Research Paper

The Effect of Cooperative Learning Model Type NHT (Numbered Head Together) to Increase Students Learning Outcomes and Self Efficacy

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ABSTRACT

Learning outcomes are inseparable from the learning process. Learning outcomes are often used as a benchmark of educational goals. Therefore, each learning ends inevitably have achieved results in accordance with the desired learning objectives. Not only the result of learning, self efficacy also can not be denied existence as an important factor in learning. One's belief in self-ability is needed in learning. However, many are found in the field of low learning outcomes and self efficacy. For example, in elementary school Panyadap 04, there are still many students who have low learning outcomes and self efficacy. In the results of interviews with students, learning in the class monotonous, often sleepy and not conducive. While the results of interviews with teachers, students are difficult to set so that less conducive learning. The teacher also admits that rarely uses innovative learning methods. Therefore, significant efforts are needed to improve student learning outcomes and self efficacy. Efforts to solve the problem one of them is using cooperative learning model type NHT (Numbered Head Together). NHT is a method of learning in groups and each student is given a number then the teacher calls the number of students at random. Provide an opportunity for every student to dare to argue, understand learning so as to get maximum learning outcomes. The purpose of this study to determine the effect of cooperative learning model type NHT to improve learning outcomes and self efficacy grade IV students SDN 04 Panyadap Lesson 2017/2018 on science subjects. This research uses quantitative data analysis method with hypothesis test, normality and analysis test using t-test. Based on quantitative data analysis using t-test formula can be drawn conclusion that has been done can be seen result of hypothesis that result of study of t test equal to 0.000, and self efficacy 0.016 so H0 refused. So the results of quantitative data analysis of cooperative learning model type NHT influenced the increase of learning outcomes and self efficacy. In the other word, model type NHT is significant to increase of learning outcomes and self efficacy.

Keywords: Cooperative Model, NHT, Learning Outcomes, Self Efficacy

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Learning outcomes are often used as a barometer for the achievement of educational goals, in line with the opinion of Purwanto (2014: 46) that "learning outcomes are the realization of the achievement of educational goals, so that the measured learning outcome depends on the purpose of education". Learning outcomes are when a person has learned through the learning process and there will be behavioral change, for example someone from not knowing to be know, from being unable to be, and from not understanding to being understood (Hamalik, 2006: 30). This is in line with Rifa'i et al (2011: 85) that the learning outcome is a change in behavior acquired students after experiencing the learning process.

Given the importance of learning outcomes in learning, other factors that are not less important is self efficacy. Self efficacy is an individual's belief in his ability to organize and execute actions needed to achieve what is expected (Bandura, 1995, 1997). Meanwhile, Baron and Byrne (1991) define self-efficacy as an individual's evaluation of his or her ability and competence to perform a task, achieve goals, and overcome obstacles. Likewise with Schunck (2009), he defined self-efficacy as an individual's belief in his ability to learn or do things at a certain level.

The importance of learning outcomes and self efficacy did not occur in fourth grade students in elementary school 04 Panyadap especially on science subjects. When making an observation to the school, there are still many students who score below the average. If seen from the average of the class was still fairly low. Self effficacy ability was seen still less. In interview with students, they say that learning in the class is monotonous, making it bored and not feel at home in class. During group discussions, they said they were not confident when they had to present the results of their discussion for fear of being wrong. They think that a smart kid will always get good grades. Meanwhile, when interviewing with his teacher, he said that children are negligent in doing house tasks. When conducting additional lessons after the learning process, most of them choose to go home and play.

From the results of observations and interviews above shows that indeed the factors that affect learning outcomes and self efficacy is how to create a learning atmosphere in class fun. How to make students feel at home in class and make children confident and confident in their abilities.

