we need a way that can provide the right solution by paying attention to the facts in the surrounding environment. Then, provide solutions or ideas that can provide solutions to these problems (Huda, 2013, p.318). In addition to the learning model, other factors that need to be considered in the process of achieving better learning outcomes are students' critical thinking skills. Critical thinking according to Mustaji (2012) is anything that has a related reason by giving emphasis in making decisions about what to believe or not.

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Based on several explanations that have been written previously, it appears that increasing the ability to think critically will provide many benefits for students. Critical thinking skills will encourage self-confidence that arises in students, because they have been trained to express their arguments in the classroom so that when interacting outside the classroom it will be easier for them to get along with their surroundings. Mustaji (2012)

The researcher observed at the 24 Ketintang Muhammadiyah Elementary School in Surabaya to find out whether there was an influence of the Treffinger learning model on students' critical thinking skills. In this school there were still some obstacles in the learning process. One of them is the teacher still uses the direct learning model so that it results in students becoming passive, lacking critical and creative thinking. This is supported by the learning outcomes data of fourth grade students showing the low learning outcomes in grade IV of elementary school on the results of the final semester exam. In addition, learning outcomes have not yet reached a score above KKM of 70, where only 8 out of 20 students (40%) score above KKM while the remaining 12 (60%) students are still below the KKM (Source: From Muhammadiyah Elementary School 24).

In improving students' critical thinking and learning capacity, an appropriate learning model is needed to be used in learning, especially in social studies subjects, to hone the ability to think in high order thinking skills or commonly referred to as HOTS (Nasution, 2011, p.23). The accuracy in choosing the learning model used determines students in critical thinking and learning outcomes. Of the many existing learning models, the Treffinger learning model will be very suitable to be used to train students in critical thinking so that they can improve their learning outcomes in the sub-themes given.

Seperti Venorica (2015) explains why the learning model is important, specifically the Treffinger learning model. One reason is that the inaccuracy of the teacher's learning model will have a fatal impact on learning. This will cause students to fail in achieving the learning goals because the mental condition of the child becomes depressed, especially for social studies subjects, on the theme of cultural diversity. In this sub-theme, students are required to be able to identify various kinds of social, economic, and various ethnic cultures in the provinces throughout Indonesia. For that, students need to understand and think critically to get to know more about the various tribes in Indonesia. One appropriate way to overcome this is to apply the Treffinger learning model to be able to encourage students to be able to think more critically and creatively.

The characteristics of the Treffinger learning model are touching or taking part when used and when it will end. The touch is explained in the components contained in the Treffinger learning model which includes three aspects, namely: 1) understanding the response, in this case students are given the opportunity to first identify the existing problems and their solutions. 2) generate ideas, teachers guide students to come up with ideas to solve problems. 3) preparing for action, the teacher helps students collect the appropriate information and checks the solutions that have obtained by students. Therefore, this learning model can be used to directly foster student creativity. In addition, this learning strategy is developed from a creative learning model that is developmental and prioritizes the process and helps master the process and is able to solve problems. (shoimin, 2014, p.220)

The Treffinger learning model is expected to be suitable to be used in this study with its characteristics that are more directed towards critical thinking skills and are characterized by the level of basic elements of learning that are more complex and emphasize more on the use of meaningful ways in the learning process. So that it can improve student learning outcomes. Besides this Treffinger learning model prioritizes the process and the most important thing is when students are given problems, students can provide solutions from the results of the guidance given

Based on this background, the formulation of the problem in this study is whether there is an influence of the Treffinger learning model on the critical thinking skills of fourth grade students at SD 24 Muhammadiyah Surabaya

## METHOD

The type of research used in this study is a type of experimental research. The type of quantitative research that will be applied aims to measure the influence of independent variables namely Treffinger learning model and the dependent variable is the ability to think critically. The form of design in this study uses the Pretest-Posttest Control Group Design (Emzir, 2011, p. 98).

The Pretest-Posttest Design of the Design Group Control can be described as follows

**Table 1. Research Design**

Group	Pretest	Treatment Variabel	Post-test
Experiment	O1	X	O2
Control	O3	-	O4

Source: (Sugiyono, 2016:76)

**Keterangan:**

- O1 : Pretest results in the control group  
 O2 : Posttest results in the experimental group  
 O3 : Pretest results in the control group  
 O4 : Posttest results in the experimental group  
 X : Treatment

In the experimental group, learning was carried out using the Treffinger learning model while the control group used a conventional learning model.

