

# The Effect of Snowball Throwing Cooperative Learning Model on Student Learning Outcomes

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DOI: 10.35445/alishlah.v13i3.696

## Article Info

**Keywords:**  
*Snowball Throwing;  
Cooperative Learning  
Model;  
Expository Learning  
Model;  
Primary School;  
Language Learning  
Outcomes*

**Keywords:**  
*Model Pembelajaran;  
Kooperatif Tipe  
Snowball Throwing;  
Model Pembelajaran  
Ekspositori;  
Sekolah Dasar;  
Hasil Belajar Bahasa  
Indonesia*

## Abstract

Snowball Throwing-style cooperative learning has been shown to impact primary school students' academic performance positively. This type of research is quasi-experimental. Documentation and testing methods are used to collect data. Before hypothesis testing using t-tests, the data analysis technique used descriptive analysis and prerequisite analysis tests such as initial ability, normality and homogeneity of variance tests. According to the findings, Indonesian subjects taught using the cooperative learning model of the snowball throwing type had an average score of 19,750, and those taught using the expository learning model had an average score of 17,578. The t-test yielded  $t_{count} = 3.114$  and  $t_{table} = 2.026$  as the final results. This means that Indonesian primary school students learn differently in classes taught using the snowball-throwing cooperative learning model and classes taught using expository learning models, according to the t-test results. Snowball Throwing type cooperative learning is more influential than expository learning on Indonesian for elementary school subject learning outcomes according to the results of t-tests.

## Abstrak

Penelitian ini bertujuan untuk mengetahui pengaruh model pembelajaran kooperatif tipe Snowball Throwing terhadap hasil belajar MI/SD. Jenis penelitian ini adalah eksperimen semu. Teknik pengumpulan data menggunakan teknik dokumentasi dan tes. Teknik analisis data menggunakan analisis deskriptif dan pengujian hipotesis menggunakan uji-t yang didahului dengan uji prasyarat analisis yaitu uji kemampuan awal, uji normalitas distribusi dan uji homogenitas varians. Hasil penelitian menunjukkan bahwa hasil belajar MI/SD bahasa Indonesia yang dibelajarkan dengan model pembelajaran kooperatif tipe snowball throw cenderung sangat tinggi dengan nilai rata-rata 19.750, sedangkan yang diajar dengan model pembelajaran ekspositori cenderung tinggi dengan nilai rata-rata skor 17.578. Hasil uji t diperoleh  $t_{hitung} = 3,114$  dan  $t_{tabel} = 2,026$ . Dari hasil uji-t dapat disimpulkan bahwa  $t_{hitung} > t_{tabel}$ , artinya terdapat perbedaan hasil belajar bahasa Indonesia MI/SD antara kelas yang diajar menggunakan model pembelajaran kooperatif tipe snowball throw dan kelas yang diajar dengan model pembelajaran ekspositori. Berdasarkan hasil uji-t dapat disimpulkan bahwa model pembelajaran kooperatif tipe Snowball Throwing lebih berpengaruh dibandingkan model pembelajaran ekspositori terhadap hasil belajar bahasa Indonesia sekolah dasar.

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## INTRODUCTION

Various reforms in education have been implemented during the pandemic to ensure that learning can continue to be conducted properly, even remotely (online) (Badrudin et al., 2020). Remote (online) learning affects students' learning outcomes (Gustia & Suhartini, 2021). Additionally, Itasari & Hanifah (2020) and Rajab et al. (2020) discovered that distance learning significantly impacted student learning outcomes during the pandemic. Students across Indonesia, including those in the Special Region of Yogyakarta, are experiencing the impact of distance learning on learning outcomes (Ristanto et al., 2020). Numerous universities in Indonesia have chosen distance learning to continue implementing learning to avoid falling behind on educational material. This is done to ensure that learning occurs optimally and effectively (Syahroni et al., 2020).

As a result, learning outcomes will be integrated into the teaching and learning process so that learning outcomes cannot be separated. As a part of the learning process, it's essential to know how well the learning objectives have been accomplished (Olakanmi, 2016). Efforts by educators and students to gather data that can be used to enhance instruction are collectively referred to as learning outcomes (Sekyi, 2016). Learning outcomes are the collection of data to determine whether or not learning objectives have been met (Kippers et al., 2018). Students' progress toward their learning outcomes is documented by collecting evidence from time to time throughout the course (Badia & Chumpitaz-Campos, 2018). In the educational process, learning outcomes are critical (Setiadi, 2016). Additionally, learning outcomes are the mastery of knowledge achieved by students participating in learning programs based on predetermined learning objectives (Nasution, 2017). Learning and achievement have come to an end ( Firdaus, 2020). The term "learning outcomes" refers to the skills students have acquired after completing a course of study at a specific point in time, and it is also used to gauge how well students have grasped course material (Mudanta, Astawan, & Jayanta 2020). To improve the quality of learning, learning outcomes are required (Richmond et al., 2019).

