RESEARCH ARTICLE

Improving Students' Learning With NHT Model of Teaching In Natural Science Courses

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ABSTRACT

The Numbered Heads Together (NHT) model of learning enables students to grasp the purpose behind the teacher's instruction in order for the students to become motivated to learn from the teacher. The subjects in this study were students from class A, a total of 28 students. Each of the conducted studies involved planning, implementation, observation and reflection stages. Data collection was performed using both observation and tests. According to the results of the initial test (pre-test)-before the action-the grade average was 56.4 with the level of students' learning outcomes as many as 7 students (25%) still scoring very low, but the action-incorporating the Numbered Heads Together (NHT) learning model by the teacher in the first cycle-led to some improvement. Improved learning outcomes obtained following the first cycle, with the class average score being 62.3, indicating that the level of mastery under standard instruction amounted to as many as 13 students (46.4%) still classified as moderate, whereas students' activities or actions based on observations made by peers were relatively low at 60.5%. As the aforementioned increase did not reach the set standard values, efforts needed to be made to improve and develop during the second cycle. Following the second cycle, the post-test revealed further improvement in the average grade value, which increased to 70.4, and the level of students' learning outcomes under standard instruction with as many as 19 students (67.9%) belonging to the good category; the standard instruction underwent changes in learning and students' actions or activities were classified as good, reaching as high as 80.3.

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1. INTRODUCTION

Changes as a result of the learning process can be shown in various forms, such as skills, habits, attitudes, knowledge or appreciation (acceptance or rewards) (Bachtiar et al, 2018; Kaharuddin, 2019; Leasa et al, 2017) .This stage of learning is called optimal learning. Factors that can produce change also have an effect on improving student learning outcomes. Learning outcomes are a tool to measure the extent to which students master the material taught by the teacher (Lince, 2016; Mahanal, 2016; Maman, 2016). Changes in behavior of learning outcomes are behavioral changes that are relevant to learning outcomes are a very important factor in the teaching and learning process. In improving student learning outcomes, the teacher must use a model of learning that explores the potential of their students and ultimately improves learning, to the advantage of the student, the community, and their nation.

Based on initial observation results, it can be said that students' the purpose of teaching learning outcomes are still relatively low. According to the teacher, there are several things that cause low student learning outcomes, namely, the student's lack of activity in the learning process. Another factor is the lack of variation in   the models of teaching used by teachers. Teachers still only apply the lecture method in conveying subject matter, which tends to bore the

students. One way the students' learning outcomes could improve is by applying the Numbered Heads Together (NHT) model of teaching. This model can inspire curiosity and accuracy among students as they go through the learning process (Mahanal, 2016; Fanolong, 2016; Purnomo, 2012).

The Numbered Heads Together (NHT) model of teaching is designed to influence the interactive patterns of students as an alternative to the typical class structure (Maman; 2016; Rahayu, 2018). This model increases the involvement of the student in analyzing the material covered in a lesson and examines students' understanding of the content. Thus the teaching and learning process will be more effective as the students will have a better grasp of the subject matter. Implementing the Numbered Heads Together (NHT) model of teaching in scientific concepts such as heat and sound at the elementary school level is predicted to increase students' interest in science.

2. LITERATURE REVIEW

In everyday life, learning is the process of individuals interacting with their environment and changing their behavior accordingly. Out of all the entire scholastic education process, learning is the most

basic. According to Winkel (in Purwanto 2011: 39) "learning is a mental/psychological activity which takes place in active interactions with the environment that produces changes-changes in knowledge, skills and attitudes". Change is obtained through effort in the learning process and takes place over a relatively long period of time as a result of an observation.

Learning is a complex process that every person goes through in his/her life, beginning from birth until death. This learning process occurs because of the interaction between a person and their surrounding environment. According to Sadiman (2005:2), "learning is a complex process that occurs in everyone and lasts a lifetime, from when he/she is a baby until the grave. One sign that a person has learned is a change in behavior". Changes in behavior are related to both changes in knowledge (cognitive) and changes in skills (psychomotor) as well as those concerning values and attitudes.

Meanwhile, Sabri (2005: 20) says, "learning is a process of behavioral changes due to experiences and training. Therefore, the purpose of learning is to obtain a change in behavior, both involving knowledge, skills, attitudes and even personal aspects ". Someone is said to have learned something if there are certain changes in him/her. For example: from not knowing to knowing, from being unable to read to being able to read.

On the other hand, learning according to Shah (2004: 63) "means activities that have a process and have fundamental elements in every type and level of education. That is, the success or failure of achieving an educational goal is very much dependent on the learning process experienced by the student, including when he/she is in school, the community, or at home".

