



IMPROVING MATHEMATICS OUTCOMES OF FRACTION THROUGH THE NUMBERED HEADS TOGETHER (NHT) LEARNING IN PRIMARY SCHOOL

Muhammad Taufek¹, Shirly Rizky Kusumaningrum², Radeni Sukma Indra Dewi³

¹UPT Satuan Pendidikan SDN Plosokerep 2

^{2,3}Pascasarjana, Pendidikan Dasar, Universitas Negeri Malang, Malang, 65145

Email: muhammadtaufik25.mt@gmail.com¹, shirly.rizki.pasca@um.ac.id²,
radenisukmaindradewi.pasca@um.ac.id³

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Abstract: This study aims to describe the application of the Numbered Heads Together (NHT) model, and to describe the improvement of students' mathematics learning outcomes in the fractional material. The implementation of the Numbered Heads Together (NHT) model uses Classroom Action Research (CAR) which implemented in 2 cycles. After implemented the learning model it is known that the application of the Numbered Heads Together (NHT) model can improve students' mathematics learning outcomes in fractional materials.

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INTRODUCTION

Mathematics is a tool to provide a way of thinking, to organize clear thoughts, precise, and accurate. Hudojo (2005:58) states, mathematics as an abstract object, it is very difficult for elementary school children to digest (SD), by Piaget, they classified in the stage of concrete operations. Elementary school students have thought formally, so in learning mathematics, it expected for teachers highly to connect the teaching and learning process in elementary school with concrete objects

Heruman (2008:77) states that in mathematics elementary learning, it expected to occur of reinvention. Reinvention is finding a way of solving informally in classroom learning. Furthermore, Heruman (2008:78) adds that in learning mathematics must connect between the previous student's learning experience and the concept to be taught. So it expected that the learning occurs is learning to be more meaningful (*meaningful*), students are not only learn to know something (*learning to know about*) but also learn to do (*learning to do*), learning to enliven (*learning to be*), and learn how to be learning (*learning to learn*), and how to socialize with their friends (*learning to live together*).

Learning mathematics in a meaningful way is a way of teaching subject matter that prioritizes comprehending rather than memorization. In learning is meaningful rules, the arguments are not given in finished form, but on the contrary of the rules, the arguments found by students through examples in elementary school inductively, then proven at the

next level deductively.

However, it happened in the field was very different from the expectation. The results of observations implemented in 5 Grade Level at SDN Plosokerep 2 Blitar city is as follows. (1) the learning outcomes of 5 grade students in learning mathematics about fractions are below the minimum completeness criteria (KKM) that have determined, namely 77, from 26 students there are 15 students or 60% of students are incomplete and slow in learning, it shows that students do not understand the material being taught; (2) the low level of activeness and mutual cooperation among students during the learning process, they are only silent and busy during the learning process.

The activities occurred in the field are caused (1) the teacher does not use learning media that is in appropriate with the material being taught, so that students have difficulty to understand the material; (2) the teacher during the learning process uses conventional learning methods, so that the learning process is centered and more dominated by the teacher. So, it causes students to feel passive, bored, and bored in learning, so that the messages contained in the subject matter that have conveyed by the teacher are less acceptable and understood by students.

The problems exist in 5 grade at SDN Plosokerep 2 Blitar City are not in appropriate with the understanding of education. Education is a conscious and planned effort to create a learning atmosphere and learning process so that students develop their potential actively. For developing the potential of students, it is necessary to make improvements in the learning process. "The quality and learning success is influenced strongly by the accuracy in selecting and developing models and learning methods" (Budiyanto, 2004:345).

The applying of learning models have to base on considerations to place students as learning subjects that does not only make students passive when learning in class. However, teachers must place students as human beings who have experiences, desires, and thoughts that can be utilized for learning, both individually and in groups. Therefore, the researcher collaborated with the 5th grade teacher at SDN Plosokerep 2 Blitar City to solve existing problems through the application of the NHT (Numbered Heads Together) model.

The reasons for applying the NHT (Numbered Heads Together) model to 5 grade students at SDN Plosokerep 2 Blitar City are as follows. (1) using the NHT (Numbered Heads Together) model can reduce student learning delays and improve student learning outcomes, because this model provides opportunities to the students involved directly and actively during the learning process, so that students can develop observing skills, ask, reason, try, and communicate well; (2) using the NHT (Numbered Heads Together) model, the low level of activeness and mutual cooperation among students can be improved because this model applies the interacted attitude between students in groups in a way that smart students can teach students who are less intelligent; (3) using the NHT (Numbered Heads Together) model can sharpen the ability of teachers in developing learning media, because this model provides opportunities for teachers to be more creative and innovative in developing media that are appropriate with the material to be delivered, so that students can understand the subject matter easily; (4) using the NHT (Numbered Heads Together) model, the dominance of teachers in the learning process can be reduced because this model provides opportunities for students to think critically and build their own knowledge, so that teachers only act as facilitators and motivators.

