

## The Influence of Cooperative Learning Model of Type Numbered Heads Together (NHT) and Type Think Pair Share (TPS) against Results Study of Chemistry and Cooperation Skills

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### Abstract

The research about the influence of cooperative learning model of type Numbered Heads Together (NHT) and type Think Pair Share (TPS) against the results of learning chemistry skills and cooperation has been done. This type of research was quasi experimental design the static group pretest-posttest design. Sample research is the class as a class experiment and XE XF as control classes taken with cluster random sampling techniques. Research data retrieval is performed with the engineering test instrument use reserved pretest and nonujian techniques and using posttest sheet observation skills of cooperation. The data analysis done with test T. The results showed no significant effects on the use of cooperative learning model type NHT and POLLING STATIONS against the results of the study chemistry learners. It is based on the results of the test T significance value (2-tailed) of  $0.874 > 0.05$ . On the other hand, the results showed that there was a significant influence on the use of cooperative learning model type NHT and POLLING STATIONS against cooperation skills learners. It is based on the results of the test T significance value (2-tailed) for  $0.000 < 0.05$ .

**Keywords:** cooperative learning model, NHT, TPS, the result of chemical learning, skills collaboration

### Introduction

Learning is an activity happens between educators and learners between students, as well as a variety of learning resources on the learning environment in order to achieve the learning objectives in the form of knowledge and skills. A good learning process is basically able to arouse the passions of the whole learners to keep learning as a necessity and is performed with the happy, as well as carefree. The results of interviews conducted with educators kimia1 show that during this time the methods used in the activity of chemical learning is a method of experimentation and discussion groups. Such learning wasn't implemented directional so in learning is generally dominated by learners who are clever, rather less resourceful learners tend to be passive. In addition, cooperation activities and responsibilities of each Member are not optimally achieved. Therefore, it is necessary a variation in the delivery of instructional material

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that all learners are active and skilled in collaboration. One of the variations in the process of the delivery of the learning material can be done with the learning model cooperative.

Cooperative learning model is a model of learning based on groups. This model provides the authority for educators to provide information on the tasks and learners occurs in groups to help students in solving problems encountered (Suprijono, 2010). Cooperative learning model was developed to enhance learning outcomes in the form of academic achievement and ability in social skills in the form of cooperation. Skills of cooperation can be done through the process of the group, namely by means of an individual holding a relations and cooperate with other individuals to achieve a common goal (Nasution, 1995). Through the process of a group, kids will think together, discussing together, doing the investigation together, and are doing towards a common goal. In other words, the process of the group gives the opportunity for every child to carry out the principle of democratic cooperation (Nasution, 1995). Thus, the learning process become active and fun.

Meanwhile, the nature of chemical abstract concepts sometimes make some of the difficult learners digest and find the answers to what, why, and how the symptoms of nature with regard to the composition, structure and properties, changes, dynamics and energetics of substances (Suyanti, 2010-12:17). Therefore, it takes a vehicle to all learners to be able to cooperate and discuss the chemical material with other learners through the formation of a group that carried out the directional and correspond to the chemical materials are studied. Thus, it is hoped the entire learners can understand well the chemistry of material as long as it is deemed difficult because its abstract. In addition, from the formation of the group are focused and adjusted with chemical material learned expected results studied chemistry and cooperation skills learners can escalate and become better.

The process of the formation of the group in directional can be done through models of cooperative learning. There are many models of cooperative learning, which are model Numbered Heads Together (NHT) and model Think Pair Share (TPS). Both models have the equation i.e. educators alike put forth issues or questions then learners are requested to cooperate and discuss answers to questions or issues. In addition, on the final stage, good models NHT or TPS learners were asked to share their opinions or answers that were obtained in the presence of friends. In addition there are similarities between the models of the NHT or TPS, there are also

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differences between the two models of the cooperative. The differences between the model and the NHT TPS is on the model of the NHT is done with the numbering system and after educators pose the issue or question on learners, learners are required to cooperate and discuss directly to obtain the correct answer. Meanwhile, the model TPS is not done with the numbering system and after educators pose the issue or question on learners, learners are required to think individually in advance for a few minutes and then cooperate with pairs and discuss the answers to these questions or issues.

Results of research of Ishabu (2013) indicate that the cooperative learning model type NHT can improve the results of learning from 62.2% in cycle I became the 70.3% in cycle II, and 78,4% in cycle III. In addition, it can increase the value of model NHT affective and psychomotor. This is apparent from the cycle I of 59,5% and then increased to 86,5% in cycle II, and 100% in cycle III. Similarly happens to the value of the psychomotor, psychomotor value cycle I of 64,9% then rose to 91.9% in cycle II, and in cycle III increased to 100%.

