The Effectiveness of Collaborative Learning with Gift Envelope Game Media on Statistics Learning Outcomes

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ARTICLE INFO

ABSTRACT

This study aims to know the effectiveness of collaborative learning with gift envelope game media on statistic learning outcomes. Student learning outcomes are measured only on the subject of collection and presentation data. This research is pure experimental research with a posttest only control group design. The population of this study were students of class VII SMP Negeri 12 Jember and the sample was class VII B as the experimental class and class VII D as the control class. The hypothesis testing method used is T-Test (Independent Sample T-test). Based on the results of data analysis, the value of $t_{count} = 5.993 \geq t_{table} = 2.00665$ or ρ-value = 0,000 < 0.025 at the first meeting, while at the second meeting $t_{count} = 5.069 \geq t_{table} =2.00324$ or ρ-value = 0,000 < 0.025. Based on the results of these calculations it can be concluded that H_0 is rejected and H_1 is accepted which means collaborative learning with gift envelope game media is effective for student's learning outcomes

INTRODUCTION

Education is not a stranger to us, because education is one way to shape and hone the character of the students. Following law No. 20 of 2003, education is a conscious and planned effort to create an atmosphere of learning and learning process so that students actively develop their potential to have spiritual strength, self-control, personality, intelligence, noble character, and the skills needed by themselves, the community, the nation and country. Based on the Preamble of the 1945 Constitution, fourth paragraph, one of the goals of the state is to educate the life of the nation and to participate in carrying out world order, where education is the first step towards realizing that goal.

Education is a basic parameter in facilitating learning and knowledge acquisition. Education is strengthened and developed to create a significant difference in the

outcome of learning [1]. Along with the enactment of the 2013 curriculum, the teacher must find ways so that learning can be carried out effectively and efficiently. The conventional learning model commonly applied by teachers is considered to be less interesting and monotonous because students only listen to the teacher's explanation so that it makes the learning atmosphere boring. Also, when mathematics is in the last hours of learning activities at school it can decrease the student's interest in learning.

According to Hobri and Susanto, in the most important learning is not group work but what they do and how they respond in groups, students feel comfortable and pay full attention to the lesson, and also students can learn to interact through media/objects. The ability of social interaction develops first, then the academic ability of each child develops [2]. In line with Hobri's opinion, the first thing that must be developed is the social ability of students. Lots of learning models that emphasize interaction between students that can have a good impact on student's social lives, one of which is a collaborative learning model.

Collaborative learning is one of the main learning strategies and is adopted by the world at large. In the last three to five decades, cooperative learning has indeed been popular in western countries and has been gradually adopted in eastern countries, but collaborative learning has attracted much attention in the last 10 years [3]. In collaborative learning, all students are divided into groups consisting of four to five students with varying degrees of mathematical ability. So students who have high mathematical abilities may collaborate with students who have mathematical abilities underneath. The collaboration occurred in one group to jointly complete the given task. To make learning more interesting and not monotonous, it is necessary to have something that can make learning conditions enjoyable.

Game media is an alternative that can be used so that the classroom atmosphere is more lively and not boring. Also, game media will be easier to involve all students in the learning process. Therefore, the game media is expected to make students more enthusiastic and able to understand mathematics well. With the development of science, the thinking ability possessed by students must develop. Students need exercises that can hone their abilities. Giving higher order thinking questions will help them get accustomed to meeting questions that require higher thinking skills. Thinking means using analytical, creative, practical skills and such intelligence is needed in daily life [4].

Based on the description, a research was proposed with the title "The Effectiveness of Collaborative Learning with Gift Envelope Game Media on Statistics Learning Outcomes".

METHODOLOGY

The type of this research is a true experiment or pure experiment. Experimental research is a research method used to study the interaction of an action or deliberate consultation of a certain condition [5]. The research design used was the posttest only control group design. With this design, how to determine the combination of research on the experimental class and class control with a comparison of the average post-test between the two classes. The experimental class was given a collaborative learning lesson with the gift envelope media while the control class did not use collaborative learning with the gift envelope media. The place of this research is SMP Negeri 12 Jember. The population of this research is grade VII students of SMP Negeri 12 Jember

2018/2019 school year consisting of 6 classes. Sampling was done randomly and obtained class VII B as an experimental class and class VII D as a control class.