The relevant research is Rahmawati, Erma. 2021. Improving Conceptual Understanding of Units of Length and Weight of Objects Through the NHT Model in II

Grade Students of SDN Plosokerep 2 Blitar City. The results of the study stated that the NHT model could improve student learning outcomes about units of length and weight of objects.

Gultom (2004:90) argues that the application of the NHT (Numbered Heads Together) model can activate students in the class and continually prepare them face the competence with learning first and can activate the interaction of friends in the group. So that the learning process will be more lively, meaningful, and fun.

Based on the description above, the researcher implements Classroom Action Research (CAR) entitle "Improving Mathematics Learning Outcomes of Fractional through Numbered Heads Together (NHT) Learning Models in 5 Grade level at SDN Plosokerep 2 Blitar City." This study aims to apply the NHT model and describe the improvement in mathematics learning outcomes for the fifth grade students of SDN Plosokerep 2 Blitar City.

RESEARCH METHOD

The method in this study uses a qualitative descriptive approach by describing events as they occur naturally, through data collection with the researcher's own key instrument. This research uses Classroom Action Research (CAR) in accordance with Arikunto's opinion (2005:24). States that Classroom Action Research (CAR) is action research implemented to aim of improving the quality of learning practices in the classroom.

LEARNING OUTCOMES

Learning outcomes are changes that cause humans to change in their attitudes and behavior. According to Sudjana (2005:10) learning outcomes are comprehensive learning outcomes covering the cognitive, affective, and psychomotor fields. Based on the opinion above, according to the researcher, learning outcomes are results that have achieved by students during the learning process which are stated by score and marked with developments and changes in behavior in students both the cognitive and affective aspects.

MATHEMATICS IN ELEMENTARY SCHOOL

Mathematics is a science obtained by thinking and reasoning. According to Johnson and Rising (in Suherman, 2003: 19) mathematics is a pattern of thinking, organizing patterns, logical proofs, mathematics is a language that uses defined terms carefully, clear and accurate, its representation with symbols and solid, It is more of a symbolic language about ideas than about sounds.

Based on the opinion above, according to researcher mathematics is a science is obtained by way of thinking and reasoning using defined terms that are carefully, clearly, and accurately, their representations with scharacteristics or symbols and have meaning and can be used in problem solving both quantitatively and qualitatively.

FRACTION MATERIAL

Fractional numbers are numbers that consist of two parts of numbers as numerators and numbers as denominators where the two parts of these numbers are separated by a slash symbol (/). Fractional operation numbers in grade 5 elementary school in basic competencies 3.1 Explaining and implementing addition and subtraction of two fractions with different denominators, and 4.1 Solve the problems related to addition and subtraction of two fractions with different denominators, limited to addition, subtraction and combination of addition and subtraction mathematical operations on ordinary fractions.

MODEL NUMBERED HEADS TOGETHER (NHT)

The NHT (Numbered Heads Together) learning model is designed as a variation of group discussion that puts more emphasis on student activities in observing, asking, reasoning, trying, and communicating answers to questions or questions given by the teacher, so that students can build their own knowledge and be involved actively in the learning process. In addition, this model also encourages students to increase the spirit of teamwork in groups. The NHT (Numbered Heads Together) model was first developed by Spencer Kagan (in Ibrahim et al, 2000: 28) to involve more students in studying the material covered in a lesson and checking their understanding the content of the lesson.

RESULT AND DISCUSSION**NHT Application Result Data Analysis**

The observation data result of teacher activities during the learning process using the NHT model in the first cycle of meeting 1 is known to appear in the following table.

Table 4.3. Final test results Cycle I meeting 1

No Aspect	Evaluation		Total score	Average	Level of Completeness	
	LKK	N Ev			T	TT
AVERAGE	70	78	148	74	29	12
PERCENTAGE					70	30

From table 4.3 above, it can be seen that the average final test result for grade 5 students in learning mathematics with fractional numbers material is 74. The number of students who completed cycle 1 meeting 1 reached 29 students (70%) and 12 students who had not completed (30%).

1) Research Results Cycle I Meeting 2

The final test result data using the NHT model in cycle I meeting 2 is known in the table below

Table 4.6. The results of the end of the test cycle 1 meeting 2

No Aspect	Evaluation		Average	Level of Completeness	
	LKK	N Ev		T	TT
AVERAGE	72	76	74	32	9
PERCENTAGE				78	22

From table 4.6 above, it can be known that the average final test result for grade 5 students, in learning mathematics the addition and subtraction of fractions material with different denominators is 74. The numbers of students who have completed as many as 32 students, while 9 other students have not completed. The percentage of students' completeness in cycle 1 meeting 2 reached 76% and those who had not completed were 22%. However, the results achieved by students are still not optimal.

The final test result data using the NHT model in cycle II meeting 2 is known in the table below.

