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The Effect of The Quiz Team Method On Student Learning Outcomes In Mathematics Lessons

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ABSTRACT

This study aims to increase students' learning activities and achievement by applying the Quiz Team learning method in learning mathematics with fractions. This research is a Classroom Action Research consisting of planning, implementation, observation, and interviews. The research subjects were students of class V Elementary School Citamiang 1 Sukabumi City, totaling 25 students. Sources of data come from teachers and students. The technique of collecting data is by testing (pre-test, group questions and post-test). Data analysis used quantitative technique using normality test and t test. The results showed that using the Quiz Team Learning method could improve student learning outcomes. Then, the quiz team method can improve students' understanding of mathematics and raise students' enthusiasm for learning so that class conditions become active.

INTRODUCTION

Learning is all psychic activities carried out by each individual so that his behavior is different between before and after learning. Changes in behavior or responses, due to new experiences, having intelligence / knowledge after learning, and practicing activities. (Djamaluddin, 2019). Another opinion says that learning is a process carried out by someone with the hope that there is a new change in behavior as a whole, as a result of his own experience in

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interaction with his environment. (Slameto, 2015)

Learning outcomes are changes in individual behavior which include the cognitive, affective, and psychomotor domains. This change in behavior is obtained after students complete their learning program through interaction with various learning sources and learning environments (Rusmono, 2017). From some of the opinions above, it can be concluded that learning is a form of effort to add new knowledge with a diligent practice process and can be obtained from an experience to be used as evaluation material in order to become better.

When the learning process is considered complete, then we will get the results that have been obtained during the learning process.

Learning outcomes are real changes in student behavior after the teaching and learning process is carried out in accordance with learning objectives (Jihad and Haris, 2010). It can be concluded, with the learning outcomes, we can see the extent to which students already have achievements and can be a reference for learning more actively if learning achievement is lacking and can be maintained if learning achievement is good.

Mathematics is a branch of science that has an important role in the development of science and technology, both as a tool in the application of other fields of science and in the development of mathematics itself (Siagian, 2016). The Ministry of Education has created a learning system in elementary schools using thematic learning, which includes discussing and presenting material in a process of changing student behavior. The presentation of learning materials must be carried out in an integrated manner through linking concepts from one subject to the concepts of other subjects. In this case, an educator needs to try to present lesson materials with varied teaching strategies, so that they can encourage students to find new knowledge. Integrated learning activities can be carried out through classical, group, and individual learning activities. (Sa'ud: 2006).

In fact, sometimes students have difficulty in learning, especially Mathematics, especially in concepts, for example in the subject matter of counting fractions operations such as in equating the denominator of two or more fractions, in adding up fractions, determining equivalent fractions, and in simplifying fractions. According to Wood (Ekawati & Saragih, 2018) also stated that some of the difficulties of students in learning mathematics are: (1) difficulty in distinguishing numbers, symbols, and spatial shapes, (2) inability to remember theorems in mathematics, (3) writing unreadable numbers or in small sizes, (4) students' understanding of mathematical symbols, (5) students' abstract thinking skills are weak, (6) students' abilities are weak in identifying and using algorithms in solving math problems.

According to Bruner, "Learning mathematics is learning about the concepts and mathematical structures contained in the material being studied". Then, Pieget argues that "abstract and difficult mathematical concepts can be taught to students if the teacher can understand the level of cognitive development of students". From the opinion of Bruner and Pieget, in overcoming the difficulties of learning mathematics, an effective method is needed, for example, the Quiz team method. (Silberman, 2013) revealed that the Team Quiz strategy is a team technique to increase student

responsibility for the material being studied in a way that is being studied in a fun and non-threatening way. According to Mardiyanto in Parnayathi (2020) said that the Quiz team is one of the active learning strategies that uses a method where students are trained to study and discuss groups.
The problem that often occurs in learning Mathematics is that students tend to think that Mathematics is a difficult material because there are formulas in it and there are calculations because the methods provided are less interactive. Based on the description and opinions that have been presented, the researcher wants to know how the implementation of quizzes in learning and its effect on learning outcomes. This quiz method has not been studied much in mathematics subject matter. The novelty of our research is to use quizzes in fractions.

