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Implementation of the Snowball Throwing Learning Model with Ice Breaking in Mathematics Subject

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ABSTRACT

This study seeks to increase the interest and learning results in mathematics among grade V students at UPT SD Negeri 5 Gresik during the 2024-2025 academic year. The planning, execution, observation, and reflection phases are all included in this two-cycle classroom action research project. Twenty-seven grade V students from UPT SD Negeri 5 Gresik served as the study's subjects. The study's findings demonstrated a notable improvement in student learning outcomes. The learning completion rate in cycle I was barely 10%, whereas the average student score was 66.66%. The average score rose to 96.30% in cycle II, and 97% of the students completed the course. Furthermore, there was an increase in the development of learning interest. The student learning interest questionnaire's average score in cycle I was 54%, falling into the poor group; in cycle II, it rose to 90.5%, falling into the adequate category. Thus, cycle II has seen the achievement of the success indicator.

Keywords: *Learning Outcomes for Mathematics, Snowball Throwing Learning Model, Ice Breaking.*

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INTRODUCTION

Education is an effort undertaken to prepare students so they can fulfill their roles in the future as quality individuals contributing to development (Tanamir, 2016). Law No. 20 of 2003 on the national education system states that the goal of national education is to improve the intellectual life of the country by fostering the development of skills, character, and a respectable national civilization (Putra et al., 2020). The objective is to maximize pupils' ability to develop into people who are obedient and committed to God Almighty, have high moral standards, are healthy, intelligent, creative, self-sufficient, and mature into responsible and democratic citizens (Dewi & Arya Setya Nugroho, 2023). Therefore, it is anticipated that education will improve people's quality of life (Huriyanti & Rosiyanti, 2017).

The advancement of the country's intellectual life depends heavily on education. To raise the standard of education, all stakeholders must work together productively and with a strong feeling of duty and commitment (Hiyum & Bakhtiar, 2023). A nation may develop into a powerful, autonomous, morally motivated, and competitive entity through education. Furthermore, education is seen to be one of the most important factors in forming and preparing the next generation for the future (Utami, 2018).

When applied to everyday tasks, mathematics plays a crucial role in human existence. Numerous human actions unwittingly involve mathematics because of its need in many facets of life (Yuniar & Pujiastuti, 2020). Indonesian math proficiency is still below international norms and is comparatively low (Dewantara, 2015). The 2018 Programme for International Student Assessment (PISA) findings, which showed a decrease from the 2015 PISA scores, make this clear. The study assesses pupils' proficiency in science, arithmetic, and reading. With an average score of 379, Indonesia came in seventh from the bottom, or 73rd, in the mathematics area. In response to these survey findings, Nadiem Anwar Makarim, Minister of Education and Culture, said that the PISA evaluation offers useful information for assessing and enhancing Indonesia's educational system (Tohir, 2019).

Students' learning outcomes serve as a gauge for the effectiveness of education in schools. (Maharani, 2023) asserts that one element influencing pupils' poor comprehension of mathematical ideas is the instructional strategies teachers use. Poor learning results in mathematics can also be attributed to students' lack of enthusiasm in engaging in math classes (Nugroho, 2013).

Interest, as one of the internal factors, plays a crucial role in supporting students' learning outcomes. Students who are not interested in the subject matter tend to exhibit less enthusiasm, laziness, and a lack of motivation in the teaching-learning process (Yunita et al., 2023). Interest has a significant impact on learning because if the material taught does not align with the students' interests, they will not learn optimally due to the lack of appeal. Conversely, material that captures students' interest is easier to remember and understand, as interest can enhance learning activities (Pratiwi, 2017).

Observations of learning activities in the fifth-grade class at UPT SD Negeri 05 Gresik between September 30 and October 2, 2024, showed that students' interest in mathematics classes is still poor, which causes them to pay

little attention to the teacher's content. This was demonstrated by the significant proportion of pupils who showed little interest in, or ability to focus on, math classes.

Teachers still frequently employ a teacher-centered approach, which might result in a drop in the standard of education in schools, according to study by (Yahya et al., 2022). The focus of teacher-centered learning is on imparting knowledge to pupils, who often take a passive role. According to observations, professors' explanations of ideas and definitions came first in math classes, then examples of how to apply formulas, and last practice problems (Kadek Bagus Rusman, 2022).