Tabel 4.15. Final test results of Cycle II Meeting 2

Aspect	Evaluation		Total score	Average	Level of Completeness	
	LKK	N Ev			T	TT
AVERAGE	90	94	184	92	41	

PERCENTAGE**100 0**

In table 4.15. above, it can be known that the number of students who completed the second cycle of meeting 2 reached 41 students (100%). The average grade 5 learning outcomes in solving daily problems related to the division of fractions and decimals reached 92. This indicates that there was an improvement in learning outcomes from cycle II meeting 1 to cycle II meeting 2 using the NHT model.

DISCUSSION

The application of the NHT (Numbered Heads Together) model for fractional numbers material in 5 grade students at SDN Plosokerep 2 Blitar City had implemented. The implementation carried out by teachers in implementing learning with the NHT model had improved, it looked at the percentage of success from teacher activities in the first cycle of the first meeting 75% with good criteria, the second meeting 80% with good criteria, an improvement in the second cycle meeting I 95 % with very good criteria, and at the second meeting it reached 100% with very good criteria.

Student learning outcomes in the first cycle showed an improvement, that was the percentage of students' completeness in the first meeting reached 70% and the second meeting was 78%, which meant improving 8%. With the average learning outcomes in the first cycle reached 74. In general, it had not been said to be complete because it had not reached 85% of students who had declared complete learning. Therefore, the results obtained in the first cycle improved in the second cycle.

In the second cycle of meeting 1 there were 37 students who had completed with a percentage of 90%, and those who had not completed were 4 students with a percentage of 10%. The average learning outcomes achieved in the second cycle of meeting 1 was 88. In the second cycle of meeting 2 there were 41 students who had completed with a percentage of 100%. The average learning outcomes achieved in the second cycle of the second meeting was 92.

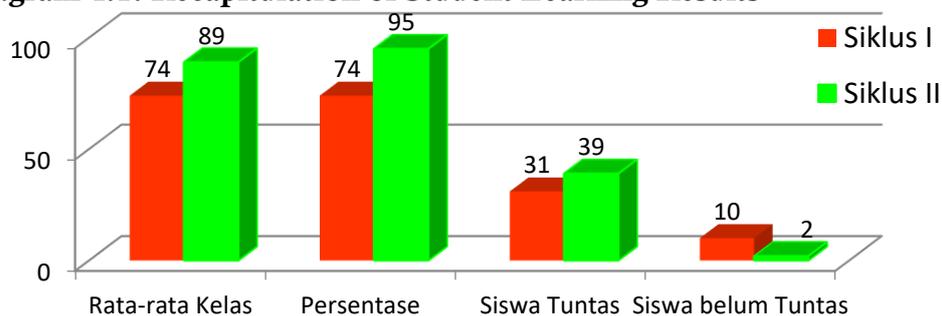
Student learning outcomes in the second cycle showed an improvement, that was the percentage of student completeness in the first meeting reached 90% and the second meeting was 100%, which meant an increase of 10%. With the average learning outcomes in the second cycle reached 90. The improvement in learning outcomes in the first and second cycles based on the results of the study clearly described in the form of a table as follows.

Table 4.19. Recapitulation of Student Learning Results

No	Activity cycle I		cycle II						
	Activity	Average	Percentage	Student completeness		Average	P Percentage	Student completeness	
				T	TT			T	TT
1	Meeting 1	74	70%	29	12	88	90%	37	4
2	Meeting 2	74	78%	32	9	92	100%	41	1
Average Student Learning Outcomes		74	74%	31	10	90	95%	39	2

The table data above, to be seen more clearly the improvement in student learning outcomes obtained, can be illustrated through the diagram below.

Diagram 4.1. Recapitulation of Student Learning Results



These results indicated that the NHT model could use to improve mathematics learning outcomes for fractions material in 5 Grade at SDN Plosokerep 2 Blitar City. In addition, the results of this study corroborated by research from (Rahmawati, 2021:89) which stated that the NHT model could improve student collaboration and active learning which it was finally could improve student learning outcomes.

CONCLUSIONS AND SUGGESTIONS

The application of the Numbered Heads Together (NHT) model can improve mathematics learning outcomes in 5 Grade students at SDN Plosokerep 2 Blitar City. The improvement in students learning outcome had proved by improving in the percentage of completeness achieved by students. The percentage of completeness learning outcomes obtained by students in the first cycle of the first meeting reached 70%, the second meeting reached 78%, the second cycle of the first meeting reached 90%, and the second meeting reached 100%. Thus, the average student learning completeness in the first cycle reached 74%, and the second cycle increased to 90%

Based on the conclusions of learning mathematics through the Numbered Heads Together (NHT) model in 5 Grade students at SDN Plosokerep 2 Blitar City, the results of this study could use as information to conduct further research using models and strategies more complex research according to the characteristics of students and material lesson.

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