According to Dimyati and Mudjiono (2009:7), "learning is a complex action and behavior. As an action, learning is only experienced by students themselves, students are the determinant of the presence or absence of learning. The learning process occurs when students obtain something from their environment". Students learn from their environment through nature, objects, animals and plants, humans or other such things.

Teaching goals are the learning outcomes that could be achieved by children through the learning process. This is why Zainul and Nasoetion (in Purwanto 2011: 45) said, "testing learning outcomes is a tool used to measure the success or failure of the teaching and learning process in accordance with the instructional objectives listed in the applicable curriculum". Furthermore, according to Gronlund (1985: 20), "learning outcomes reflect the purpose of teaching". The purpose of teaching is for the students to reach the goal of knowledge, skills, and attitudes expressed in terms of behavior that can be observed and measured.

In addition, changes in students due to the learning process should result in a change in individual behavior. Behavioral change is the outcomes for students in the ongoing learning process. According to Winkel (in Purwanto 2011:45), "learning outcomes are changes that affect the humans attitude and behavior.

Changes in behavior due to teaching and learning activities result in students mastering the material taught to them. Students who have been pushed to master the learning materials will have a change in behavior. According to Soedijarto (in Purwanto, 2011:46), "learning outcomes as a level of mastery achieved by students while in the learning process is in accordance with the educational objectives set".

Changes for the better are the success of learning presented in the form of student learning achievements. Educational achievements obtained by students is an illustration of their learning outcomes in following the teaching and learning process at the level of elementary school that he/she participated in. So behavior change by students is due to the achievement of mastery of the material delivered or taught by the teacher in the teaching and learning process. Success is based on predetermined teaching goals. The results can be observed in cognitive, affective, and psychomotor changes.

To improve the learning outcomes of Science or Science Education students, teachers must pay attention to each component of learning, choose appropriate models of learning, teaching aids, and approaches and learning evaluation that must be done appropriately. To involve student activity and intellectuals optimally in science learning or science, a model of learning is needed that can activate and involve students directly. In this case one of the appropriate models of learning used is the Numbered Heads Together (NHT) model.

According to Istarani (2012: 12) explains, "Numbered Heads Together (NHT) is a series of material taught by using groups as a forum to unite the perceptions or thoughts of students towards questions raised or submitted by the teacher, which will then be accounted for by students according to the request number teacher from each group ". Thus, students will be active in their respective groups, and furthermore, with a model of learning like this the teacher will know how to collaborate with students in solving a problem within a group.

Based on the opinion above, it can be concluded that the Numbered Heads Together (NHT) model of learning is the presentation of learning material by giving questions to students that must be completed in groups, and each student must know and understand the answers to these problems, and be able to account for the answers to the teacher .

In essence, Science Education is built on the basis of scientific products, scientific processes and scientific attitudes. According to Marsetio Donosepoetro (in Trianto 2010:137), "Science is seen as a process, as a product, and as a procedure". As a process, all scientific activities are interpreted through perfect knowledge about nature and to discover product knowledge. As a product it is interpreted as the result of a process, in the form of knowledge taught in school or outside of school or reading material for disseminating or disseminating knowledge. As a procedure intended is a methodology or method used to find out something (research in general) which is commonly called the scientific method (scientific method).

Meanwhile, according to Laksmi Prihantoro, et al (in Trianto 2010:137) said, "that the nature of science is a product, process, and application. As a product, science is a collection of knowledge and a set of concepts and concept charts. As a process, science is a process used to study the object of study, find and develop scientific products, and as an application, the theories of science will produce technology that can make life easier. Aside from being a product, the process and application of science education cannot be separated from the function and purpose of science related to student learning outcomes.

3. RESEARCH METHOD

The implementation of this class study was conducted in Class A, which had a total of 28 students.

The method in this study uses class action research to see the effectiveness of student learning by conducting observations and student learning tests.

4. RESULTS AND DISCUSSION

4.1 Results

The results of the pre-test conducted on those 28 students are as follows :

NO	Name Students	Answer True	Value	Description	
				Completed	Not Completed
1	A1	14	70	Completed	
2	A2	11	55		Not Completed
3	A3	12	60		Not Completed
4	A4	11	55		Not Completed
5	A5	12	60		Not Completed
6	A6	7	35		Not Completed
7	A7	10	50		Not Completed
8	A8	8	40		Not Completed
9	A9	9	45		Not Completed
10	A10	11	55		Not Completed
11	A11	14	70	Completed	
12	A12	14	70	Completed	
13	A13	10	55		Not Completed
14	A14	9	45		Not Completed
15	A15	10	55		Not Completed
16	A16	14	70	Completed	
17	A17	10	50		Not Completed
18	A18	7	35		Not Completed
19	A19	12	60		Not Completed
20	A20	12	60		Not Completed
21	A21	14	70	Completed	
22	A22	9	45		Not Completed
23	A23	10	50		Not Completed
24	A24	14	70	Completed	
25	A25	17	85	Completed	
26	A26	10	50		Not Completed
27	A27	13	65		Not Completed
28	A28	10	50		Not Completed
Amount of			1580		
Average			56,4		
Completion				7 Student	21 Student
				25%	75%