Thus, using icebreaker activities, the researcher tried to apply the cooperative learning paradigm of snowball throwing. Polangitan et al., (2022) claim that this cooperative learning style, which blends games and conversation, can encourage students to participate actively and lessen learning ennui. Students must formulate questions for this style of learning and provide answers in front of the class. Students may learn while having fun using the snowball throwing approach, which lessens boredom during instruction (Yahya et al., 2022). In order to provide a more comfortable and pleasurable learning environment and make the lesson content simpler to grasp, students are split up into many groups to debate certain themes while playing the game (Suciati et al., 2024).

It is anticipated that using icebreaker activities would boost students' enthusiasm for studying mathematics. This approach seeks to change the learning environment from one that is passive to one that is active, from one that is inflexible to one that is more dynamic, and from one that is dull to one that is energizing (Handayani & Munastiwi, 2022). According to (Faslia, 2021), ice-breaking exercises are intended to increase students' motivation and interest while also transforming a dry, inflexible, and passive learning environment into a more pleasurable one.

Ice-breaking exercises and the snowball throwing learning paradigm have been used in a number of research. Anwar et al (2018) conducted a study with eighth-grade students at MTs Negeri approach Kota Sorong to see how the snowball throwing approach may enhance learning results and student interest. The findings demonstrated that this methodology improved learning outcomes and student interest. Furthermore, Yahya et al (2022) investigated the effects of icebreakers on eighth-grade students' learning outcomes in mathematics at SMP Negeri 5 Tobadak. According to this study, pupils who engaged in ice-breaking activities had better learning results than those who did not.

Based on the observation results conducted in the classroom during the learning process at UPT SD Negeri 5 Gresik in Class 5B, the researcher became interested in studying the snowball throwing learning model with ice-breaking activities to enhance students' interest in learning.

METHOD

Based on the Kemmis and McTaggart model, this study employs a classroom action research methodology with four steps each cycle: preparation, action, observation, and reflection (Khasanah, 2019). The study, which focused on decimal multiplication in mathematics and involved 27 fifth-grade students, was carried out at UPT SD Negeri 5 Gresik. pupils participated in group activities throughout the

2024/2025 school year, with one group of 6-7 pupils.

This study's data were examined via a combination of qualitative and quantitative methods. Using data supplied as individual words or phrases, which were subsequently categorized, qualitative analysis produced findings. Using the Snowball Throwing learning model, this qualitative data was utilized to explain how pupils learn (Polangitan et al., 2022). On the other hand, quantitative analysis made use of numerical data derived from computations or measurements (Cahya et al., n.d.). Specific criteria were used to categorize the learning activities for the students.

Table 1. Collaborative Assessment Rubric

Indicator	Mark
Interactions among groups	1-5
Participation in groups	1-5
Courage in voicing one's thoughts	1-5
Involvement in completing tasks	1-5
Timely completion of tasks	1-5

Table 2. Collaborative Student Management Criteria

Percentage	Student Activities	Predicate
85%-100%	Very Active	A
75%-84%	Active	B
65%-74%	Quite active	C
<64%	Less Active	D

If at least 80% of the students participating in the learning activities at UPT SD Negeri 5 Gresik complete them successfully and fall into the good category, then this classroom action research will be a success.

RESULTS AND DISCUSSION

Low interest in learning is the issue this study met, and it has an impact on students' mathematical learning results. One of the reasons why students' attention and learning outcomes are low is the lack of flexibility in how the learning models are implemented. The snowball throwing approach in conjunction with ice breaking is one of the teaching strategies that can pique students' interest. It is anticipated that this change in learning approaches would enhance students' engagement and academic performance.

This study was carried out over the course of eight sessions in two cycles. Planning, action implementation, observation, and reflection are the phases of this study. A description of the research findings is provided below. Test questions were used to gauge the learning results of the students. Five-item essay exam questions that matched the learning materials in each cycle were utilized for both Cycle I and Cycle II of this study. The study's findings demonstrated that icebreakers and the snowball throwing approach might enhance students' engagement and academic performance.

Results of Cycle I Activities

Planning

During the planning phase, the researcher created methods for carrying out the Treasure Hunt learning model and devised its implementation. In

addition to soliciting the teacher's assistance in order to watch students and their learning activities during mathematics sessions using the Treasure Hunt model, the planning methods involved managing learning resources, such as creating teaching modules and student worksheets.

