

**THE EFFECTIVENESS OF COOPERATION AND STUDENT'S SELF CONFIDENCE
THROUGH THE IMPLEMENTATION OF COOPERATIVE LEARNING
MODEL TYPE NUMBER HEAD TOGETHER (NHT)
ON EQUILIBRIUM SHIFTMENT MATTER IN
SMAN 1 SIDOARJO**

Delvi Rizqi Rama Dini, *Utiya Azizah and Rusly Hidayah

Chemistry Department FMIPA Universitas Negeri Surabaya

email: utiyaazizah@unesa.ac.id

Abstract

This study aims to determine the implementation of learning, cooperation and student's self confidence after the implementation of cooperative learning model type NHT on equilibrium shiftment matter. This research type is Pra Experiment (pre experiment design) and research design is One-Group Pretest-Posttest Design. Target of this research is student of class XI MIPA 6 SMAN 1 Sidoarjo. The instrument used are an observation sheet of cooperative learning model type NHT, an observation sheet of cooperation and self confidence questionnaire. This research showed that (1) the average percentage of the implementation cooperative learning model type NHT on introduction was 91.67%, phase 1 was 79.16%, phase 2 was 91.67%, phase 3 which contains stage 1 of NHT was 83.33%, phase 4 which contains stage 2 and stage 3 of NHT was 83.33%, phase 5 which contain stage 4 of NHT was 95% and phase 6 was 79.16%; (2) the average value of cooperation skills on appreciate the opinions of others indicator was 68.89, remain in groups and tasks indicator was 67.99 and active participant's indicator was 69.34; (3) the average value of magnitude dimension was 81.25, strenght dimension was 80.08 and generality dimension was 78.13

keywords: cooperative learning model type NHT, cooperation skills, students self confidence, equilibrium shiftment

INTRODUCTION

Education is a conscious effort in developing the potential of human resources through teaching activities to educate the life of the nation and improve the quality of Indonesian people completely. Improving the quality of education in Indonesia, has been developed with the 2013 curriculum which has the following characteristics: developing a balance between the development of spiritual and social attitudes, curiosity, creativity, cooperation with intellectual and psychomotor abilities [1]. Curriculum 2013 made continuous improvement to improve the quality of education in Indonesia for the people of Indonesia to master a variety of knowledge.

Natural Science (IPA) is the study of the events that occur in nature. One branch of science is chemistry. Characteristics of chemistry is to learn about the structure, properties, changes in matter and the energy that accompanies the change [2]. Most of the concept of chemical matter is abstract, so it is difficult to understand by students. Chemical equilibrium is one of the first-grade XI class 1 chemicals considered difficult for most students [3]. The difficulties are supported by the pre-research results conducted on October 4, 2017 at SMAN 1 Sidoarjo which showed 56.67% of students stated the factor matter that influences the shift of chemical equilibrium is a difficult material. In fact, this sub-

material is important to be understood by students because it becomes a prerequisite material in studying other chemical topics such as acid-base solution, hydrolysis, buffer solution and solubility and solubility product

Difficulties experienced by students in understanding the concept of chemical equilibrium shift can be overcome with appropriate learning strategies and instructional media selected by teachers. Pre-research results show that 83.33% of students want the media in the learning process. Based on the results of research states that teachers have used cooperative learning model with discussion method [4]. This is supported by the results of interviews conducted with chemistry subject teachers at SMAN 1 Sidoarjo stated that cooperative learning has been applied that is the type of jigsaw and the most frequent is the method of discussion. The results of its application has not been optimal because students are still less attention, enthusiastic, active and interact with other students. Meanwhile, in the learning process required skills that make students more active. One such skill is collaborative skill [5].

Collaborative skills are cooperation skills that can be trained in the learning process. Learning by cooperation is always better results than some individuals who learn independently [6]. This is

supported by the results of pre-research at SMAN 1 Sidoarjo which states that as many as 53.33% of students prefer to study in groups. There are three indicators of cooperation skills observed in this research that are respecting the opinions of others, remain in groups and tasks and actively participate [7]. Cooperation can also improve self-confidence in students, because indirectly students will gain strength from their group in the completion of joint tasks [8]. One of the dimensions of attitudes that must be owned by students based on PP no. 54 is self confident.