The subjects of this study were students of IV K and IV T at SD 24 Muhammadiyah. The research sample used was 20 students for the control class and for the experimental class as many as 20 students. The number of students for the experimental class was 11 men and 9 women. And the control class of 8 male and female students is 12. The average grade of fourth grade students is 11-12 years of Indonesian citizens. The study was conducted between November and December 2018 in the odd semester 2018/2019 academic year at the Muhammadiyah 24 elementary school in Surabaya.

The research instruments used in this study are two: 1. Test sheets, in this test sheet containing questions about mastery of the material and critical thinking skills of students, the test sheet in this test is in the form of an essay consisting of 5 questions. Questions were given to both classes, both the control class and the experimental class. 2. Observation sheet, this sheet aims to determine the extent of the influence of the Treffinger learning model on students' critical abilities. Observation is done by the way the researcher acts as a beginner teacher in class IV, then the class teacher or colleague observes the implementation of the Treffinger learning model when used in the learning process.

The technique used to collect data consists of two, namely: 1. Observation techniques, aiming to observe the teacher in carrying out the use of digital literacy when learning takes place in the experimental class and 2. Test techniques, aiming to measure or know the progress of students during learning. There were two implementations in this test technique, namely the implementation of the pre-test and post-test.

Data analysis techniques were carried out using a quantitative approach, where the data presented is in the form of numbers. The analytical technique of the data used is the calculation of answers to problem formulation and hypothesis presentation, which were held in two stages: 1. Analysis of validity test and reliability test data. 2. Analysis of normality test data and hypothesis testing.

## RESULT OF RESEARCH

The results of the study consisted of the results of expert validation, the results of research in the field, and the results of inferential analysis. The following is a table of the results of the learning material validation and research instruments used in this study.

**Table 1.** Results of Validation of Learning Materials and Research Instruments

Validation Result	Average of Validation Value	Category	Information
Lesson Plan	3,66	B / Valid	Can be used with a few revision
Worksheet	3,66	B / Valid	Can be used with a few revision
learning material	3,91	B / Valid	Very worthy of use
Critical Thinking Skills Test	3,66	B / Valid	Can be used with a few revision

Validation results related to the syllabus, lesson plan (RPP), worksheet (LKPD), learning material, and critical thinking skills tests in the table show the average validation in the good category. Therefore, it can be

concluded that the learning materials is feasible to use with a slight revision. The following is the percentage data from the comparison of Pre-test and Post-test scores.

**Results of Pre-test and Post-test on students' critical thinking skills**

<b>Amount of Value</b>	1072	1859
<b>Average Value</b>	53,6	92,95

**Source: data that has been processed**

The results of the observation analysis of the critical thinking skills of the experimental class students showed that for the pretest results the average presentation was 53.6% with the medium category and for the posttest results the average presentation was 92.95% with the high category. Based on the results of the analysis of observing students' critical thinking skills in the control class and the experimental class, it appears that there was an effect on the use of the Treffinger learning model because there were very significant differences

**Pre-test and Post-test scores on learning outcomes**

<b>Total</b>	<b>811</b>	<b>1498</b>
<b>Average Value</b>	<b>40,55</b>	<b>74,9</b>

**Source: data that has been processed**

The results of student learning outcomes in the control class showed that for the pretest results the average presentation was 40.55% with a less creative category and for the posttest results the average presentation was 74.9% with a fairly creative category. Based on the results of the analysis of learning outcomes for the control class at the pretest and posttest, the learning outcomes were still in the less creative and quite creative category. In this case it has not shown good results.

From the table above, it can be seen that in the comparison between the average pre-test value and the post-test value, the post-test score shows higher results.

Furthermore, the explanation related to the normality test of data acquisition of creative thinking skills and collaboration of students, researchers used the SPSS 21.00 program with the kolmogorov-smirnov technique at a significant level of 0.05. The selection of the Kolmogorov-Smirnov test because this technique can test n in large or small quantities. Besides, the data in this study are interval scale or ratio. The results of the processed normality test are presented in table 4.13

**Table 4.13. Normality Test Result**

<b>Variant</b>	<b>Class</b>	<b>Kolmogorov-Smirnov</b>	<b>Sig</b>
Critical Thinking (Pretest)	Control	0,583	0,8
Critical Thinking (Posttest)		0,666	0,7
Critical Thinking (Pretest)	Experi ment	0,605	0,8
Critical Thinking (Posttest)		0,692	0,7
Learning Outcome (Pretest)	Control	0,912	0,3
Learning Outcome (Posttest)		0,671	0,7

Learning Outcome ( <i>Pretest</i> )	Experiment	0,691	0,727
Learning Outcome ( <i>Posttest</i> )		0,788	0,563

Source: data that has been processed

Based on normality test data in table 4.13 above, it was found that the results of the significance level of the collaboration variable and creative thinking of students in the control class and experimental class were more than 5% or 0.05. Thus, it can be concluded that the analysis of the requirements test has been fulfilled because all data that has been obtained is normally distributed.