One solution to solve the problem is by using cooperative learning model type NHT (Numbered Head Together). This NHT learning model is one type of special structural cooperative learning designed to influence the interaction patterns of students in obtaining the material enclosed in a lesson and check their understanding of the content of the lesson. Numbered Head Together (NHT) provides students with opportunities to share ideas and consider the most appropriate answers. The NHT also encourages students to enhance their cooperation spirit. This NHT can be used in all subjects and for all ages of learners (Lie, A. 2002: 59).

METHOD

This research uses quantitative approach with research design using experimental method. Quantitative research is a method to test certain theories by examining relationships among variables, using research instruments, so that data consisting of numbers can be analyzed based on statistical procedures.

The reasons for the selection of quantitative approaches are: 1) The research is intended to test a theory, namely the model of learning NHT (numbered head together) to improve learning outcomes and self efficacy, 2) the existence of a clear problem in the learning outcomes and self efficacy of students, data generated in the form of quantitative data that is pretest and posttest, 4) statistical procedures used in data analysis, and 5) research results can be generalized.

The experimental form used is quasi experimental (experimental design). Quasi experimental method aims to determine the effect of a treatment (treatment) conducted on the subject of research. Selection of experimental quasi method as research method because according to research purpose, that is produce influence NHT model learning in improving learning result and self efficacy of student in a condition so that required empirical data from a treatment.

The design of this study is non-equivalent (pre-test post-test) control group design, ie by using classes that are expected to have the same conditions. The design of this group was chosen without random means using an existing class (Creswell, 2014). Each group, either control or experiment class, was given pre-test and post-test. After the pre-test, the experimental class was given treatment using the NHT learning model, while the control class was not given treatment. This is done to determine whether the treatment provided affects the students. The design of the research plan for the experiment is as follows:

$$A\_\_\_O_1\_\_\_X\_\_\_\_\_O_2$$
$$B\_\_\_\_O_3_____O_4$$
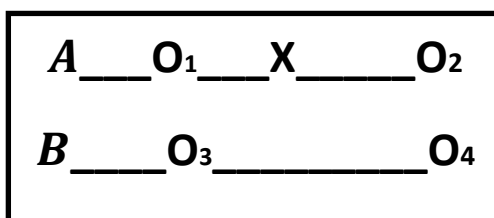
A : Experimen Class
B : Control Class
O1 : Pre-Test Experimen Class
O2 : Pre-Test Control Class
X : Treatment with NHT models
O3 : Post Test Experimen Class
O4 : Post Test Control Class

The instruments used are tests for learning outcomes, and self-efficacy questionnaires. The grid of the learning result test instrument is adjusted to the learning indicators listed in the

learning syllabus, and the self efficacy instrument refers to the self efficacy dimension that is used as an indicator.

Instruments provided through the validity stage using Rasch application, after tested the validity of the instrument also tested its reliability to explain the reliability of the results of a measurement, meaning that if measurements made many times, will produce the same results although not exactly, but the difference value is still within reasonable limits . Differences and differentiators to measure the ability of a problem to differentiate between highly capable students and low-ability students.

Data analysis in this study include:

1. *Data Normality Test*

   The data normality test aims to test whether the tested data is normally distributed or not, using SPSS software version 22.

2. *Data Homogeneity Test*

   Homogeneity test is conducted to determine the population variance whether the population has the same or different variance.

3. *Test t count*

   This test is performed on the average score on the pretest, the final test (posttest) of the experimental and control group.

FINDINGS AND DISCUSSIONS

The location chosen for this research is grade IV SD 04 Panyadap. Based on preliminary research results and preliminary studies before the use of NHT learning model, researchers found the phenomenon that the results of science learning are mostly less students than KKM (minimum criteria of mastery learning). Not only the results of science learning, but the self efficacy of students is also low. This problem arises because of several factors, such as the lack of student motivation, the use of a model of learning that is always monotonous, thus making students feel at home in class and lack of confidence in them. As a result, students sometimes find it hard to accept the lessons that teachers have. When the teacher asks, many students just silence and say shame and fear wrong when they want to answer.