Every individual already has self-confidence in each of them, but there is no guide to be realized so that it can be useful for the competition of the world [9]. Confidence is the belief in the individual's self-ability to determine and execute the various actions that are owned and required to produce an achievement. One's self-confidence can be viewed on three dimensions. First, the Magnitude associated with the difficulty of individual tasks. Second, Strength relates to individual strengths and beliefs over his abilities. Third, Generality is related to the wide range of individual behavioral areas [10]. Based on the results of pre-research conducted at SMAN 1 Sidorjo, showed that as many as 61.11% of students often feel not confident when answering questions or questions given teachers. Self-confidence in students will have an impact on students' learning mastery [11].

In connection with the above problems, it takes a form of learning that can enable students. one of which is a cooperative learning model with a learning approach that focuses on the use of small groups of students to work together in maximizing learning conditions to achieve learning objectives. One type of cooperative learning model that suits the chemical constituency characteristic is Number Head Together (NHT). The cooperative learning model of NHT type has six phases. The NHT phases include explaining objectives and opening lessons, conveying information, organizing students into study teams (step 1 NHT: numbering), assisting teamwork and learning (step 2: asking questions and step 3: shared thinking), material exams (step 4: giving answers), and rewarding [12].

METHOD

This research is a type of pre-experiment research. Target of this research are 25 students of class XI MIPA 6 SMAN 1 Sidoarjo. This study was conducted in the odd semester of the academic year 2017-2018 for three meetings on 28, 30 November and 1 December 2017. This study design uses one

group pretest posttest design without any comparison class.

This observation uses learning tools that include syllabi, lesson plan, teaching materials (flash player media, student worksheet). While the research instruments used include the observation sheet of NHT type cooperative learning model, cooperation skill observation sheet, and self-confidence questionnaire. This research was conducted at three stages: planning, implementation and final stage. Measuring the implementation of NHT type cooperative learning model can be seen through the observation sheet of the learning model. Assessment of student cooperation each meeting obtained through the observation sheet of student cooperation. While the students' self-confident assessment of each meeting can be seen through self-confident student questionnaire.

Observation sheet of student cooperation skills has score 0-3. Each indicator has a score of 0-3. Scores obtained then used to find the value of student cooperation by the following calculation:

$$\text{Value} = \frac{\text{sum of total score}}{\text{maximum score}} \times 100$$

The now confident students based on Likert scale. Likert scale has a score of 1 to 4 with positive and negative statements that are arranged randomly. Where the score 1: strongly disagree, score 2: disagree, score 3 and score 4: agree and strongly agree. Score 4 to a positive statement when choosing a very negative statement agreed, and when choosing a strongly disagree.

The score obtained is used to find the next value of the confident students through the calculation:

$$\text{Value} = \frac{\text{sum of total score}}{\text{maximum score}} \times 100$$

The final value of the confident students are calculated using the formula:

$$\text{Final value} = \frac{\text{self confidence value}}{3}$$

Furthermore the average value of the student's confidence is obtained by using the formula:

$$\text{Average value} = \frac{\text{sum of student self confidence value}}{\text{sum of student}}$$

The data value of the confident students converted in accordance with the criteria of 81-100

(very good), 61-80 (good), 41-60 (sufficient), 21-40 (less) and 1-20 (very less).

RESULTS AND DISCUSSION

Based on the research that has been done, the data retrieved includes: the implementation of cooperative learning models type NHT, skills of cooperation and confident students. The data on table 1 describes the observation result of implementation cooperative learning models type NHT.

Table 1 Implementation of Cooperative Learning Model Type NHT

Activity	Average (%)	Criteria
Introduction	91.67	Very good
Explain the purpose and open lessons	79.16	Good
Aperseption		
Motivation		
Convey information	91.67	Very good
Organize students into learning teams	83.33	Very good
The first step (<i>Numbering</i>)		
Help the team work and learning	88.33	Very good
The second step (<i>Questioning</i>)		
The third step (<i>Head Together</i>)		
Examination of the material	95	Very good
The fourth step (<i>Answering</i>)		
Giving reward	79.16	Good