Implementation and Observation of Cycle 1

According to Cycle I's implementation and observation findings, a number of problems surfaced, including the fact that some students were learning using the "snowball throwing" model for the first time and were therefore unfamiliar with it. Additionally, because they were not taking the sessions seriously, the kids had not completely mastered the content. Additionally, there was extremely little time given for the learning process, which hindered the lesson's effectiveness. Additionally, only one or two students were actively engaged in the group discussions, demonstrating the continued lack of collaboration between the groups.

At this point, the researcher will also look at the pupils' attitude toward cooperation and unity. It was determined from the observation exercises that the snowball throwing paradigm was not the best way to include learning activities. Due to a lack of communication among group members, students have been unable to finish assignments on time.

Tabel 3. Cycle II Activity Results

Activities for Students	**Regularity of student activities**				**The quantity of frequencies**	**The highest frequency**	***Average frequency %***
Interaction among participants	Q1	Q2	Q3	Q4			
P1	3	3	3	1	10	20	50%
P2	4	3	3	2	12	20	60%
Participation in group							
P1	2	2	3	3	10	20	50%
P2	3	3	3	4	13	20	65%
Courage in voicing one's thoughts							
P1	4	3	2	1	10	20	50%
P2	4	3	3	1	11	20	55%
Involvement in completing tasks							
P1	2	3	3	2	10	20	50%
P2	3	4	3	3	13	20	65%
Timely completion of tasks							
P1	2	1	3	1	7	20	35%
P2	3	3	3	2	11	20	55%
Total					**107**	**200**	**54%**

Details:
P1-P2: First and Second Meetings
(Q1–Q4): Group 1–Group 4

The activities of the pupils who were split up into four groups of six to seven kids are displayed in table 3 of the study's findings. According to the

summary of activities from cycle I, group members were able to communicate 50% of the time, and this number rose by 10% at the second meeting. The group's contribution achievement in the first meeting was 50%, and it rose by 15% at the second meeting. At the first meeting, the percentage of students who were brave enough to voice their concerns was 50%; at the second meeting, that number rose by 5%. The percentage of students who completed their tasks was 50%, and it rose by 15% in the second meeting. The percentage of students who completed assignments on time was only 35%, which was a pretty low achievement. However, in the second meeting, the percentage increased to 20%.

The following outcomes are attained once students have finished all of the cycle I stages in meetings one and two.

Table 2. Cycle I Learning Results

Mark	**Frequency**	
	P1	**P2**
95	1	2
90	3	4
85	5	5
80	5	6
75	4	5
70	4	3
65	4	2
60	1	0

Table 4 demonstrates that in meeting 1, one student had the maximum score of 95 and the lowest score of 60. However, the results improved, with one student receiving the lowest score of 65. The following table shows the cumulative student learning results.

Table 5. Total Cycle I Learning Outcomes

Mark	**Information**	**Frequency**		**%**	
		P1	**P2**	**P1**	**P2**
85-100	Very Active	9	11	33,33%	40,74%
75-84	Active	9	11	33,33%	40,74%
65-74	Quite active	8	5	29,62%	18,52%
<65	Less Active	1	0	3,72%	0%
Total		27	27	100%	100%
Completeness	**Average**				
Complete	**>75**	**18**	**22**	**66,66%**	**81,48%**
Not finished yet	**<74**	**9**	**5**	**33,33%**	**18,51%**

Table 5 shows that the learning results from cycle I, meeting 1 contain the value categories of 1, 8, 9, and 9 students, which range from less to extremely active. At the second meeting of cycle I, there were zero, five, eleven, and eleven pupils in the less to extremely active group. According to the total findings, nine of the 27 students did not finish the first meeting,

and that number dropped to five in the second. It is clear from the aforementioned data that student completion is still below 75%, or that it is incomplete.

Introspection of cycle 1

According to the researcher's examination of the data gathered for the study, students' collaborative activities fell into the "good" category, as evidenced by their eagerness to learn utilizing the Snowball Throwing learning approach. Some pupils, meanwhile, did not participate actively in the learning activities during the first or second meeting. This is because the Snowball Throwing model is used in learning activities that aren't the best since it's hard to coordinate classroom circumstances. Based on the learning outcomes, it can be concluded that the students' learning objectives have not been satisfied as their learning completeness has not reached 75%. Thus, the researcher chose to go to cycle II as a follow-up to the reflection.