Based on the data of the last 2 years recapitulation 2015-2016 obtained from the value of UTS and UAS class IV SDN 04 Panyadap found the average student score of 6.54 and 7.10 of 50 students, it shows that the value obtained by students tend not to showed a significant increase.

1. **Data Analysis Pretest Learning Outcomes and Self Efficacy**

   In this pretest data analysis technique, researchers use SPSS program version 22 with the aim to facilitate the calculation of these data. The results from the analysis of pretest data for the control and experimental groups are as follows:

a. *Pretest Data Normality Test*

   This normality test analysis aims to determine the results of pretest data (learning outcomes and self efficacy) control and experimental groups, whether or not

distributed normal. In the calculation of normality test, the researchers used SPSS program version 22. The results of the normality test analysis is as follows:

Test of Learning Result Normality (Pretest)

Class	Shapiro-Wilk		
	Statistic	**df**	**Sig.**
Control	,946	25	,201
Experiment	,936	25	,122

Self Efficacy Normality Test (Pretest)

Class	Shapiro-Wilk		
	Statistic	**df**	**Sig.**
Control	,935	25	,114
Experiment	,974	25	,741

Normality test is done to know the normal distribution of data. Normality test data in this study using Shapiro Wilk test. Value Criteria testing data normality is if the probability value greater than $\alpha = 0.05$, then the data is normally distributed. The results of the normality test with the help of SPSS version 22 appear in the table above.

From the results of the calculation using SPSS software version 22, the result is known that the results of pretest normality test for learning outcomes in the control class of 0.201 and the experimental class of 0.122. While for normality test of pretest self efficacy in control class equal to 0,114 and experiment class 0,741. That means all these results show that the data is normally distributed because it is larger than 0.05.

b. Pretest Data Homogeneity Test

The next analysis is by doing homogeneity test, its function is to know the population of variance whether the same or different. Determination of the distribution of data that varies or not seen from the value of sig. resulting from the analysis of pretest data using SPSS program version 22. If sig value> 0,05 then the data is homogeneous, vice versa if sig value <0,05 then the data is not homogeneous.

Homogeneity Test of Learning Outcomes (pretest)

Levene Statistic	df1	df2	Sig.
1,139	1	48	,291

Homogenity Test Self Efficacy (pretest)

Levene Statistic	df1	df2	Sig.
,003	1	48	,955

From the results of the calculation using SPSS software version 22, the results are known that the results of homogeneity test pretest for learning outcomes 0.291 and homogeneity test

results on self efficacy pretest of 0.955. That is, the data is homogeneous because the two data results are greater than 0.05.

c. *Test t Pretest Experiment and Control Group*

Based on the results of normality and homogeneity test analysis above, found that pretest data both learning outcomes and self efficacy normal distribution and homogeneous. Thus in the calculation of this hypothesis test used the calculation of parametric test with a trust level of 0.05. If the value of sig (tailed-2) <0.05 then Ho is rejected and Hα is accepted, otherwise if the sig (tailed-2)> 0.05 then Ho is accepted and Hα is rejected. The hypothesis in this analysis are:

Hypothesis of Learning Outcomes

Ho: There is no difference in pretest learning outcomes of control and experiment groups

Hα: There are differences in pretest learning outcomes of control and experiment groups

Self Efficacy Hypothesis

Ho: There is no difference in the self-efficacy of pretest control and experimental groups

Hα: There is a difference in the self-efficacy of pretest control and experimental groups

Independent sample test Learning Outcomes

		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
Nilai	Equal variances assumed	,527	,471	-,291	48	,772	-,800	2,746	-6,321	4,721
	Equal variances not assumed			-,291	43,108	,772	-,800	2,746	-6,337	4,737

Independent sample test Self Efficacy

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the ...	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Nilai_	Equal variances assumed	,971	,329	-,308	48	,759	-,01292	,04193	-,09722	,07137
	Equal variances not assumed			-,308	44,591	,759	-,01292	,04193	-,09739	,07154

Test data pretest learning outcomes obtained by value sig. 0,772 and pretest self efficacy test obtained by value of sig.759. both data show that Sig. (tailed-2)> 0.05, meaning Ho accepted and Ha rejected.