Data Table 1 shows the average value of the implementation cooperative learning model type NHT for 3 times with criteria very good. At the time of introduction, the teacher gives the pretest in every meeting with a different material. This preliminary activity obtaining 91.67 average percentage%. In the phase 1 activities performed is describes the purpose and open lessons. In this phase, teachers deliver learning objectives at each meeting. In addition, teachers also give apperception while the motivation to students before receiving the material. Phase 1 get a percentage of the average of 79.16%. On phase 2 activities conducted, namely conveying information. Teachers deliver learning model used during the learning process and explains the rules of the associated model of learning. Next, the teacher also explained the outline of the material studied, namely the factors that affect chemical equilibrium direction shifts through the PPT. The average percentage gain

on phase 2 is 91.67%. In the third phase activities performed is organize students into teams and learn, then enter to the first step of NHT (*Numbering*). The teacher divided the students into 5 small groups with 5 students for each group while simultaneously giving the number 1-5 on each group. Then, teacher divide student's worksheet that made according to the flash player. Activities in phase 3 the average percentage gain of 83.33%. the activities on phase 4 are help the team work and learning, then enter to the second step (questioning) and the third step (head together) of NHT. The teacher provides the questions that apply to entire groups and their direct discussion to seek answers to the questions asked by the teacher. This phase of the average percentage gain 88.33%. At phase 5 activities performed is a test on the material and enter the fourth step NHT (*Answering*). The teacher chooses a random number and apply to all groups. The number appointed by the teacher is entitled to answer the question in turn. This phase earn a percentage on average 95%. The characteristic of cooperative learning is present on the 6th phase, the granting of awards. In this phase, the teacher gives posttest used for determination of the best group. Next the teacher closes a lesson and give awards to the best team. The average percentage gain phase 6 of 79.16%. the implementation results in this study were with other research results find that the cooperative learning model implemented with NHT-type categories very good [13].

Cooperation is the activity that doing together to solve the problem and reach the goals. There are three indicators that observed to know student's cooperation skill. The cooperation indicator are: respect the opinions of others, stay in the group and task, and participate.

Third indicator observed at three times while the students doing discussion with their group. Learning by way cooperation is always better results than self-taught individuals [6]. Figure 1 showed the value of each indicators for three times meeting.

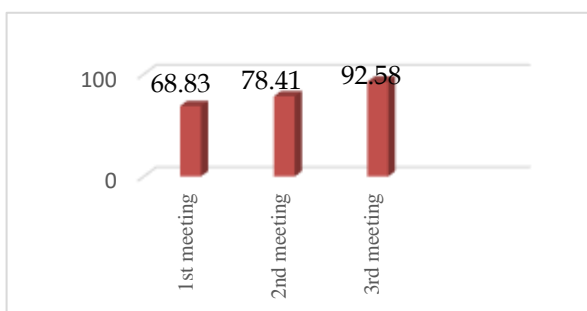


Figure 1 The value of each cooperation indicator for three times meeting

Based on figure 1 also known that the average value of each indicator increased in all

meetings. In the indicator of appreciating the opinions of others, the average score for three consecutive meetings is 53.33, 64 and 89.33. The second indicator is to remain in groups and tasks. The indicator scored an average of 53.33, 65.33 and 85.33 for three consecutive meetings. While the third indicator of active participation, obtained the average value for three consecutive meetings 50.67, 66.67 and 90.67. The average score on each indicator indicates that student cooperation also increased during three meetings. The average value of student co-operation during three classical meetings is presented in figure 2.

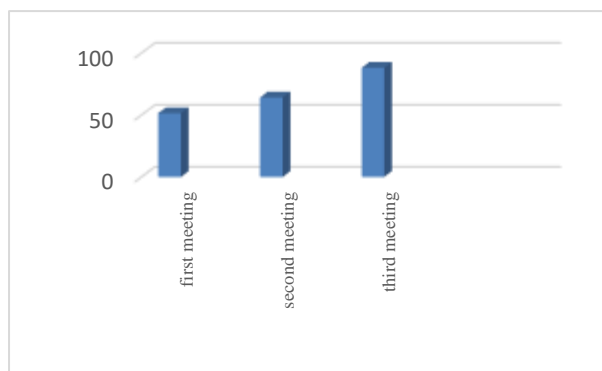


Figure 2 The value of student's cooperation

Based on Figure 2 it can be seen that the value of student cooperation has increased during the three meetings. The average value of student cooperation for three consecutive meetings amounted to 51.48; 64.24; 88.28. In the first meeting of cooperation students can be trained well enough, at the second meeting of student cooperation can be trained properly, while at the third meeting of student cooperation can be trained very well. This shows that students' co-operation skills can be well trained when applied model of NHT type cooperative learning that emphasizes students to be more active during the learning process.