METHODOLOGY

This study uses a quantitative method using an experimental research design. Experimental research is research that is intended to determine whether there is a result of treatment on the subject under investigation. (Suharsimi, 2000). The stages in this experimental research method are 1). The preparation stage, namely in the form of design, literature study and making research instruments. 2). Research implementation 3), data processing and analysis. This research was conducted by experimenting in class to measure the value that was used as the basis for the size of the study. The experiment was used using 5 pree test questions, 10 post test questions, 5 mandatory questions, and 3 contested questions using 2 indicators. As well as interviews with 1 elementary school class teacher to obtain information related to the discussion in the study.

1. Population

Population is a generalization area consisting of objects/subjects that have certain qualities and characteristics determined by the researcher to be studied and then draw conclusions (Sugiyono, 1997). The population in this study were students of class V SDN Citamiang 1 located in Citamiang, Kec. Citamiang, Sukabumi City, West Java 43143. All fifth grade students at SDN Citamiang 1 in the even semester were used as a population with a total of 25 students.

2. Sampel

The sample is part of the number and characteristics possessed by the population. If the population is large and it is not possible for the researcher to study everything in the population, due to limited funds, manpower and time, the researcher can use samples taken from a representative population. (Sugiyono, 2015). The sample of this study was fifth grade students with a total sample of 25 students consisting of 10 male students and 15 female students. The sampling technique used to take samples in this research is using purposive sampling technique. According to Arikunto (2006) purposive sampling is a technique of taking samples not based on random, regional or strata, but based on considerations that focus on certain goals.

3. Data collection techniques

Data collection techniques in this study were using tests, interviews, and documentation.

1) Test

The test is given to students which consists of a pre-test and post-test through the quiz team method which consists of 5 mandatory questions and 3 contested questions using 2 indicators. Furthermore, students were given 5 pre-test questions and 10 individual final questions regarding the material for fractional arithmetic operations.

2) Interview

Interviews were conducted on 1 educator/teacher who teaches in elementary schools. Interviews were conducted to find out and complete the data in obtaining the right information.

3) Documentation

Documentation in this study is needed to sharpen the analysis of research related to the team quiz method in learning.

4. Teknik analisis data

The data analysis technique used in this research is quantitative analysis which consists of descriptive data analysis and inferential analysis. According to Sugiyono (2014) descriptive analysis method is a statistic used to analyze data by describing or describing the data that has been collected as it is without intending to make conclusions that apply to the public or generalizations. According to Sugiyono (2014) inferential statistics are statistics used to analyze sample data and the results are generalized (differentiated) for the population where the sample is taken. The data testing technique of this research used normality test and T test (difference test and average). The t-statistical test was conducted to determine the effect of each independent variable on the dependent variable (Ghozali, 2018).

DISCUSSION

A. Result

In accordance with the purpose of this study, that in its implementation it takes data or scores that students get both from the pre test scores, the quiz team method scores and finally the scores from the post test. The pre-test score is a pre-test to determine the extent to which students understand the material before it is taught, while the post-test is given to determine the extent to which students understand the material after it is given by the researcher. The test was given to students who became the research sample. As for processing the data that has been obtained using the normality test and t test.

1. **Normality Test**

According to Ghozali (2016) the normality test is carried out to test whether in a regression model, an independent variable and a dependent variable or both have a normal or abnormal distribution. If a variable is not normally distributed, the statistical test results will decrease. The normality test of the data can be done by using the One Sample Kolmogorov Smirnov test, with the condition that if the significance value is above 5% or 0.05 then the data has a normal distribution. Meanwhile, if the results of the Kolmogorov Smirnov One Sample test produce a significant value below 5% or 0.05 then the data does not have a normal distribution.