This pretest test shows that both classes of control and experiment class there is no significant difference in learning outcomes and self efficacy.

The hypothesis in this analysis are:

Ho there was no significant difference in pretest result of control and experiment class

Ha: there are significant differences in pretest result of control and experiment class

2. Analysis of Postest data Learning Results and Self Efficacy

a. *Postest Data Normality Test*

In posttest data analysis the researcher use SPSS program version 22 with the aim to facilitate the calculation of posttest data, both for control and experiment class that is as follows:

Normality test on posttest result of control class and experimental class using Shapiro-Wilk analysis with test criteria used is if sig> 0.05, then the data is normally distributed, and if sig. <0.05, then the data is not normally distributed.

Test Normality Data Postest Learning Outcomes

Class	Shapiro-Wilk		
	Statistic	**df**	**Sig.**
Control	,995	25	,325
Experiment	,960	25	,405

Test Normality Data Postest Self Efficacy

Class	Shapiro-Wilk		
	Statistic	**Df**	**Sig.**
Control	,970	25	,656
Experiment	,184	25	,204

Normality test is done to know the normal distribution of data. Normality test data in this study using Shapiro Wilk test. Value Criteria testing data normality is if the probability value greater than $\alpha = 0.05$, then the data is normally distributed. The results of the normality test with the help of SPSS version 22 appear in the table above.

From the results of calculations using SPSS software version 22, the results note that the results of posttest normality test for learning outcomes in the control class of 0.325 and the experimental class of 0.405. While for normality posttest test of self efficacy in control class equal to 0,656 and experiment class equal to 0,204. That means all these results show that the data is normally distributed because it is larger than 0.05.

b.   *Homogenity Test of Posttest Data*

The next analysis is by doing homogeneity test, its function is to know the population of variance whether the same or different. Determination of the distribution of data that varies or not seen from the value of sig. resulting from the analysis of pretest data using SPSS program version 22. If sig value> 0,05 then the data is homogeneous, vice versa if sig value <0,05 then the data is not homogeneous.

Posttest Homogeneity Test Learning Outcomes

Levene Statistic	df1	df2	Sig.
,690	1	48	,410

Posttest Homogeneity Test Self Efficacy

Levene Statistic	df1	df2	Sig.
3,052	1	48	,087

From the results of the calculation using SPSS software version 22, the results note that the results of homogeneity test posttest for learning results 0.410 and homogeneity test results on self efficacy pretest of 0.087. That is, the data is homogeneous because the two data results are greater than 0.05.

c.   *Test t Posttest of Experiment Group and Control*

Based on the results of normality and homogeneity test analysis above, found that posttest data both learning outcomes and self efficacy normal distribution and homogeneous. Thus in the calculation of this hypothesis test used the calculation of parametric test with a trust level of 0.05. If the value of sig (tailed-2) <0.05 then Ho is rejected and Hα is accepted, otherwise if the sig (tailed-2)> 0.05 then Ho is accepted and Hα is rejected. The hypothesis in this analysis are:

Hypothesis of Learning Outcomes
Ho: There is no difference in pretest learning outcomes of control and experiment groups
Hα: There are differences in pretest learning outcomes of control and experiment groups

Self Efficacy Hypothesis
Ho: There is no difference in the self-efficacy of pretest control and experimental groups
Hα: There is a difference in the self-efficacy of pretest control and experimental groups.
Independent sample test Posttest Learning Outcomes

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	,690	,410	-4,043	48	,000	-11,200	2,770	-16,770	-5,630

Independent sample test Posttest Self Efficacy

	Levene's Test for Equality of Variances		t-test for Equality of Means							
	F	Sig.	t	df	Sig (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference		
								Lower	Upper	
Equal variances assumed	4,223	,045	-,7028	48	,000	-,069818	,009934	-,089791	-,049844	
Equal variances not assumed			-,7028	40,711	,000	-,069818	,009934	-,089884	-,049752	

Data of posttest test of learning result obtained by sig value. 0.000 and the test of self efficacy posttest obtained value sig.0,000. both data show that Sig. (tailed-2) <0,05, meaning Ho is rejected and Ha accepted.