Confidence is a belief that individuals have to determine and implement the actions they have and are required to produce an achievement. One's self-confidence can be viewed on three dimensions [9]. The self-esteem is already owned by the individual, but no one has guided it to be realized in the competition of the world [8].

Someone who has a high confidence will feel confident about the ability they have. While a person with low trust tends to stay away from the lessons and avoid any tasks that are considered difficult [9]. Figure 3 shows students' average self-confidence ratings for three classical meetings.

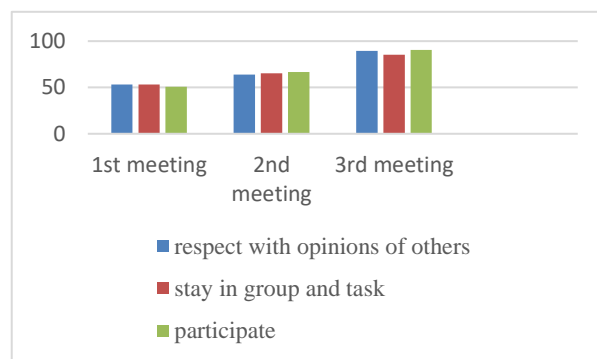


Figure 3 Average student self-confidence of each meeting

Based on Figure 3 shows that the students' average self-esteem has increased at each meeting. At the first meeting the average student confidence score of 68.83 then increased in the second meeting with an average of confidence 78.41 and at third meeting obtained an average value of 92.58. This shows that students' self-confidence can be trained through the implementation of NHT type cooperative learning model. At meeting I and II students confidently trained well. While at the III meeting students self confidence can be trained very well. The results of this study reinforce the results of previous studies which found that there is an increase in self-efficacy behavior in chemistry learning [14]

In addition to the classical, student self-confidence questionnaire given at each meeting are also analyzed based on each dimension of Magnitude (M), Strength (S) and Generality (G). The result of student self-confidence questionnaire analysis is shown in figure 4.

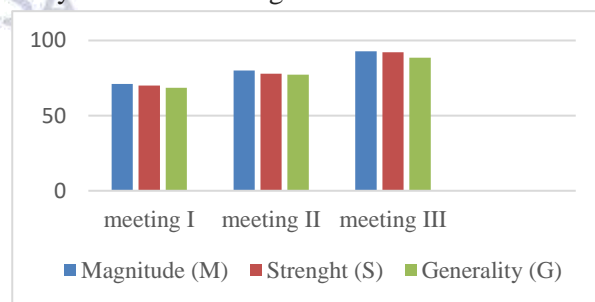


Figure 4 Results of Student Self Confidence Analysis

The grouping of each dimension is confident as Figure 4 aims to find out the students' self-confidence has improved in each meeting. This shows that both classified and perceived dimensions, students' average self-esteem increased during three meetings.

The magnitude dimension has averaged values at I, II and III meetings respectively 71, 80 and 92.75 with good and excellent criteria. The Strength dimension has an average score of 1, 2 and

3, 70 and 92.25 with good and excellent criteria. While Generality dimension has average value at the meeting of I, II and III respectively 68.50, 77.25 and 88.65 with good and very good criteria.

Generality dimension has the lowest average value compared to Magnitude and Strength dimension. So it can be concluded that the students' self-confidence is low in terms of the wide range of areas where the individual feels confident in his abilities. Overall, however, the students' average self-esteem increased during the three meetings.

CLOSURE

Conclusion

Based on the results of the research that has been conducted, shows that the average of the implementation of NHT type cooperative learning model in the introduction is 91.67%, phase 1 is 79.16%, phase 2 is 91.67%, phase 3 which contains the first step of NHT is 83.33% 4 which contains the second and third steps of NHT of 83.33%, phase 5 which contains the fourth step of NHT of 95% and phase 6 of 79.16% with good criteria. The average value of the skills of cooperation on the indicators of respecting the opinions of others as much as 68.89, the indicators remain in the group and the task of 67.99 and on the indicators of active participation of 69.34 with good criteria. While the average value of magnitude dimension is 81.25, the dimension of strength is 80.08 and the generality dimension is 78.13 with good criteria.

Suggestion

Before conducting the research should check the facilities in the classroom to avoid trouble at the time of data retrieval took place

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