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THE INFLUENCE OF THE GROUP DISCUSSION LEARNING MODEL ON STUDENT LEARNING OUTCOMES IN INTEGER MATERIALS

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Abstract:

This research aims to examine whether or not there is an influence obtained from the application of the group discussion learning model on students in order to improve mathematics learning outcomes, as well as produce a clear and detailed picture of whether or not student learning outcomes have improved through the application of the group discussion learning model. This type of research is qualitative research. Data collection techniques through observation, questionnaires, documentation, tests and data triangulation. The instrument in this research is a questionnaire sheet which is given to students to fill out and uses an instrument in the form of a test question sheet. The subjects in this research were 28 grade VI students at SDN Plosowahyu, Lamongan District, Lamongan Regency for the 2022/2023 academic year, consisting of 17 male students and 11 female students. Data analysis was carried out by referring to the Miles and Huberman model of qualitative analysis, namely data reduction, data presentation and drawing conclusions. The results of this research show that there is an influence on student learning outcomes by implementing the group discussion learning model which increases the number of integer material.

Keywords: *Group Discussion Learning Model, Learning Outcomes, Integers.*

INTRODUCTION

Mathematics is the science that underlies technological development which plays an important role in advancing human thinking. To master and create technology in the future requires strong mastery of mathematics from an early age. Mathematics is a lesson that studies numbers or figures, which can provide accurate calculations, therefore students are expected to be able to think systematically and think deductively. Mathematics subjects are given at every level of education from elementary to tertiary education(Juniati, 2017).

Education in elementary schools has a very important contribution to building students' knowledge, especially in learning mathematics, so that it can be used in further education. Therefore, the implementation of learning in elementary schools must run optimally. The mathematics learning process in elementary schools discusses basic mathematical concepts and materials that can help students learn at a further level (Karim, 2011; Mursalin, 2016). However, difficulties are often still found in the learning process, such as teachers in understanding the basic concepts of the material correctly for students. Meanwhile, understanding concepts is very important in mathematics learning to support students' abilities in understanding material and solving mathematical problems (Geary, 2004).

One of the mathematics materials studied by students at elementary school level is whole numbers. An integer is a non-fractional number consisting of positive integers, zeros and negative integers, while in terms of operations, integer operations

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consist of addition operations, subtraction operations, multiplication operations and division operations.

So far, many students still experience difficulties in studying integer material. Usually students experience difficulties when working on story questions. Difficulty in understanding the questions can result in students making mistakes in changing word problems into mathematics problems. The causes of students completing story problems incorrectly include students misunderstanding the concept, not understanding the meaning of the question, and not being careful in calculating. This is in accordance with theory (Untari, 2014) which states that students' difficulties in solving questions are difficulty understanding the meaning of the story questions.

Learning mathematics is an activity that requires high thinking skills to understand it. Therefore, some students consider mathematics lessons to be difficult to understand and boring. In this case, teachers as a learning resource are expected to be able to apply appropriate learning models, so that students do not find it difficult and bored in learning mathematics. One learning model that can be applied is the group discussion learning model (Aunurrahman, 2012).

The group discussion learning model is a process that involves two or more people interacting directly and exchanging information and defending opinions in solving problems(Arikunto et al., 2006; Budiarsa, 2020; I Nyoman Suandi, 2022). The application of the group discussion learning model is expected to make students more active in expressing opinions by exchanging ideas to find solutions to problems regarding the subject matter. This group discussion learning model also aims to improve student learning outcomes.

Learning outcomes are the culmination of student learning success towards the learning objectives that have been set. Student learning outcomes include cognitive (knowledge), affective (attitude) and psychomotor (behavior) aspects(Aunurrahman, 2012). This is in line with research conducted by (Sartika, 2016). This research aims to determine whether there is an effect of applying the SKEMP model learning method accompanied by small group discussions on student learning achievement in the main material of integers in class VII of SMPN 2 Palibelo in the 2014/2015 academic year. The approach used in this research is a quantitative approach using experimental methods.

Based on the description above, researchers are interested in conducting research with the title "The Influence of the Group Discussion Learning Model on Class VI Student Learning Outcomes in Whole Numbers at SDN Plosowahyu". This research is expected to find out the influence of the model applied in learning, namely by using the group discussion learning model, apart from that it is also used to measure whether the group discussion learning model can improve student learning outcomes or not.

RESEARCH METHODS

This research was carried out at SDN Plosowahyu in the 2022/2023 academic year in the odd semester. The method used in this research is descriptive research with a qualitative approach. Descriptive qualitative is a research procedure that produces descriptive data in the form of words presented in sentence form and verbal data where the data is obtained from the subjects being observed. All data obtained through qualitative descriptive research contains quotations from data or

facts revealed in the field which are presented as they are or in accordance with reality, whether the data is in the form of words or spoken or written statements from data sources that have been systematically observed and accurate.