This posttest test shows that both classes of control and experiment classes have significant differences in learning outcome and self efficacy.

The hypothesis in this analysis are:

Ho ($\chi 1 = \chi 2$) :there was no significant difference in posttest result of control and experiment class

Ha ($\chi 1 \neq \chi 2$) : there are significant differences in posttest result of control and experiment class

3. *Average of Data Learning Outcome Scores Before being given Treatment (Treatment) Model NHT*

Kelas	F	Average
Experiment	25	61
Control	25	60,2

Overview of Learning Outcomes after Treatment (Treatment) Model NHT

Kelas	F	Average
Experiment	25	82,2
Control	25	71

Average of Data Self Efficacy Before being given Treatment (Treatment) Model NHT

Kelas	F	Average
Experiment	25	100,8
Control	25	101,36

An Overview of Self Efficacy Score after a Treatment Model (Treatment) NHT

Kelas	F	Average
Experiment	25	158,28
Control	25	147,68

The result of the research shows that there is a change of mean value from pre test-post test of experiment class and control class both learning outcomes and self efficacy.

From the pre-test result, it is known that the average of control and experimental class learning outcomes shows the average for experiment class 61 and for control class 60,2. This shows that the climate of the experimental class and control class has the same learning conditions and is in the medium category. whereas in the post-test the average value of the values of both classes increased by 82,2 in the experimental class 71 in the control class. So the improvement of student learning outcomes from pre-test to post-test has increased by 21,2 in the experimental class and control class by 10,8.

The improvement also occurs in student self efficacy. From the pretest result, the average of experiment class is 100,8 and control class 101,36, whereas in the posttest the average both of class increased by 158,28 for experiment class and 147,68. So the improvement of student self efficacy from pretest to posttest has increased by 57,48 in the experiment class and control class by 46,32.

CONCLUSION AND RECOMMENDATIONS

The method of research is a way that is done to collect the compile and analyze the data so that obtained the true meaning. The type of method used by the author is the quasi experimental method nonequivalent control group design.

The results of his research processed and analyzed to take conclusions. That is, this research is emphasized on the analysis of data numbers, so can know the level of significant influence by using the Model NHT (Numbered Head Together) to improve learning outcomes and self efficacy students.

Based on the calculation and analysis of research data obtained, then in this section the authors pointed out the following conclusions:

1. The result of pretest in the control class and experimental class either learning result or self efficacy before using NHT model is known result of learning result analysis obtained by sig value. 0,772 and pretest self efficacy test obtained by value of sig.759. both data show that Sig. (tailed-2)> 0.05, meaning Ho accepted and Ha rejected.
2. Test results obtained on the posttest between the control class and the experimental class either learning outcomes or self efficacy after being given treatment in the form of NHT model showed a significant increase. The posttest t test on the learning outcomes shows the number 0.000 and the posttest t test on self efficacy 0,016. Both data show that Sig. (tailed-2) <0,05, meaning Ho is rejected and Ha accepted.
3. There is a significant influence on the learning outcomes and self efficacy of students by using the NHT model on science learning in the experimental class. Although in the control class has increased, but when compared with the experimental class, the value is far above the control class. That is, the use of the NHT model is more

influential than using conventional methods. This is indicated by the sig (tailed-2) value of Asymp, sig. Is 0,000 for learning outcomes and 0.016 for self efficacy which means that Ha is accepted due to Asymp, sig. (Tailed-2) <0,05. Thus, it can be interpreted that there is a significant difference in posttest result of the experimental class by using NHT model. Then "Ha" ($\chi 1 \neq \chi 2$) is received and Ho)) $\chi 1 = \chi 2$) is rejected.

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