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The Influence of CTL Model on the Learning Outcome on the Student of 5th Grade with 6th Theme of 2nd Subtheme "the Movement of Heat around Us" at Sdn Karangrejo 02 Jember

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Abstract: *This research aims to find out whether or not influence of the implementation of the CTL model on the learning outcomes of student of 5th grade with the theme of Heat Movement Around Us at SDN Karangrejo 02 Jember. This research uses an experimental type with a pretest-posttest control group design pattern. The subject in this research was all students of A 5th grade and B 5th SDN Karangrejo 02 Jember with a total of 66 students. Data collection used observation, interview, documentation and test. T-test result showed the value of* $t_{count} > t_{tabel}$ *that is 2,421 > 0,242, so the alternative hypothesis (Ha) is accepted and the null hypothesis (H0) is rejected. The calculation of the relative effectiveness test (ER) to determine the effectiveness and implementation of the CTL learning model to student cognitive learning outcomes is equal to 49.2% with the medium category.*

Keyword: CTL model, learning outcome.

1. INTRODUCTION

Education is an important thing that must be accepted by Indonesian. Indonesian can strengthen and make this nation more advanced with education. The importance of education for the sustainability of Indonesia in the face of this globalization era needs to be encouraged to increase the quality in term of human resources. If the quality of education increases, the nation's human resources will increase also. Active, creative, effective, and enjoyable learning conditions are an effort to create a student's enthusiasm when receiving new material. Students are happier if their learning are not boring. Feeling bored when receiving learning material can be arisen from variety of factors, some of classes that have an unconducive situation, the teacher lacks the material to be taught, etc. Non-conducive classroom atmosphere is a class condition that does not give a sense of calm or regularly. A conducive atmosphere is one of important factors in the learning process. Based on observation on October 15th, 2019 at SDN Karangrejo 2, Sumbersari District, Jember Regency, learning activities were not only focused on teacher, but also used group learning method. According to the result of this observation the learning activities have not only focused on the teacher but have involved the student, but the method of group discussion learning is not always applied by the teacher in class, consequently daily learning activities are more often focused on the teacher (teacher centered). One of the effort to achieve innovative, creative, active and fun learning can use learning model that are appropriate to the learning activities. The using of the model was be given to student refers to Government Regulation Number 19 Year 2005 Article 19 Subsection 1 concerning the National Standard of Education namely the steps of learning in the education unit are carried out inspiratively, interactively, challenging, fun, motivating student to play an active role, providing a forum to express ideas, to be creative and to be independent according to their interest, talent, and to the physical and psychological development of student. The effort that can be done is through the Contextual Teaching and Learning (CTL) model.

According to Trianto, (2007) contextual learning is a plan in learning that will support the teacher on combining the material provided with the real-world condition of students and helping students connect between knowledge possessed and application in daily life. Nurhadi (2004) contextual learning is a learning plan that is provided by teacher from the real world into the classroom and invited students to interact and share experiences about daily life.

Muslich (2009) explained, the Contextual Teaching and Learning model has several characteristics, namely:

a. Learning is conducted using authentic context, namely learning that leads to the environment (learning in real life settings).
b. Learning that gives meaningful lesson to student (meaningful learning).

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c. Learning is conducted for providing experience (learning by doing).
d. Learning is conducted with group (learning in a group).
e. Learning that can know or understand each other (learning to know each other deeply).
f. Learning is conducted actively, creatively, productively, and work together (learning to ask, to inquiry, to work together).
g. Learning is conducted in a fun situation (learning as an enjoy activity).

2. METHOD

This research uses experimental research. This study aims to determine whether or not the effect of the treatment on changing of certain condition (Mashhud, 2016). In this experimental study, uses a village pretest-posttest control group design.

The following is an overview of the form of the Pretest-Posttest Control Group Design pattern

E : O_1	X	O_2
C : O_1		O_2

E : Eksperiment group (the giving *treatment* in learning model CTL)
C : Control group (not given *treatment*)
O_1 : The giving *Pretest* for experiment group
O_2 : The giving *Pretest* control group
X : The treatment that is given in the form of CTL approach.

(Adapted by : Masyhud, 2016)

The research was conducted in the even semester in academic year 2019/2020. The place of the research was in SDN Karangrejo 02 Jember. In this experimental research, it has two classes namely the experimental class and the control class that is called the research subject. In this research using the subject of all students in 5th grade of SDN Karangrejo 02 Jember which includes 2 classes namely 5th A grade which has a total of 35 students and 5th B grade which has a total of 31 students. The class that will be a control and experiment, it will be conducted homogeneity test first. Homogeneity test result obtained t0 0.62 and it is known that the coefficient F = 3.612 coefficient F shows greater than 0.05 at a significance level of 5% so that it can be stated that there is no difference in variance between the two groups used as research and both of groups can be said to be homogeneous. The next step is to draw a lottery technique to determine the experimental group and the control group. The lottery showed that the 5th a grade was selected as the experimental group and the 5th B grade was selected as the control group.

Data was taken according to data collection method are observation, interview, document, and test. The researcher uses a question instrument that has been tested for validity, reliability, differentiation, and difficulty index. The test instruments consisted of several multiple choice question that had been validated by lecturer, teacher of 5th grade, and it was tested in 5th grade students of SDN Jember Lor 04 Jember. The validity test of the test instrument is used to test whether or not the questions will be used at the time of the pretest and posttest. The instrument that is used previously must be validated by the validator. A description of the properness question can be obtained using the formula as follow:

$$Valpro = \frac{srt}{smt} \times 100$$

The result of the validity test calculation were 72 so that the test instrument was determined to be suitable for using in the trial at SDN Kepatihan 03 Jember. The scoring method on this test instrument is if the correct answer is given a score of 1 and if the wrong answer is given a score of 0. The data is entered in the table in order to the empirical test validity test is analyzed using the correlation of product moment by Pearson.