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.

pre test	.197	25	.014	.933	25	.104
post test	.147	25	.170	.960	25	.422

Paired Samples Test

Paired Differences								
			95% Confidence Interval of the Difference					
Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)	
pretest – postest	-25.32000	11.72860	2.34572	-30.16133	-20.47867	-10.794	24	.000

a. Lilliefors Significance Correction

Pair 1	pretest	22.1200	25	11.17035	2.23407
	postest	47.4400	25	12.41330	2.48266

Hypothesis Testing Normality of data distribution with a confidence level of 0.05 (5%)

H0 : The sample comes from a population that is not normally distributed

H1: The sample comes from a population that is normally distributed

The basis of decision making is:

If the value of sig < alpha then H0 is rejected, and

If the value of sig> alpha then H0 is accepted (Murwani, 2001:20)

From the normality test that has been carried out in SPSS, obtained sig > 0.05, which is 0.422. Then H0 is rejected so that H1 is accepted and the sample comes from a normally distributed population.

2. Average Difference Test (t Test)

Test the average difference between the pre-test and post-test questions using the T-test. The results of the T-test are presented in the following table.

Paired Samples Statistics

	Mean	N	Std. Deviation	Std. Error Mean

Test awal mempunyai nilai rata-rata (mean) 22.1200 dari 25 data. Sebaran data (Std.Deviation) yang diperoleh adalah 11.17035 dengan standar eror 2.23407.

Test akhir mempunyai nilai rata-rata (mean) 47.4400 dari 25 data. Sebaran data (Std.Deviation) yang diperoleh adalah 12.41330 dengan standar eror 2.48266.

Hal ini menunjukkan tes akhir pada data lebih tinggi dari tes awal. Namun rentang sebaran data tes akhir juga menjadi semakin lebar dan dengan standar eror yang semakin tinggi.

The initial test has an average value (mean) of 22,1200 from 25 data. The distribution of data (Std. Deviation) obtained is 11.17035 with a standard error of 2.23407.

The final test has an average value (mean) of 47,4400 from 25 data. The data distribution (Std. Deviation) obtained is 12.41330 with a standard error of 2.48266.

This shows the final test on the data is higher than the initial test. However, the distribution range of the final test data also becomes wider and with higher error standards.

Paired sample t-test is used if the data is normally distributed. According to Widiyanto (2013), the paired sample t-test is one of the testing methods used to assess the effectiveness of the treatment, marked by differences in the average before and after treatment.

The paired sample test table is the main table of the output that shows the results of the tests carried out. This can be seen from the significance value (2-tailed) in the table. The significance value (2-tailed) from the table above is 0.000, meaning that the value is less than 0.05 alpha. So, HO is rejected, which means there is a significant difference between the quiz team method on student learning outcomes.

B. Discussion

1. Implementation of the Quiz Team Method

In creating quality learning and increasing students' understanding, a method or effort is needed by the teacher in delivering learning. This is so that the classroom atmosphere is not only nuanced in lecture material, but there is active student involvement in learning. Related to this, the researchers are interested in trying to provide a method that is given to students in learning. The method given is a team quiz on Mathematics. The implementation of this method is expected to increase students' understanding and reduce difficult views of mathematics.

In this quiz team method, students are trained to be able to interact with their group friends so that they can improve students' social skills and understanding.

The Quiz Team method in learning encourages students to be actively and maximally involved in learning, students better understand the material being studied so that the teacher is only a facilitator so that students can develop their own activities and desires (Wiwit, 2016).

Researchers guide and direct students to participate in groups, it can be observed that students are happy and tend to want to be the best team in the group. In terms of these advantages, there are also disadvantages, including an ineffective atmosphere because many children cannot be regulated and directed by the research team.

