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

Luthfiatul Khusna\(^1\), Jamil Suprihatiningrum\(^2\), Supiana\(^3\), Kamisah Osman\(^4\)

\(^1,^2\)Chemistry Education Department, FST UIN Sunan Kalijaga
Jl. Marsda Adi Sucipto Yogyakarta, e-mail: ufhy.ufie@gmail.com.
\(^3^4\)Fakulti Pendidikan Universiti Kebangsaan Malaysia
Bangi, Selangor Malaysia, email: supianamh@gmail.com

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-postest 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 postest 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.

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
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-postest 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

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 postest) and observations. As for the instruments of data collection in this research is a matter of pretest and postest 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 Postest Control and Experiments Classes

<table>
<thead>
<tr>
<th>Description of Statistic</th>
<th>Experiment Class</th>
<th>Control Class</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pretest</td>
<td>Postest</td>
</tr>
<tr>
<td>Lowest value</td>
<td>40 .00</td>
<td>75.00</td>
</tr>
<tr>
<td>Highest value</td>
<td>00.00</td>
<td>30.00</td>
</tr>
<tr>
<td>Average</td>
<td>20.00</td>
<td>48.67</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Class</th>
<th>Skewness</th>
<th>Kurtosis</th>
<th>Signifikansi</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pretest</td>
<td>Postest</td>
<td>Pretest Postest</td>
<td>Pretest Postest</td>
</tr>
<tr>
<td>Experiment</td>
<td>0.184</td>
<td>0.561</td>
<td>0.788 -0.722</td>
<td>0.797 0.099</td>
</tr>
<tr>
<td>Control</td>
<td>0.504</td>
<td>0.353</td>
<td>1.113 -0.356</td>
<td>Normal and Homogen</td>
</tr>
</tbody>
</table>

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.
Cooperation Skills Learners

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

<table>
<thead>
<tr>
<th>Description of Statistic</th>
<th>Experiment Class</th>
<th>Control Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highest Value (%)</td>
<td>99.00</td>
<td>99.00</td>
</tr>
<tr>
<td>Lowest Value (%)</td>
<td>76.00</td>
<td>67.00</td>
</tr>
<tr>
<td>Average (%)</td>
<td>91.93</td>
<td>81.86</td>
</tr>
</tbody>
</table>

Table 4. Homogeneity and Normality Test Observation Sheet Cooperation Skills

<table>
<thead>
<tr>
<th>Class</th>
<th>Skewness</th>
<th>Kurtosis</th>
<th>Signifikansi</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experiment</td>
<td>-1.167</td>
<td>1.781</td>
<td>0.532</td>
<td>Normal and homogen</td>
</tr>
<tr>
<td>Control</td>
<td>0.749</td>
<td>1.555</td>
<td></td>
<td>Normal and homogen</td>
</tr>
</tbody>
</table>

Hypothesis test results sheet observation skills of cooperation is of significance (2-tailed) = 0.000 so significance 0.05 then H_0 < 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

a. 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.

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

References