Results of Cycle II Activities

Planning cycle 2

Nearly every element failed to fulfill the success indicator requirements, according to Cycle I data. Therefore, by modifying the plan to be followed in Cycle II, the researcher and the instructor worked together to solve the problems that emerged in Cycle I. In this updated plan, the instructor would remind students of the learning model that was employed and let them know what the applied model was supposed to accomplish. Additionally, by sending instructional videos about the material to be studied before the in-person meeting or the day before the meeting, the teacher would help students take their math lessons more seriously, stress the value of having greater confidence when asking and answering questions, enhance group collaboration, and make better use of the online learning group.

Implementation and Observation of Cycle 2

During the second meeting, the researcher concentrated on enhancing the students' attitudes toward teamwork and their timeliness in finishing the tasks or missions that were given to them. The instructor urged pupils to take their studies of mathematics more seriously and stressed the value of having greater self-assurance while posing and responding to questions. Additionally, the instructor asked that students use the online learning group and collaborate better within each group by providing instructional videos on the topic to be studied the day before the meeting or prior to the in-person meeting.

By include students who attended meetings 1 and 2, it was possible to see how student participation rose as a result of the need for cooperation and how they answered questions, made recommendations, or expressed their ideas to their groups in order to answer questions and solve game problems. The following is a presentation of Cycle II outcomes.

Table 6. Cycle II Activity Results

Activities for Students	***Regularity of student activities***				***The quantity of frequencies***	***The highest frequency***	***Average frequency %***
Interaction among participants	Q1	Q2	Q3	Q4			
P1	4	4	5	4	17	20	85%
P2	5	4	5	5	19	20	95%
Participation in group							
P1	4	3	4	5	16	20	80%
P2	4	4	4	5	17	20	85%
Courage in voicing one's thoughts							
P1	5	4	4	5	18	20	90%
P2	5	5	4	5	19	20	95%
Involvement in completing tasks							
P1	5	5	4	4	18	20	90%
P2	5	5	5	4	19	20	95%
Timely completion of tasks							
P1	5	4	5	4	18	20	90%
P2	5	5	5	5	20	20	100%
Total					**181**	**200**	**90,5%**

According to Table 6, student activity scores for each learning achievement increased by around 24% in cycle II compared to cycle I. The researcher recorded test results from responding to questions concerning decimal number connections in the following table after making observations about the tasks that the students completed.

Table 7. Learning Outcomes for Cycle II

Mark	**Frequency**	
	P1	**P2**
100	0	3
95	5	3
90	5	6
85	6	7
80	5	5
75	3	2
70	2	1
65	1	0
60	0	0

According to table 7, the learning outcomes for cycle II indicate that five students received a score of 95 in the first meeting, while one student received the lowest score of 65. However, there was an increase in the second meeting, with three students receiving the highest score of 100 and two students receiving the lowest score of 75. The following table compiles the learning outcomes.

Table 8. Total Cycle II Learning Outcomes

Mark	***Information***	***Frequency***		***%***	
		P1	***P2***	***P1***	***P2***
85-100	*Very Active*	16	19	59,25%	70,37%
75-84	*Active*	8	7	29,63%	25,93%
65-74	*Quite active*	3	1	11,12%	3.70%
<65	*Less Active*	0	0	0%	0%
Total		**27**	**27**	**100%**	**100%**
Completeness	***Average***				
Complete	>75	24	26	88,88%	96,30%
Not finished yet	<74	3	1	11,12%	3,70%

As can be seen from the above table of cumulative score statistics, 96% of students completed meetings 1 and 2.

Reflection in Cycle II

Following the implementation of cycle II, the researcher compared the overall outcomes of cycle I and cycle II, which are detailed in the table that follows.

Table 9. Increased Learning Outcomes and Activities

Problem	***Cycle***				***Ascension***
	I		**II**		
Collaborative Activities	54%		90,5%		36,5%
Learning Results	P1	P2	P1	P2	34,04%
	66,66%	81,48%	85,88%	96,30%	

The rise in activity and outcomes in cycles I and II are displayed in Table 9. Learning outcomes improved by 34.04%, while learning activity increased by 36.5%.