In order to foster greater accountability, interaction, cooperation, and understanding among learners, cooperative learning utilizes small groups (Pahriadi, 2020). Learning materials are presented in a Snowball Throwing-type cooperative learning model. Students are divided into several heterogeneous groups, each receiving an assignment from the educator. Each group is given a set of questions to answer from a website (Nursafitri et al., 2020). Snowball Throwing teaches students to be more receptive to receiving messages from their peers, such as choices or sweepstakes, on particular websites or sweepstakes, and convey these messages to their peers in a group (Gull & Shehzad, 2015). Teaching students to accept the material presented by educators and communicating that material effectively in a team is a goal of the Snowball Throwing type cooperative learning model. Snowball throwing-type cooperative learning models can train students to maximize their ability to understand the material and train students to be active learners, according to research by Ningsih et al. (2020). It is a cooperative learning model that encourages students to work together to achieve common goals. Students with leadership and decision-making skills and those from diverse backgrounds are encouraged to participate in Snowball Throwing-style cooperative learning, which Putri & Chatri (2020) claim is an effective method for increasing student participation in the classroom.

Previous research about cooperative learning, especially snowballs throwing learning, explains that students in groups mutually motivate each other to achieve common goals and responsibilities. Astutik (2020) found that it can increase activity, creativity and improve students' learning outcomes. In addition, the cooperative learning model of the Snowball Throwing type can also improve student learning outcomes (Sutiani et al., 2018 ). This model also invites students to ask questions and express opinions (Wulandari, 2021). Students are active when delivering or receiving messages from educators and peers. Thus learners who were initially passive in given the opportunity to be involved. Activities carried out by students during learning are in the form of exploration

activities for prior knowledge and experiences of students, explaining concepts in their own language, and summarizing the lessons that have been delivered. Thus, each student will carry out activities and get learning outcomes as expected. This research sees the effects of the cooperative learning model Snowball Throwing on learning outcomes for Indonesian subjects for an elementary school during a pandemic by using various media online. Different websites online are used as a medium of learning in distance learning. It can provide motivation and the latest innovations in education to continue carrying out learning during the pandemic and make it easier for educators and students to achieve learning goals.

## METHOD

This is a quantitative study. This study is a type of quasi-experiment in research. This study aimed to determine the effect of a cooperative learning model based on snowball throwing on student learning outcomes in Indonesian for Elementary subjects. The samples for this study consisted of 39 second-semester students from classes 2A and 2B of the PGMI Study Program at a university in Yogyakarta. Random sampling is used as the sampling technique. This assessment is based on student learning outcomes, which provide context for this research.

In order to obtain data on learning outcomes of Indonesian subject for elementary school, the researcher first taught with the main aspects of language skills, in the experimental class using learning model cooperative Snowball Throwing done as much as two times of learning and one post-test, while for grade control using a model of expository done as much as two times the learning and one post-test. Researchers provide post-test to measure the ability of all students after studying the material. The experimental and control class post-test results were then analyzed to determine the trends and differences in learning outcomes of elementary school Basic Indonesian.

The instrument used is using a test. Type test in the form of an objective test with multiple choice type as many as 30 questions using Google forms, which previously each item matter has been in testing the validity of items, and reliability testing instrument. Data collection tools in the form of observations, interviews, documentation, and tests. This study's data analysis techniques using descriptive analysis prerequisite test consist of the initial capability test, a test of normality distribution and homogeneity of variance test, and hypothesis testing. The analysis technique refers to data collection, namely observation, interviews, documentation, and tests.

## FINDINGS AND DISCUSSION

After being analyzed using item analysis, 26 items were declared valid, and four items were invalid. Each item with the correct answer rated one and items with the wrong answer rated 0 so applicable provisions ideal maximum score of  $26 \times 1 = 26$  and a minimum score of ideal =  $26 \times 0 = 0$ . Based on the results obtained and the deviation average standard is as follows.

$$M = 0,5 (26 + 0) = 13.00$$

$$SD = 0.167 (26 - 0) = 4,34$$

Based on these data, the criteria for a normal curve can be arranged according to a five-scale correlation as follows:

**Table 1. Normal Curve Five Scale**

Normal Curve	Criteria
19.51 X 26.00	Very high
15.17 X < 19.51	High
10.83 X < 15.17	Currently
6.49 X < 10.83	Low
0.00 X < 6.49	Very low

