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THE EFFECTIVENESS OF SNOWBALL THROWING COOPERATIVE LEARNING MODEL ON STUDENTS' MATHEMATICS LEARNING OUTCOMES

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Abstract
This study aims to determine the effectiveness of applying the snowball throwing learning model to the mathematics learning outcomes of class XI students at SMK N 3 Bondowoso. The design used is a one-group pretest-posttest design. The sample was obtained for class XI B SMK N 3 Bondowoso through random activities, namely random samples. Collecting data by testing student learning outcomes with five items for each pretest and posttest As for the data test of student learning outcomes using normal distribution, namely Kolmogorov-Smirnov and homogenity, The results showed a significant correlation of 0.000 <0.05, and the paired sample t test data also obtained a sig value of 0.000 < 0.05. That way there is influence or relationship between the pretest and the posttest, so that the snowball throwing model is effective on students' mathematics learning outcomes in class XI B SMK N 3 Bondowoso.
Keywords: Interest in learning, learning achievement, Mathematics.

INTRODUCTION

Considering that education is a form of business in improving and developing all the potential that exists in humans, it really provides quality education in every environment of society. Education forms generations as role models for previous generations of knowledge (BP. Rahman et al., 2022). For the continuity of human civilization in the world, the potential of education to change every aspect of life needs to

be designed for the future of the nation. As a result, almost all nations see the educational factor as very important and important in the context of the development of a country or a country. In line with that, Indonesia values and prioritizes education.

Education in the form of intentional actions made by adults through guidance, teaching and training activities that occur both inside and outside the classroom throughout life to prepare students for future roles in various life environments. Education is very important to ensure the survival of the nation and state because it is one way to improve and develop the quality of human resources. According to (Purwaningsih et al., 2022), education is also referred to as a process (humanism) that humanizes humans.

Education is a planned lifelong learning experience in the form of formal, non-formal and informal education with the aim of optimization. The development and creation of the best learning process by teachers and students is a key factor in determining the success of education. Education is a crucial factor in overcoming the challenges of the globalization era because it is expected to be able to develop skilled, imaginative and innovative human resources. Achievement of student learning outcomes can be used to measure teacher success. If student learning outcomes are good, then the teacher is successful in conveying all the information on the subject matter. Conversely, if student learning outcomes are poor, it means that the teacher has not been successful in the learning process. (Priawasana & Waris, 2019)

Factors and learning processes, especially the role of teachers and students in building and fostering the best possible learning environment, determine the success of education. Education is a crucial factor in overcoming the challenges of the globalization era because it is expected to be able to develop skilled, imaginative and innovative human resources. As reported by (Purwaningsih et al., 2022) Education requires various professional skills in its implementation as well as various interdisciplinary skills in problem solving. The success of student learning outcomes can be used to measure the effectiveness of a teacher. If student learning outcomes are good, it can be said that the teacher has succeeded in the learning process in the classroom. Conversely, if student learning outcomes are poor, it means that the teacher has not been successful in the learning process.

Students and their environment interact during the learning process to produce valuable learning experiences. The main aim of education is to help students achieve satisfactory results, but many students still struggle with learning and end up receiving substandard grades. In general, obstacles to achieving the desired goals are characteristic of learning difficulties. Weak learning process is one of the challenges faced by our nation's education system. Students are less motivated to develop skills during the learning process because teaching in class only focuses on improving students' memorization skills. Students are forced to memorize and store information without being asked to understand it or apply it in everyday life.

Based on observations at SMK Negeri 3 Bondowoso, it can be concluded that class XI B students experience learning difficulties which include an inability to answer questions, a tendency to speak according to the topic when delivering material, and a lack of student response when delivering material. they ask questions. The low learning outcomes of class XI students out of 28 students, only 7 students who met the KKM standard of 75 points, showed that students still lacked understanding of the material they

were studying. In addition, students often forget concepts they have learned before, leaving many of them silent when the teacher asks about it. Such learning needs to be changed so that students can remember information for a long time and are able to do something with the concepts and principles they have learned. This change is anticipated to encourage student-centered learning by providing students with opportunities and resources to actively participate in their own education, allowing concepts taught to be ingrained in long-term memory.