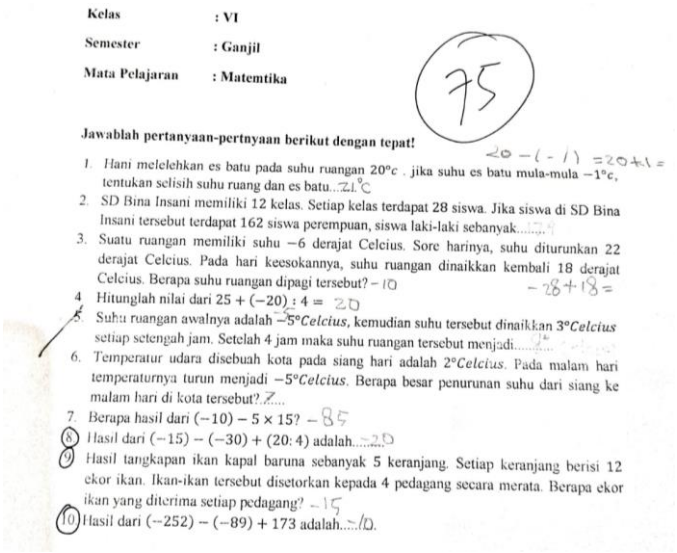
This research was conducted to examine whether or not there was an influence obtained from the application of the group discussion learning model on students in order to improve mathematics learning outcomes, as well as produce a clear and detailed picture of whether or not student learning outcomes improved through the application of the group discussion learning model. The subjects in this research were 28 class VI students at SDN Plosowahyu, Lamongan District, Lamongan Regency for the 2022/2023 academic year, consisting of 17 male students and 11 female students. The object of this research is the group discussion learning model and mathematics learning outcomes.

Data collection techniques in this research were through observation, questionnaires, documentation, tests and data triangulation. The instrument in this research is a questionnaire sheet given to students to fill out with the aim of first observing students' interest in learning mathematics. Apart from that, the researcher used an instrument in the form of a test question sheet in the form of a number of questions or essay questions which were created with the aim of knowing, seeing and measuring students' abilities in understanding and working on mathematics problems, through a discussion model carried out by students in groups. Data analysis was carried out by referring to the Miles and Huberman model of qualitative analysis, namely data reduction, data presentation and drawing conclusions. The data collected was carried out by means of tests (the process of implementing the learning taking place) and non-tests (tests observing the implementation of the learning by providing a group discussion learning model). The test given contains pre-test and post-test questions. The test technique is used to determine improvements in student mathematics learning outcomes through the group discussion learning model.

The pre-test method was carried out to measure students' initial abilities in understanding integer material, where the test given to students consisted of 10 descriptive questions that were done individually and 4 questions that were done in group discussion. Assessment is carried out by giving each number 10 marks for correct answers and 0 marks for wrong answers, as well as 5 marks for students who are inaccurate in determining the positive and negative values of integers on individual questions marked with a circle on the question number. Furthermore, for the assessment of group discussion questions, give 25 marks for each correct answer number and 0 for incorrect answers. Meanwhile, non-test techniques are used by researchers to observe research implementation. Also, a post-test is given at the end to measure and find out students' final abilities in understanding the material and to find out whether the learning outcomes obtained by students in learning mathematics have increased or not in the application of the group discussion model to students. The post-test given consists of 10 description questions. Assessment is carried out by giving a score of 10 to each number that gives the correct answer and a score of 0 for students who answer incorrectly. Validation of research data was carried out by means of data triangulation, namely by using various data obtained through questionnaires, test results and observation results.

RESULTS AND DISCUSSION

This research was carried out in several stages. In the first week, it will be held on August 9 2022. For the first meeting, a test is carried out, namely an individual pre-test on students. This individual test aims to obtain data about the initial knowledge obtained from each student, with the material provided, namely integer material. This test contains 10 essay questions for students to work on. The test results are used as a guide in determining informants and placing students in groups. In the pre-test results, there were several students who got the highest scores.