Data collection methods used were documentation, test and interview methods. The research instrument used was the lesson plan, learning outcomes questions, questions in the gift envelope game, and interview guidelines. The problem used for this research is collected and data presentation. The validation was carried out by two lecturers of the Mathematics Education Study Program at the University of Jember and one mathematics teacher at the SMP Negeri 12 Jember. Analysis of the data used is the T-test (Independent Sample Test) where this test will compare the average of two samples that are not related to each other and to learn the effectiveness of collaborative learning with gift envelope media. The hypothesis is proposed as follows.

H_0:collaborative learning with gift envelope game media is not effective to learning outcomes

H_1: collaborative learning with gift envelope game media is effective to learning outcomes

With consideration of decision making

✓ If $t_{count} < t_{table}$ or significant value (ρ-value)> 0.025 then H_0 is accepted

If $t_{count} \geq t_{table}$ or significant value (ρ-value) ≤ 0.025 then H_0 is rejected

RESULT AND DISCUSSION

Collaborative learning consists of five stages. The first stage is engagement, at this stage the teacher divides all students into groups consisting of four to five students with high, medium, and low mathematical abilities. The second stage is exploration, at this stage the teacher explains at a glance about the material to be learned. The third stage is transformation, at this stage the gift envelope game starts by giving each group the initial capital and the group developing the capital by purchasing the available question packages. The following steps of the gith envelope game in this study are:

1) prepare the media, namely play money and envelopes containing questions;

2) divide all students into groups with members of each group consisting of three to five students;

3) each group is given Rp20.000,00 as initial capital, then each group must develop the money by buying the package of questions that has been provided;

5) there are two question packages, beginner and advanced, with different prices for each question package;

6) buying questions from the teacher and then done with the group members;

7) after completing work, the questions are returned to the teacher;

8) when returning the questions, the group leader brings answers from the group;

9) leader of the group can buy more questions as desired;

10) said to be the winner if the group has the highest score compared to the other groups with the fastest time;

11) the winning group is asked to explain the results of their work;

12) there is a reward for the winning group in the form of a gift or additional value for each group;

The rules in the gift envelope game in this study are as follows:

1) game time is 20 minutes;

2) there are two problem packages, beginner and advanced. Each package contains three questions;

3) the price of each item in the starter package is Rp10.000,00; advanced test packages are Rp20.000,00;
4) if you can answer the questions correctly, you will get a prize in the form of money twice the price of the item purchased;
5) if it is wrong in answering a question, then it will be calculated as a debt the amount equal to the price of the item purchased;
6) each group member must write the results of their work;

The fourth stage is presentation, at this stage the winning group presents the results of their discussion. The fifth stage is reflection, at this stage the question and answer process is carried out. For groups who explain the results of the discussion are expected to be able to respond to questions from other groups. The study was done two meetings where was given learning outcomes test for each meeting in experimental class and the control class. Data on learning outcomes in the first and second meetings can be seen in Table 1.

Table 1. Learning Outcomes Test Data

Class	Description Statistic	Learning Outcomes Test 1	Learning Outcomes Test 2
Eksperiment	Mean	79,63	68,04
	Standard deviaton	21,264	26,878
	Highest score	100	100
	Lowest score	8	8
Control	Mean	49,43	36,84
	Standard deviaton	15,756	19,858
	Highest score	78	96
	Lowest score	7	16

The results of learning outcomes are then tested for normality and homogeneity. The results of the calculation of normality and homogeneity can be seen in Table 2.