In the next correlation result is matched with r-table at the 0.05 significance level. In the item correlation value if it is equal or higher than the r-table, than the item is valid, and similarly if the value in the item correlation is lower than the r-table, then the item is declared invalid. As many as 40 items that have been tested there are 8 items that are invalid, then 32 items are valid. After obtaining the result of the instrument validity test, the instrument reliability is tested.

In the reliability test of this research instrument uses the method of split-half, because the number of even intrument. The first step of the researcher correlates the two separated questions namely the odd part and the even part. Then the correlation calculation uses the following formula:

$$r_{xy} = \frac{N\Sigma XY - (\Sigma X)(\Sigma Y)}{\sqrt{[(N\Sigma X^2) - (\Sigma X^2)][N\Sigma Y^2) - (\Sigma Y^2)]}}$$

The calculation result of the data above, can be understood about the correlation on the total score, in the odd part with the score on the even part that is 0.87. The result of this correlation that the next step is matched on the r-table, at a significance level of 5% which is up to 0.443. Correlation value indicates higher than r-table (0.87> 0.443), it can be concluded that the item is reliable and belong to the high category.

The question is categorized as not good if the question can be answered for all participants, in the smart

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group or the less smart group, then causes zero distinction (0). The difference test on the question can be calculated using the formula.

$$\text{IDP} = \frac{\sum \text{JKT} - \sum \text{JKR}}{\left(\frac{\text{NT} + \text{NR}}{2}\right)}$$

The next step is to calculate the difficulty level index to find out the difficulty level of each question instrument that is used. The formula for calculating the difficulty level index is as follows.

$$\text{IKES} = \frac{\sum \text{JKT} + \sum \text{JKR}}{(\text{NT} + \text{NR})} \text{X } 100\%$$

Question test that is recomended, those have a difficulty level of 10% to 90%. (Masyud, 2016)

Data analysis techniques uses t-test data analysis of separate sample. The following is a separate sample t-test formula.

$$t = \frac{M_1 - M_2}{\sqrt{\frac{\sum x_1^2 + \sum x_2^2}{N(N-1)}}}$$

The result of the t-test analysis is find out the influence between one variable and another variable. The result of the t-test is continued with the relative effectiveness test to find out the effectiveness that is achieved by a group with other groups. The relative effectiveness test can be carried out using the following.

$$\text{ER} = \frac{MX_1 - MX_2}{\left(\frac{MX_2 + MX_1}{2}\right)} \times 100\%$$

Mashhud (2016) result of relative effectiveness was matched using the measuring material in the criteria tabel of relative effectiveness.

3. RESULTS AND DISCUSSION

The analyzed data were the differed between the pretest and posttest scores, in the experimental class (VA) and the control class (VB). T-test analysis in the research was conducted if $t_{count} \geq t_{tabel}$, so the null hypothesis (H0) was rejected, and the alternative hypothesis (Ha) was accepted. The t-test calculation was carried out using SPSS version 20. The value of the ttable used is the ttable with 95% confidence level or a significance level of 0.05 with a two-trail test which means two directions.

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Pretest-Posttest	Equal variances assumed	4.460	.039	2.421	64	.018	4.89124	2.02059	.85466	8.92783

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
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Pretest-Posttest	Equal variances assumed	4.460	.039	2.421	64	.018	4.89124	2.02059	.85466	8.92783
	Equal variances not assumed			2.518	49.421	.015	4.89124	1.94234	.98881	8.79368

T-test calculation uses SPSS version 20 that is obtained values with an difference average between before and after treatment in the experimental class (M_x of 12.34 while the difference average before and after without treatment in the control class (M_y) of 7,45.

The result that is obtained by t-test using SPSS version 20, it is obtained t_{hitung} in the amount of 2,421. Then the result is consulted with t_{tabel}, it was known that db= (35+31)-2 = 64 at significant level 5%, so that it was obtained of t_{tabel} = 0,242. T-test shows the result that the value of $t_{hitung} > t_{tabel}$ is 2,421 > 0,242, it can be concluded that there is an influence on student learning outcomes using the CTL learning model. T-test calculation will be tested again using the relative effectiveness formula to find out how much influence after treatment is given. The relative effectiveness test results were 49.2% with a medium category, so it can be known that the achievement of the cognitive domain of students in the experimental class got 49.2%. The result is more effective than the control class that is not implementing the CTL model in learning.

Significant positive influence on student learning outcomes is influenced by learning outcomes. According to Rusman (2012) there are other factors that can influence student learning outcomes, namely internal factors and external factors. The using of the CTL model during learning activities can increase the level of effectiveness of learning outcomes. Internal factor that influence student learning outcomes including physiological and psychological factors. Physiological factors include good health, and not in a condition of physical disability. Psychological factors include intelligence (IQ), student's desire to learn, talent, supporting, cognitive, and also reasoning power. External factors that influence student learning outcomes including environmental factor and instrumental factor. Environmental factors include the attention of parent, condition in the classroom, the society surrounding, instrumental factors including curriculum, facilitiy, and teacher.

The CTL model is a factor that can influence student learning outcomes, because the class that implements the CTL model when learning invites student to think critically and actively during learning.

4. CONCLUSION

The results of analysis concluded that there was influence of the implementation of the CTL model on the learning outcomes of 5th grade students on the theme of Moving Heat around us in SDN Karangrejo 02 Jember. The calculation of T-test in amount of 2,421. That result explained that $t_{count} > t_{table}$, so that the alternative hypothesis (H_a) was accepted and null hypothesis (H_0) was rejected, and the calculation result of the of the relative effectiveness in amount of 49.2% with the medium category.

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