Kelas : VI
Semester : Ganjil
Mata Pelajaran : Matemtika

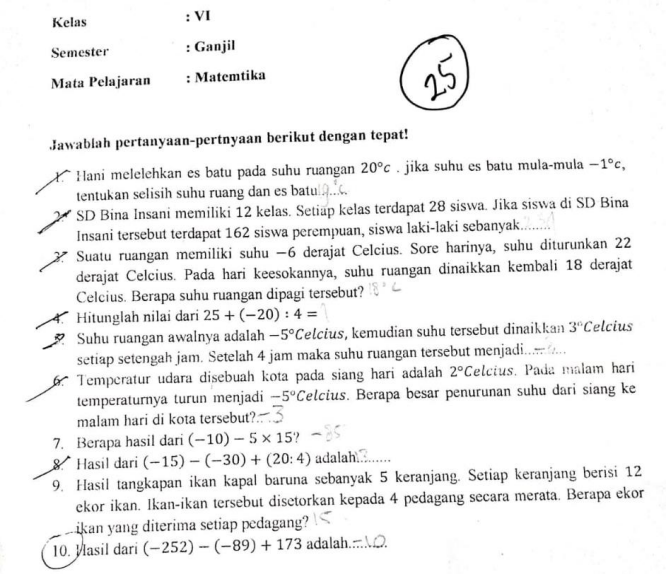
75

Jawablah pertanyaan-pertnyaan berikut dengan tepat!

1. Hani melelehkan es batu pada suhu ruangan 20°c . jika suhu es batu mula-mula −1°c, tentukan selisih suhu ruang dan es batu...21°C
2. SD Bina Insani memiliki 12 kelas. Setiap kelas terdapat 28 siswa. Jika siswa di SD Bina Insani tersebut terdapat 162 siswa perempuan, siswa laki-laki sebanyak.....
3. Suatu ruangan memiliki suhu −6 derajat Celcius. Sore harinya, suhu diturunkan 22 derajat Celcius. Pada hari keesokannya, suhu ruangan dinaikkan kembali 18 derajat Celcius. Berapa suhu ruangan dipagi tersebut? - 10
4. Hitunglah nilai dari 25 + (−20) : 4 = 20
5. Suhu ruangan awalnya adalah −5°*Celcius*, kemudian suhu tersebut dinaikkan 3°*Celcius* setiap setengah jam. Setelah 4 jam maka suhu ruangan tersebut menjadi.....
6. Temperatur udara disebuah kota pada siang hari adalah 2°*Celcius*. Pada malam hari temperaturnya turun menjadi −5°*Celcius*. Berapa besar penurunan suhu dari siang ke malam hari di kota tersebut?.....
7. Berapa hasil dari (−10) − 5 × 15? - 85
8. Hasil dari (−15) − (−30) + (20: 4) adalah.....25
9. Hasil tangkapan ikan kapal baruna sebanyak 5 keranjang. Setiap keranjang berisi 12 ekor ikan. Ikan-ikan tersebut disetorkan kepada 4 pedagang secara merata. Berapa ekor ikan yang diterima setiap pedagang? - 15
10. Hasil dari (−252) − (−89) + 173 adalah.....10.

Figure 1 Highest Pre-test Score on Integer Questions

The test results above show that the majority of students were able to solve the test questions correctly, one of which was a student named Arya. However, there are still some students who are not precise in solving these problems, such as students who are still unable to operate arithmetic operations, including multiplication, addition, subtraction and division. However, most students still find it difficult to calculate division problems, or there are still students who don't understand how to divide numbers and calculating numbers is still slow so that one question can take a long time. Apart from that, students also do not understand the operational rules for calculating positive and negative numbers in multiplication and division, such as negative and negative produce positive, positive and negative produce negative and others which make students confused so that students do the problem wrong.



Kelas : VI
Semester : Ganjil
Mata Pelajaran : Matemtika

25

Jawablah pertanyaan-pertnyaan berikut dengan tepat!

1. Hani melelehkan es batu pada suhu ruangan 20°c . jika suhu es batu mula-mula −1°c, tentukan selisih suhu ruang dan es batu!
2. SD Bina Insani memiliki 12 kelas. Setiap kelas terdapat 28 siswa. Jika siswa di SD Bina Insani tersebut terdapat 162 siswa perempuan, siswa laki-laki sebanyak
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4. Hitunglah nilai dari 25 + (−20) : 4 =
5. Suhu ruangan awalnya adalah −5°*Celcius*, kemudian suhu tersebut dinaikkan 3°*Celcius* setiap setengah jam. Setelah 4 jam maka suhu ruangan tersebut menjadi
6. Temperatur udara disebuah kota pada siang hari adalah 2°*Celcius*. Pada malam hari temperaturnya turun menjadi −5°*Celcius*. Berapa besar penurunan suhu dari siang ke malam hari di kota tersebut?
7. Berapa hasil dari (−10) − 5 × 15?
8. Hasil dari (−15) − (−30) + (20: 4) adalah
9. Hasil tangkapan ikan kapal baruna sebanyak 5 keranjang. Setiap keranjang berisi 12 ekor ikan. Ikan-ikan tersebut disetorkan kepada 4 pedagang secara merata. Berapa ekor ikan yang diterima setiap pedagang?
10. Hasil dari (−252) − (−89) + 173 adalah