Table 2. Normality and Homogeneity Learning Outcomes Test Data

		Eksperiment	Control	Information
Learning Outcomes Test 1	Asymp. Sig (2-tailed)	0,136	0,893	Normal
	Sig. (Levene's Test For Equality of Variance		0,314	Homogeneous
Learning Outcomes Test 2	Asymp. Sig (2-tailed)	0,268	0,219	Normal
	Sig. (Levene's Test For Equality of Variance		0,067	Homogeneous

Calculation of the normality test using Kolmogorov-Smirnov. The result of first and second meeting learning outcomes shows that the data is normally distributed. This can be seen at the significant value (Asymp. Sig. (2-tailed)) at the first meeting in the experimental class that is 0.136 and the control class that is 0.893, where each value is ≥ 0.05 so that the data is normally distributed. The significant value (Asymp. Sig. (2-tailed)) at the second meeting in the experimental class was 0.268 and in the control class was 0.219 where both values were ≥ 0.05 so that the data were also normally distributed.

The results of homogeneity test calculations using the Levene Test in Table 2 show a significant value of the Levene Test of 0.314 at the first meeting and 0.067 at the second meeting. These values are respectively ≥ 0.05 so that both data are homogeneous. The step after the normality and homogeneity test is the T test to find out the effectiveness of collaborative learning with gift envelope media. The T test is an independent sample test, where this test will compare the average of two samples that are not related to each other. The result can be seen in Table 3.

Table 3. Result of T-Test (Independent Sample)

	Learning outcomes test 1	Learning outcomes test 2
T_{count}	5,993	5,069
T_{table}	2,00665	2,00324
Sig. (*2-tailed*)	0,000	0,000
Information	collaborative learning with gift envelope media is effective to learning outcomes	

The calculation result in Table 3, obtained value of t_{count} (5.993) ≥ t_{table} (2.00665) at the first meeting and at the second meeting the value of t_{count} (5,069) ≥ t_{table} (2.00324). Based on the two values of t_{count} and t_{table}, it can be concluded that H_0 is rejected and H_1 is accepted, which means that collaborative learning with gift envelope game media is effective to learning outcomes. These results are relevant to some previous studies that have been carried out, namely in a journal entitled " Efektivitas Model Pembelajaran Kolaboratif Tipe *Buzz Group* Terhadap Kemampuan Penalaran Matematis Siswa Kelas XI di MAN 1 Takengon" yielding a t_{count} of 2.57, t(0.01) of 2,395 and t(0,05) in the amount of 1,675. t_{count} > t(0.05) then 2.57> 1.675 and t_{count}> t(0.01) then 2.57 > 2.339. So the buzz group learning model is effective against students' mathematical reasoning abilities [6].

Then result of research with title "Pengaruh Model Pembelajaran Kolaboratif dan Motivasi Belajar Terhadap Peningkatan Hasil Belajar Fisika Siswa Kelas X Sma Negeri 1 Purwantoro Wonogiri Jawa Tengah" is a significant difference in effectiveness between students who are taught with collaborative learning models and lecture methods on student learning outcomes. In addition, learning motivation has an influence on learning outcomes in physics. There is also a significant difference in effectiveness between the effect of learning with collaborative learning models and lecture methods on student learning outcomes that are linked to learning motivation [7].

CONCLUSION

Based on the results of this study, it can be concluded that collaborative learning with gift envelope game media is effective to student learning outcomes. It can be seen from the results of the T-test that the value contained in t_{count} is 5.993 and 5.069 which is equivalent to ρ-value 0,000 where the value <0.025 so that H_0 is rejected and H_1 is accepted. Meanwhile, the average test score of learning outcomes in the experimental class $\geq$ average test scores of learning outcomes in the control class. This shows that collaborative learning with envelope prize media is better than conventional learning. Suggestion that can given by researches are (1) Collaborative learning with prize envelope media can be used as an alternative learning in teaching mathematics. (2) Further research can be developed further, with collaborative learning with media envelopes with prizes for students' thinking abilities, activeness, and communication skills. (3) The questions used should follow the needs of students and curriculum demands. (4) The rules for the game if buying advanced questions and answering wrong questions should be Rp10.000,00 so that many are interested in buying.

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