In the meantime, research results, Adebola et al. (2013) indicate that there is a significant influence of the TPS strategy towards learning achievements of learners. The application of learning strategies which appropriately is crucial so that the learning objectives successfully achieved. In addition, the basic ingredients needed for effective learning is the active participation and involvement of learners in learning situations and activities. More than that, the application of cooperative learning strategy in the areas of math and science results were better than the conventional methods.

From the above case, if the cooperative learning model was applied in learning chemistry course will yield learning and cooperation skills on learners. The use of cooperative learning model that is right on the material chemistry course will be able to improve the learning outcomes and skills cooperation. It's what aspects influenced he did research with the title "The Influence of Cooperative Learning Model of type Numbered Heads Together (NHT) and Type Think Pair Share (TPS) against The Results of Learning Chemistry Skills and Cooperation".

## **Research Methods**

This research is a research quasi experimental design the static group pretest-posttest design. This research was carried out on the MAN of Yogyakarta III in even-numbered years semester lesson time 2014/2015. The population in this research is the entire learners class X MAN Yogyakarta

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III and samples used by as much as 2 classes with cluster random sampling techniques. The variable in this study consists of free variables in the form of cooperative learning model type and type of NHT TPS, in addition there is an variable is bound to be the result of chemical learning and cooperation skills. Data collection techniques with test (pretest and posttest) and observations. As for the instruments of data collection in this research is a matter of pretest and posttest observation sheets, as well as the skills of cooperation. As for the contents and validity of invalid constructs and validated by expert lecturers, while empirical validity and reliability tested in class XI IPA MAN Yogyakarta III as much as class 1 then the result is tested by AnatesV4. Technique of data analysis using SPSS and Anates V4.

## Results and Discussion

### The Results of the Study Chemistry Learners

Table 1. The Results of Statistical Description of Pretest and Posttest Control and Experiments Classes

Description of Statistic	Experiment Class		Control Class	
	Pretest	Posttest	Pretest	Posttest
Lowest value	40 .00	75.00	45 .00	70.00
Highest value	00.00	30.00	10.00	35.00
Average	20.00	48.67	23.44	49.10

Table 2. Homogeneity and Normality Test on Experimental and Control Classes

Class	Skewness		Kurtosis		Signifikansi		Description
	Pretest	Posttest	Pretest	Posttest	Pretest	Posttest	
Experiment	0.184	0.561	0.788	-0.722	0.797	0.099	Normal and Homogen
Control	0.504	0.353	1.113	-0.356			Normal and Homogen

Test result average pretest similarity is of significance (2-tailed) = 0,110 so significance (2-tailed) > 0.05 then H0 are received. Hypothesis test results are of significance (2-tailed) = 0,874 so significance (2-tailed) > 0.05 then H0 are received. This means that there is no significant influence on the use of cooperative learning model type NHT and POLLING STATIONS against the results of the study chemistry learners. No proven Ha due to model NHT and TPS are equally included in the cooperative learning model, the treatment time is fairly short, and the students are unfamiliar with the learning model cooperative.

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## Cooperation Skills Learners

Table 3. The Results of Statistical Observation Sheet Description Skills Partnership

Description of Statistic	Experiment Class	Control Class
Highest Value (%)	99.00	99.00
Lowest Value (%)	76.00	67.00
Average (%)	91.93	81.86

Table 4. Homogeneity and Normality Test Observation Sheet Cooperation Skills

Class	Skewness	Kurtosis	Signifikansi	Description
Experiment	-1.167	1.781	0.532	Normal and homogen
Control	0.749	1.555		Normal and homogen

Hypothesis test results sheet observation skills of cooperation is of significance (2-tailed) = 0.000 so significance 0.05 then  $H_0 < \text{declined}$ . This means that there is a significant influence on the use of cooperative learning model type NHT and POLLING STATIONS against cooperation skills learners. Proven  $H_a$  due to model almost the whole group exercise the NHT cooperation well because each learner has a sense of responsibility on themselves, whereas on the model TPS only some learners are working together, while the other learners chatting itself because it feels have understood the material so that it is not motivated to share. In addition, on the model of NHT educators ask questions through the process of calling a random number giving positive impact against activity and the involvement of students in the skills of cooperation, while on the model TPS educators ask questions then learners answer individually then pair make learners lacking a sense of responsibility because they assume other friends can help him when answering questions.

## Conclusion

- There is no significant influence on the use of cooperative learning model type NHT and POLLING STATIONS against the results of the study chemistry learners. It is based on the results of the test T significance value (2-tailed) of 0.874. That is, there is no accepted or  $H_0$  significant effects on the use of cooperative learning model type NHT and POLLING STATIONS against the results of the study chemistry students in Yogyakarta MAN III.
- There is a significant influence on the use of cooperative learning model type NHT and POLLING STATIONS against cooperation skills learners. It is based on the results of the test T significance value (2-tailed) of 0.000. That is, there were rejected or  $H_0$  is a significant

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influence on the use of cooperative learning model type NHT and POLLING STATIONS against the skills of cooperation in Yogyakarta MAN III.

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