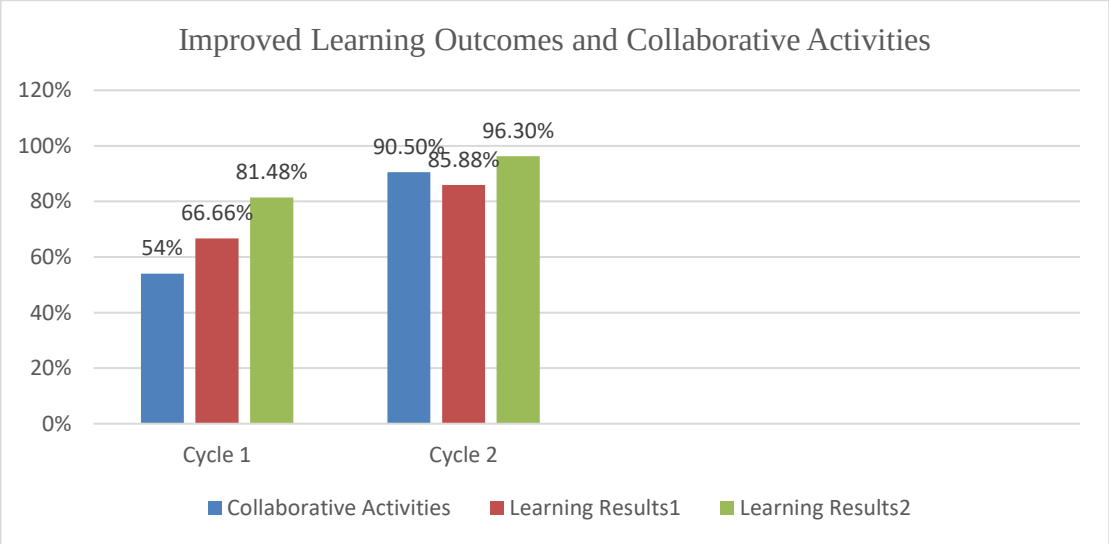

Figure 1: Growth in Learning Outcomes and Collaborative Activities in Cycles I and II

According to the findings in the above graphic, there has been a rise in the application of the Snowball Throwing learning model from cycle I to cycle II. An average of 54% and 90.5%, respectively, were attained in cycle I and cycle II of the Treasure Hunt model's application. The findings of student learning following the implementation of the Snowball Throwing learning model, which showed an average of 66.66% to 81.48% and a rise in cycle II with an average value of 85.88% to 96.30%, also showed an increase in students' motivation in learning.

This is consistent with a research on student interest and learning results utilizing the "snowball throwing" learning technique at MTs Negeri technique Kota Sorong in class VIII H by Zakiyah Anwar et al. (2018). According to the study, using the "snowball throwing" paradigm improved learning results and student interest. Furthermore, class VII students at SMP Negeri 21 Makassar showed increased enthusiasm in learning mathematics following the implementation of "ice breaking" according to research by Fatwal Harsyad (2016). Salmawati (2019) conducted a study that looked at the effects of "ice breaking" techniques on the learning outcomes of mathematics for seventh-grade students at SMP Negeri 1 Mangarabombang, Takalar Regency. The results showed that students who used "ice breaking" had better learning outcomes than those who did not.

CONCLUSION

According to the findings of a study carried out at UPT SD Negeri 5 Gresik, combining the ice-breaking and snowball throwing learning methods can make studying mathematics enjoyable. Students are therefore more motivated and acquire new knowledge when the Snowball Throwing and Ice Breaking learning techniques are combined. Learning mathematics doesn't have to be boring; it can also be made more engaging by adding a game. Students' and the community's perception of mathematics, which is typically seen as dull and limited to traditional learning methods, can be altered by using more enjoyable teaching strategies like snowball throwing. Because the Snowball Throwing learning approach necessitates teamwork to overcome its problems, it has the advantage of being able to boost students' collaborative attitudes. Therefore, it can be concluded that the use of the ice-breaking and snowball-throwing learning methods has been successful in raising students' interest in studying mathematics and their collaborative attitudes.

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