The need for a mature plan is made through activities that are preceded by observing students' abilities so that learning runs smoothly. The selection and application of learning models is something that must be considered. The Snowball throwing model is a learning model of throwing snowballs together in a group setting. This simulation fosters students' creativity and teamwork while honing their communication skills (Yampap & Kaligis, 2022).

According to (Arif & Rijanto, 2017) claims Snowball Throwing invites students to participate more actively in the learning process by providing feedback and/or input from peers and teachers. Between students and teachers, this model can foster good communication.

Snowball Throwing, which according to the origin of the word means 'rolling snowball' can be interpreted as a learning model by using question balls of paper rolled round in the shape of a ball and then thrown in turns among group members. Judging from the approach used in language learning, the Snowball Throwing method combines communicative, integrative, and process skill approaches. This activity of throwing question balls will make the group dynamic, because student activities are not just thinking, writing, asking, or speaking.

However, they also do physical activities, namely rolling up paper and throwing it at other students. In this way, each group member will prepare themselves because in turn they have to answer questions from their friends in the ball of paper. In this regard, it is necessary to conduct research whether the snowball throwing learning method is effective in improving analytical skills

METHOD

This study uses a quantitative method with the type of experiment. A quantitative experimental approach with the Pre-Experiment method was used in this study, and the design was one group pre-test post-test. The population in this study were students of class XI B, totaling 28 students, namely students of class XI SMK N 3 Bondowoso. The test used in this research is pretest-posttest. The pretest was given when the snowball throwing learning activity had not been carried out. After being given the pretest, the researcher conducted a treatment using snowball throwing in class XI B. At the end of the activity the researcher gave a question called a post test. (Arikunto, 2011)

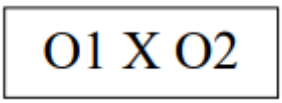

Figure 1. Pre-Experiment One Groups Pretest-Posttest Design

Next, the researcher tested the hypothesis. The analysis was then continued with hypothesis testing using the paired sample t test. When using non-independent (paired)

data to test hypotheses, paired t-tests are used. One person (research object) who receives two different treatments is the characteristic that most often characterizes paired cases (Montolalu & Langi, 2018).

RESEARCH RESULTS AND DISCUSSION

At the beginning of the study, the researcher conducted a pretest to class XI B students to determine the ability of the student's learning outcomes. In the pretest given 5 questions with matrix material, namely matrix multiplication. Students work on the multiplication matrix problems individually. After obtaining the pretest data, the researcher carried out a treatment in the form of implementing snowball throwing. Through imaginative games of making and throwing snowballs, students can explore their potential as group leaders and their skills in asking questions and solving problems. This learning method is known as snowball throwing. This is in line with (Nurhaedah A & Amran, 2017) Students can learn to throw snowballs so that it is easier to receive messages sent in the form of paper snowballs by other students by practicing this skill.

Initially, the teacher divided the class into several groups and discussed the material with the group leader before the snowball throwing phase began. What's more. The group leader explains to his friends what the teacher discussed. After that, the group leader gave worksheets to students to write questions about the material they had just learned. The next step involves rolling the paper into a ball and throwing it from student to student for about five minutes. Students are given the opportunity to take turns answering questions written on ball-shaped paper after receiving one ball. Evaluation is the final step.

Normality test

Tests 1 of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	kelas	Statistic	df	Sig.	Statistic	df	Sig.
Prepos	pretest	.151	28	.100	.948	28	.175
	postest	.118	28	.200*	.964	28	.440

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Based on One sample Kolmogorov Smirnov using SPSS 24, a sign value of 0.100 was obtained for the pretest and 0.200 for the posttest. based on the decision that if the Sig. > 0.05, the data in this study are normally distributed. With a sign value of 0.100 and 0.200 and > 0.05, it can be said that the research data is normally distributed.