Figure 2 Lowest Pre-test Score on Integer Questions

Then at the second meeting on August 10 2022, a re-test was carried out, namely grouping students to be given group discussion assignments, in accordance with research where researchers applied the group discussion model in learning. In this discussion students were divided into 4 groups, each group consisting of 7 students. Each group is given an assignment consisting of 4 descriptive questions in the form of story problems to be done together. During the discussion, it was found that students did not seem to understand the story questions, or did not understand what the questions asked for, so it was difficult for them to do the work, especially as it was also difficult to organize the discussion process because the students were busy in class. However, even so, there are also students who already understand and understand what the question asks for, so that these students can help and explain to their group of friends who don't understand.

Based on the reality in the field when conducting research in the classroom by applying the group discussion model, there are weaknesses that appear during the learning process, namely that it takes longer, this is due to difficulties in managing students who are busy and joking with their friends. However, this can be overcome with guidance and direction in the learning process, so that students can follow the discussion well. Apart from that, there are also advantages to the group discussion model, namely that it can foster a sense of cooperation, responsibility and discipline in students.

Furthermore, at the third meeting, namely August 18 2022, researchers gave questionnaires and post-tests to students. The questionnaire given consists of 15 statement items which must be answered honestly and truthfully by students with information in them, namely strongly agree (SS), agree (S), disagree (TS), and strongly disagree (STS). The purpose of giving questionnaires to students is apart from observing students' interest in learning mathematics, it is also to find out to what extent the group discussion model applied in learning can be achieved or whether or not it has an influence on mathematics learning.

After filling in the questionnaire, students are given a post-test which is intended to measure students' final abilities after studying the material that has been

taught, namely integer material. Apart from that, to find out the learning outcomes obtained by students, where the results have improved well, student grades tend to increase and are good. Students also understand the material on integers which discusses integer calculation operations, and the time given to work on questions is faster.

Table 1. Pre-test and Post-test scores for Class VI SDN Plosowahyu

No.	Sample	Pre-test Score	Post-test Score	Progress Points
1.	A	45	80	35
2.	B	50	80	30
3.	C	50	60	10
4.	D	70	80	10
5.	E	30	60	30
6.	F	50	70	20
7.	G	55	90	35
8.	H	60	80	20
9.	I	60	100	40
10.	J	50	100	50
11.	K	50	60	10
12.	L	40	100	60
13.	M	60	100	40
14.	N	40	90	50
15.	O	50	80	30
16.	P	50	60	10
17.	Q	50	70	20
18.	R	75	100	25
19.	S	60	90	30
20.	T	50	60	10
21.	U	40	90	50
22.	V	25	50	25
23.	W	65	80	15
24.	X	45	90	45
25.	Y	60	70	10
26.	Z	40	60	20
27.	AA	45	60	15
28.	AB	40	60	20

Based on the Pre-Test and Post-Test data, it can be concluded that student learning outcomes have increased in whole number material. Due to the average increase in the Pre-Test data, it was 49.46 with a percentage of 36.82%. Meanwhile, the average increase in the Post-Test data above is 77.50 with a percentage of 97.69%.Based on the data from the student group discussions above, it can be concluded that the highest score was achieved by group 4 with a score of 100.

From the results of the questionnaire that was filled out by students, it showed that some students had prepared mathematics books when the teacher entered the class. This means that students are ready to learn mathematics. Apart from that, some students have participated/actively participated in the discussion. Students want to ask the teacher when students experience difficulties. If the teacher asks a question, some of the students are able to respond to the question and the students have taken the initiative to summarize the material that has been explained by the teacher. However, according to students the material taught in mathematics is less

interesting. So some students consider mathematics lessons to be difficult to understand and boring. Students will not learn mathematics, unless instructed by teachers and parents.

In this case, the role of parents in teaching their children basic knowledge of mathematics is very important. This is the basis or introduction for children before children start learning at school. Because we often encounter in the world of learning, a teacher teaches science with monotonous concepts.

CONCLUSION

The group discussion learning model is a process in which two or more people communicate directly while exchanging knowledge and defending their viewpoints in order to solve problems.Where in this research this learning model was used to improve the learning outcomes of class VI students at SDN PLosowahyu Lamonganon integer material.Based on the results of research on the influence of the group discussion learning model on the learning outcomes of class VI students on integer material at SDN Plosowahyu Lamongan, it can be concluded that: 1) There is an influence on students' mathematics learning outcomes by implementing the group discussion learning model. 2) Increasing student learning outcomes by applying the group discussion learning model, especially on whole number material, which is measured based on research instruments such as using questionnaires and test question sheets.

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