Based on the table above, it can be seen that the students' ability to master the material is still low, with an average grade of 56,4 of the 28 students there were 7 students (25%) who completed and 21 students (75%) who did not complete. The initial ability of students indicated by the results of the initial test (Pre Test) is till classified as unsuccessful in learning. Thus, it can be stated that the initial ability of students is still low.

CYCLE I

NO.	Name Students	Answer True	Value	Description	
				Completed	Not Completed
1	A1	14	70	Completed	
2	A2	11	55		Not Completed
3	A3	14	70	Completed	
4	A4	11	55		Not Completed
5	A5	13	65		Not Completed
6	A6	9	45		Not Completed
7	A7	14	70	Completed	
8	A8	8	40		Not Completed
9	A9	13	65		Not Completed
10	A10	11	55		Not Completed
11	A11	15	75	Completed	
12	A12	16	80	Completed	
13	A13	14	70	Completed	
14	A14	14	70	Completed	
15	A15	10	55		Not Completed
16	A16	15	75	Completed	
17	A17	12	60		Not Completed
18	A18	10	50		Not Completed
19	A19	14	70	Completed	
20	A20	12	60		Not Completed
21	A21	14	70	Completed	
22	A22	9	45		Not Completed
23	A23	10	50		Not Completed
24	A24	14	70	Completed	
25	A25	17	85	Completed	
26	A26	10	50		Not Completed
27	A27	14	70	Completed	
28	A28	10	50		Not Completed
Amount of		1745	1745		
Average		62.3	62,3		
Completion				13 Students	15 Students
				46.4%	53.6%

As shown on the table above, it is clear the students' ability to master material has increased when compared to the initial test, with a grade average of 62.3. Of the 28 students there were 13 students (46.4%) who completed and 15 students (53.6%) who did not complete. Still, the student's learning ability shown from the results of post-test I (cycle I test) is still classified as "unsuccessful" even though there has been an increase in their learning ability Thus, it can be stated that student ability is still low in heat energy material and sound cycleI.

CYCLE II

NO	Name Students	Answer True	Value	Description	
				Completed	Not Completed
1	A1	14	70	Completed	
2	A2	14	70	Completed	
3	A3	15	75	Completed	
4	A4	15	75	Completed	
5	A5	14	70	Completed	
6	A6	13	65		Not Completed
7	A7	15	75	Completed	
8	A8	13	65		Not Completed
9	A9	14	70	Completed	
10	A10	14	70	Completed	
11	A11	15	75	Completed	
12	A12	16	80	Completed	
13	A13	14	70	Completed	
14	A14	14	70	Completed	
15	A15	14	70	Completed	
16	A16	15	75	Completed	
17	A17	13	65		Not Completed
18	A18	12	60		Not Completed
19	A19	14	70	Completed	
20	A20	13	65		Not Completed
21	A21	15	75	Completed	
22	A22	12	60		Not Completed
23	A23	13	65		Not Completed
24	A24	15	75	Completed	
25	A25	19	95	Completed	
26	A26	13	65		Not Completed
27	A27	14	70	Completed	
28	A28	12	60		Not Completed
Amount of			1970		
Average			70,4		
Completion				19 Students	9 Students
				67,9%	32,1%

5. CONCLUSION

Based on the results of the research obtained at the initial test (pre-test) before the action was applied, the students obtained a grade average of 56.4 with the level of student learning completeness as   many as 7 students (25%) is very low, but after applying the Numbered Heads Together (NHT) model of teaching that the teacher had done in the first cycle an increase in the grade average was obtained. Improved learning outcomes in the first cycle were obtained with the class average score being 62.3 with the level of mastery learning in classical as many as 13 students (46.4%) who were classified as still moderate. However, student activities or activities based on observations made by peers are classified as low at 60.5%. This increase has not yet reached the set standard values; therefore efforts must be made to improve and develop in the second cycle. In the second cycle, from the post II test that has been given, an increase in the average grade value to 70.4 was obtained with the level of student learning success in the classical as many as 19 students (67.9%) belonging to the good category and classically have undergone changes in learning and activities or activities of students classified as good, which is 80.3.

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