**Table 2. Learning Outcomes of Experiment Class and Control Class**

Class	Highest Score	Highest Score	Average	Standard Deviation
Experiment	24	15	19,750	2,074
Control	21	12	17,578	2,268

Calculation results for the experiment class show a maximum score of 24, a minimum score of 15, an average of 19.750, and a standard deviation of 2.074. When compared to the normal curve criteria, cooperative Snowball Throwing should fall within the interval  $19,51 \leq X < 26,00$ , which is classified as very high. Based on these findings, it can be concluded that the likelihood of learning outcomes for students taught using the Snowball Throwing type cooperative learning model is very high. The control class calculation results showed that the control class's highest score was 21, the lowest score was 12, the average was 17,578, and the standard deviation was 2,268. When compared with the normal curve criteria, expository model classes are in intervals of  $15,17 \leq X < 19,51$  included in the high category. Based on these results, it can be concluded that the tendency of learning outcomes of Indonesian subjects for elementary school using the expository learning model is included in the high category.

The analysis prerequisite test used in this study is the distribution normality test and homogeneity test. The normality test aims to determine whether the data from each variable has the characteristics of a normal distribution or not. The normality test results of the data obtained include data on learning outcomes using the Problem Solving learning model and learning outcomes using the expository learning model. Normality test using Chi-Square calculation. The results of the normality test of the two variables can be seen in table 3.

**Table 3. Summary of Normality Test Results**

No	Variable	Dk	count	table (5%)	scatter
1	Snowball Throwing Type Cooperative Learning Model	5	5,714	11,070	Normal
2	Expository Learning Model	5	9.416	11,070	Normal

According to the normality test results, the value of count data resulting from learning is that the majority of students are taught cooperatively. Snowball Throwing is  $5.714 < 11.070$ , and the value of count data resulting from learning indicates that most students are taught using an expository teaching model. Based on these findings, it can be concluded that the count table, indicating that the two variables are normally distributed. The homogeneity test of variance aims to determine the similarity between two states or populations. In this study, the calculation of the homogeneity test of variance was carried out with the F test to determine whether the sample had a homogeneous variant or not. The results of the homogeneity test can be seen in the following table.

**Table 4. Summary of Variant Homogeneity Test Results**

Class	N	Variant	F <sub>count</sub>	F <sub>table</sub>	Information
Experiment	20	4,302	1,196	2,203	Homogeneous

Based on the data in the table above, the learning outcomes of students who were taught using the Problem Solving learning model and the expository learning model obtained F count = 1.196 and F table = 2.203. The criteria for the results obtained with the calculated F value < F table, then the two variants are homogeneous.

Test the hypothesis; the hypothesis is a temporary answer to the problem that has been formulated. Hypothesis testing can be done if the normality and homogeneity of the research data

have been met. In this study, to test the hypothesis using the t-test. When the learning was carried out, the two classes were given a different treatment, namely class 2A as an experimental class taught using the Snowball Throwing type cooperative learning model and class 2B as a control class taught using an expository learning model. After receiving a different treatment, the two classes were given a post-test. From the test results in both classes, then a t-test was performed. The results of hypothesis testing between the two variables can be seen in the following table.

**Table 5 Summary of t-test results (t-test)**

No	Class	N	Average	SD	t <sub>count</sub>	t <sub>table</sub> (5%)	Information
1	Experiment	20	19,750	2,074	3.114	2.026	Significant
2	Control	19	17,578	2,268			

Based on the analysis table above, the value of t count = 3.114 and t table value = 2.026. If tcount 5% > ttable 5% it can be said to be significant, thus the value of t count > t table then ha is accepted and ho is rejected, it can be concluded that there is a significant difference in the learning outcomes between the use of Snowball Throwing type cooperative learning model and expository learning model. By looking at the average results of learning using the learning model cooperative Snowball Throwing 19.750 and 17.578 expository models, there is the influence of the model of cooperative learning Snowball Throwing the learning outcomes. This research was conducted using manual calculations and computer assistance with Excel 2007 software.

The trend of student learning outcomes in class 2A as an experimental class taught using the Snowball Throwing type of cooperative learning model, which 20 students followed, obtained an average score of 19.750 and a standard deviation of 2.074. The average value of 19.750 in the normal curve is in a very high category with intervals of 19,  $51 \leq x \leq 26.00$ . Thus, the learning outcomes of grade 2A as an experimental class taught using the Snowball Throwing type of cooperative learning model have a very high tendency.