Homogentias Test

Table 2. Homogeneity Test

ANOVA

Prepos

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	396.446	1	396.446	4.956	.130
Within Groups	4319.536	54	79.991		
Total	4715.982	55			

In the homogeneity test, the sign value is 0.130 > 0.05. Because this value is more than 0.05, the data is homogeneous. Based on the normal and homogeneous distribution of the data requirements test, both of which were fulfilled, the researcher continued to conduct a paired sample t test. In this test, researchers used SPSS 24 to facilitate analysis. The paired sample t test is used if the two sample groups are interconnected (Animar & Wulandya, 2020).

t test

Table 3. Piaired Correlation Test

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Pre & Pos	28	.843	.000

Tabel 4. Uji Piaired t

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	Pre - Pos	-5.32143	5.05564	.95543	-7.28180	-3.36105	-5.570	27	.000

In the correlation, the sig is 0.000. This is <0.05 which is based on decision making that there is an influence/relationship between pretest and posttest. While in table 4, namely the paired t test seen from sig. if sig is greater than 0.05 then it indicates a significant difference between pretest and posttest. Conversely, if it is less than 0.05, there is no significant difference between the pretest and posttest. Because in table 4 the sig values are 0.000 and <0.05, there is a difference between pretest and posttest and there is a significant effect of a given treatment (snowball throwing). It can be said that the snowball throwing model is effective for students' mathematics learning outcomes in class XI B SMK N 3 Bondowoso.

The Snowball Throwing learning method is a way of presenting lesson material where students are formed in several heterogeneous groups and then the group leader is chosen to get assignments from other teachers, each student who makes questions shaped like a ball (question paper) is then thrown to other students each -Each answer questions from the balls obtained. This method is considered appropriate because in its implementation, the method is a discussion using many references so that learning becomes interesting. In addition, this method also directs students to speak and express opinions not based solely on their knowledge but based on existing data and facts. Meanwhile the lecture

method is a way of teaching that is used to convey information, information or descriptions of a subject or problem orally. The lecture method is one-way in nature, does not involve students so that it makes students passive and ends up boring the learning process

The design of the Snowball Throwing learning model applied in this study has a design that has steps in the learning process. The initial step taken during the learning process is the delivery of the subject matter of competency standards to repair the clutch unit and operating system components. The teacher explains the competency standard materials where

Students must listen and understand what the teacher has explained. After the material has been delivered, the teacher then instructs students to form small groups of 5-6 students. Each group must have a group leader who is elected based on deliberations of group members. The teacher then calls the group leaders from each group that has been formed to provide an explanation of the activities to be carried out. All group leaders returned to their respective groups and explained what the teacher had conveyed to their group members. In this step students are trained to be able to provide information obtained to others clearly. The teacher then gives one sheet of paper to each student and asks each student to make one question

related to the subject matter described in the first step. After students make one question, students are required to form a snowball from the paper on which the question is written. Here students are required to be creative in making a question. The teacher then asks students to throw the snowball to other group members.

This step is characteristic of the Snowball Throwing learning model where there is an activity of throwing snowballs. In about 3 minutes, each student should get a snowball containing the question. Students are then given time to discuss with their group members to answer the questions they get. Within the allotted time the teacher appoints one by one the students to answer the questions on his snowball. At the end of the learning activities the teacher and students jointly conclude the competency material to repair the clutch unit and operating system components.

In learning using the Snowball Throwing learning model, this learning model provides its own motivation to students. This can be seen from the responses obtained through the Snowball Throwing learning model. Cooperation and participation between other students can be seen clearly through the groups that have been formed before, so that they can exchange ideas well among other students, especially with group mates. Through some of these things, in the end students can find out the answers generated from the questions on the snowball with discussions between groups. Thus, the learning carried out will become more meaningful and cause student learning outcomes to increase. The thing that is not good when implementing the Snowball Throwing learning model is that it takes longer than the conventional learning process. However, when viewed from some of the explanations above, it can be stated that the Snowball Throwing learning model provides better results than conventional learning activities in general. This is of course directly proportional to the results of calculating the hypothesis test using the t test on the post test data which also shows that the Snowball Throwing learning model can improve learning outcomes.

CONCLUSION

The snowball throwing model is effective for the mathematics learning outcomes of class XI B students of SMK N 3 Bondowoso based on the results of data analysis from the research that has been done. This is because the sign correlation is 0.000 <0.05 and in the paired sample t test data a sig value of 0.000 <0.05 is also obtained. That way there is influence/relationship between the pretest and posttest, so that the snowball throwing model is effective on students' mathematics learning outcomes in class XI B SMK N 3 Bondowoso.

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