The homogeneity test carried out in this study aims to determine the similarity of the sample section. In the homogeneity test, researchers used the SPSS 21.00 program with a one way ANOVA test technique at a significant level of 0.05. The homogeneity test results can be seen below.

Table 4.14. Homogeneity Test Result

Variable	Levene Statistic	d f1	d f2	d .	Sig
Critical Thinking Skills ( <i>Pretest</i> )	1,489 <sup>a</sup>	5	2	164	0,2
Critical Thinking Skills ( <i>Posttest</i> )	2,118 <sup>a</sup>	5	0	146	0,1
Learning Outcome ( <i>Pretest</i> )	1,911 <sup>a</sup>	4	1	79	0,1
Learning Outcome ( <i>Posttest</i> )	1,931 <sup>a</sup>	3	1	83	0,1

Source: data that has been processed

## DISCUSSION

Based on the acquisition of homogeneity test data, each variable gets more than 5%. So that it can be concluded that both homogeneous samples (HO are rejected) and requirements test analysis have been fulfilled. The research hypothesis is "there is an influence of Treffinger learning model on critical thinking skills of fourth grade students of SD 24 Muhammadiyah Surabaya". The results of these hypotheses are tested from the results of the research data that has been conducted. This can be seen from the average score of the experiment class and control posttest.

The results of research in class IV showed that the scores of students in class IV T were greater than the average score in class IV K. The average of students in class IV T was 82.5 and the average of class IV K students was 71.7. Data on students' critical thinking ability (pretest) was 0.857 in the control class and in the experimental class was 0.866. While the score (posttest) in the control class is 0.766 and in the experimental class is 0.724. Because the two classes that have been tested have a significance value that is greater than 0.05, it can be concluded that the data on students' critical thinking abilities are stated to be normally distributed in each group.

Data on collaboration ability of students (pretest) was 0.857 in the control class and in the experimental class was 0.866 while the score (posttest) in the control class was 0.766 and in the experimental class was 0.724. Because the two classes that have been tested have a significance value that is greater than 0.05, it can be concluded that the data on students' critical thinking abilities are stated to be normally distributed in each group. The mean results from the data of students' critical

thinking ability (posttest) was 74,350 in the control class and experimental class at 92,950. The results of the Independent Sample T-Test on the influence of the Treffinger learning model on students' critical thinking abilities (posttest) showed the results of  $t_{\text{count}} (6,747) > t_{\text{table}} (1,686)$  with df.38 at the 0.05 significance level. Because the level of significance is greater than 0.05,  $H_0$  is rejected and  $H_a$  is accepted.

This shows that there are differences in critical thinking skills of students in the experimental class and in the control class. This is because there is treatment in the experimental class which is by using the Treffinger learning model during learning, while the control class is not given the same treatment. Based on the results obtained, it can be concluded that the critical thinking skills of students who use the Treffinger learning model are significantly higher than the students' thinking skills using conventional learning.

## CONCLUSION

Based on the results of the discussion described above, it can be concluded that there was effect of using the Treffinger learning model. It is suggested that further researchers can use the Treffinger learning model for other subjects in order to improve students' thinking skills in dealing with problems in their surrounding environment. (model on students' critical thinking skills. The results of students' critical thinking skills after being treated are obtained from the results of posttest with results  $t_{\text{count}} (6,747) > t_{\text{table}} (1,686)$  with df. 38 at a significance level of 0.05. The results of students' critical thinking skills after the treatment were obtained from the results of the posttest with the results of  $t_{\text{count}} (17,556) > t_{\text{table}} (1,686)$  with df.38 at a significance level of 0.05. Therefore, it can be concluded that the use of the Treffinger learning model influences the critical thinking skills of fourth grade students of SD Muhammadiyah Surabaya in the sub-theme of my nation's cultural diversity especially for Social Sciences subjects.

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