When it comes to delivering material aspects of language skills, learning through a cooperative learning model of the Snowball Throwing type is more effective than learning through an expository question and answer model and lectures. A cooperative learning model that emphasizes student collaboration, the Snowball Throwing type of cooperative learning model is also a method of presenting learning materials in which students are divided into several heterogeneous groups, each group is assigned by the educator, and each student creates questions on the website that are then distributed to other students, with each student answering questions from the website. The Snowball Throwing cooperative learning model teaches students to be more receptive to messages from other students in the form of choices or sweepstakes on the website of their choice or sweepstakes and to communicate these messages to their friends in one group.

The trend of student learning outcomes in class 2B as the control class taught using the expository learning model, which 19 students followed, obtained an average score of 17,578 and a standard deviation of 2,268. The average value of 17.578 in the normal curve is in the high category in the interval between 15,  $17 \leq X < 19.51$ . Thus, learning outcomes as a control class taught using the expository learning model is high. This is because using the expository learning model is a learning model that educators commonly use. In the learning process in the classroom, most educators still use the expository learning model, which only lectures, explaining the material contained in the learning book. The expository model can only be used for good listening and listening skills. This model is widely used through difficult lectures to develop students' socialization, interpersonal relationships and critical thinking skills. The success of this learning model is very dependent on the abilities possessed by educators, such as preparation, self-confidence, enthusiasm, enthusiasm, motivation and the ability to communicate and manage the class. Learning communication is more one-way; this causes students to become bored and lazy to pay attention to the material presented by the teacher in class. So that student activity and student motivation to learn is not optimal.

The results of hypothesis testing are obtained by the value of t count = 3.114 and the value of t table = 2.026. Thus, the value of t arithmetic > t table then Ha is accepted, and ho is rejected. It can

be concluded that there is a significant difference in the learning outcomes of the experiment and control group between the use of cooperative learning model type Snowball Throwing and learning model expository. There is a significant difference because learning that uses the Snowball Throwing type of cooperative learning model is a learning model that emphasizes cooperation between students. It's also possible to use a cooperative learning model known as "Snowball Throwing" in which students are divided into several groups. The group leader selects one group to receive an assignment from the teacher, and each member of the group then creates a question that is posted on a website and given to other members of the group to answer. For example, in the Snowball Throwing method of cooperative learning, pupils become more receptive and effective communicators when they receive messages from their peers in the form of choices or sweepstakes on a website of their choice or sweepstakes.

Meanwhile, the expository learning model only focuses on educators who dominate learning in the classroom so that student activity in the classroom is less. In the control class, learning using the expository model does not allow students to optimize their abilities. Students who are active during learning have good achievements in class. Meanwhile, other students are not used to being active and daring to ask and respond to other friends' questions. In addition to this, the post-test results showed that the control class had lower results than the experimental class. This is because teaching in the control class is still dominated by educator lectures and questions and answers, making students less interested in the material being taught. The expository learning model is not appropriate for learning that aims at collaboration between students and group learning.

The results of this study are in accordance with the results of research conducted by Ningsih et al. (2020), who found that there is a difference in the average learning outcomes of the experimental class using the Snowball Throwing type cooperative learning model and the control class using the conventional learning model with the acquisition of an average test score. Martial result jar experimental class is higher than the r average control classes, namely 80, 42 > 71.96 premises n average difference of 8.46. Zaqiyaturrahmah (2018) found that the success of educators in implementing the cooperative learning model Snowball Throwing increased from the first cycle of 79,44 per cent to 90.05 per cent. There was a 15 per cent increase in student activities between cycles I and II, with an average percentage of 59.84 per cent in the first cycle and 76.08 per cent in the second cycle. Students' learning outcomes improved by 3%. Snowball Throwing-style cooperative learning is effective for improving student learning outcomes in terms of cognitive, affective, and psychomotor aspects, according to research conducted by Johari et al. (2020). Martial arts class test results were 6.47 higher than those of control classes with an average value of 83, 48 compared to 77.01. According to research by Princess and Chatri (2019), learning aspects of the student's skills were modelled after learning Snowball Throwing aided activity sheet as the goal learning model for students. Students who are taught problem-solving positively affect aspects of their learning skills-based competency. For the experimental martial jar class, the average of the test results is 0.28 higher than the average of the control classes, with an average difference of 3.30. In order to improve student learning outcomes, educators can use the findings of this study to select a more diverse learning model

## CONCLUSION

According to the research findings, a cooperative learning model like Snowball Throwing can maximize student learning outcomes and help them meet their educational goals. Students can use a learning model to explore other students' leadership potential and skills by making and responding to questions in the mix. This study's findings may help educators choose a more varied teaching model to serve their students' educational needs better. Implementing cooperative learning with digital media can be the best topic discussed for further research.

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