As for the implementation, there are steps for giving the quiz team method to students:

1. Students are divided into 5 groups consisting of 1 chairperson and 4 members. There are also male and female members.
2. The research team guided the students to sit in groups neatly and to arrange a good sitting position. The seating rotation is the letter U formation.
3. Each group is given a mandatory question consisting of 5 questions and each question has an indicator consisting of easy, medium and difficult levels. As for the easy indicators, there are 2 questions, at the medium level there are 2 questions and 1 question with difficult indicators.
4. After completing the work, the questions are examined together and the score is determined. For the final round, the 3 groups with the highest scores are drawn.
5. In the final round, each group is given 3 mandatory questions and after that they are given a contest question.

6. The work on the contested questions was read out by the research team and each group leader was invited to answer and first had to raise their hands. If the answer is correct, it is given a score of 100 and if it is wrong, it is reduced by a score of 100.

From the observations in class, students are very enthusiastic and active in participating in learning. This is due to the cooperation between teams in solving the problems given. The quiz team method turned out to be very helpful for student activity in learning. This learning involves small groups that are heterogeneous in accordance with the cooperative type of learning method. This learning method can help in getting students used to doing social skills or social skills in the learning process. Besides that, students are also actively involved in carrying out meaningful learning activities. (Dr. Benny,2017:225).

As for the quiz team method, students actively discuss with their friends. The research team asked students to work on the questions to discuss with their groups.

The learning atmosphere in the classroom is very impressive and creates togetherness between students and each student helps each other with their friends' difficulties in understanding the material.

The situation in the classroom comes alive and attracts students' attention. They tend to want the quiz team for each student to get the highest score. At first, students thought that mathematics seemed difficult, but with the quiz team method, students were very motivated in learning mathematics. The drawbacks of the quiz team method are, among others, that there are still students who do not dare to ask questions related to questions that they have not understood.

2. **Learning Value Result**

From the questions that have been given, including the provision of pre-test and post-test questions.

a. Pre Test

To obtain the data needed in this study, the study used a pre-test technique or initial test to find out how much each student's ability in the mathematics subject matter of fractions.

b. Post Test

Post test or final test is used to determine the differences in the abilities of each student in these subjects after receiving treatment using the cooperative learning model.

In the pre-test questions, students get scores that are less than optimal, but there are some students who can be said to meet the minimum completeness criteria. Then after being given a quiz team question, the student's score increased on the post test questions given. This shows that the quiz team method is appropriate for students.

The researcher conducted interviews with the 5th grade teacher regarding the mathematics learning methods used by the teacher in the classroom. There are quite a few methods of teaching mathematics that are always used by the teacher, but they are not fixated on the method because they see the situation and conditions in the classroom. The method given is more about repeating the previous material so that students can recall the material that has been conveyed, and after doing the apperception, the material is given to students.

Information was obtained, that the 5th grade teacher had never used the quiz team method in learning mathematics. The learning system provided is quite simple, such as giving questions to students so that

there are several scores given to students. According to him, the quiz team method is good and effective if implemented because it can motivate students to think about numbers, compete with each other, and want to get scores. Then, the quiz team method was categorized into skill scores, which initially were less active students became active. According to him, the quiz team method is almost similar to a game which makes students more enthusiastic, likes, loves mathematics more and is useful for students. It is hoped that, after giving the quiz team method in learning mathematics, it will make learning more fun and memorable so that it can create successful learning. The 6 steps towards successful learning according to (Dr. Benny, 2017:222) are;

1. Get to know students or students
2. Setting educational goals
3. Determine the methods, media, and learning strategies
4. Develop media as learning materials
5. Involve students in learning activities
6. Conduct evaluations and revisions.

CONCLUSION

Based on the research that has been done, it can be concluded that the use of the quiz team learning method can effectively improve the mathematics learning outcomes of fractions in 5th grade students of Citamiang 1 Elementary School, Sukabumi City, semester 2 of the 2021/2022 academic year. Referring to the conclusions presented above, the quiz team method has an effect on student attitudes and learning outcomes. Among them, students become more active and foster an attitude of mutual cooperation between teams. In addition, students are able to understand the material well so that students get better results than before. The quiz team method is a method that can be said to be suitable for use in learning, especially mathematics at the elementary school level.

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