Implementation of the Snowball Throwing Learning Model Assisted by Flashcard Media in the Science Subject for Grade V

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ARTICLE INFO	ABSTRACT
	The existence of human education can develop the potentials that exist in him so that he becomes a human being who has a good personality, intelligence, and morals. This study aims to determine the effect of the application of the Snowball Throwing learning model assisted by flashcard media on the learning outcomes of fifth-grade students in SD Negeri Durian Remuk. This study uses a quantitative approach with a quasi-experimental method in the form of a one-group pretest-posttest design. The subjects in this study were fifth-grade students of SD Negeri Durian Remuk in the 2024/2025 academic year. The results showed that the average pretest score (initial test) was 46.96 with a standard deviation of 11.39, while the average posttest score (final test) increased to 84.35 with a standard deviation of 10.28. The normality test shows that the pretest and posttest data are normally distributed because the calculated χ^2 value is smaller than the χ^2 table, which is 0.7824 < 9.488 for the pretest and 0.7763 < 9.488 for the posttest. Furthermore, the results of the analysis using the Z test at a significance level of $\alpha = 0.05$ show that Zcount = 9.04 > Ztable = 1.64, so that H_0 is rejected and H_a is accepted. Thus, it can be concluded that the application of the Snowball Throwing learning model assisted by flashcard media can significantly improve the science learning outcomes of fifth-grade students of Durian Remuk State Elementary School and achieve learning completeness with a value category of ≥ 65.

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1. INTRODUCTION

Education is a crucial aspect of human resource development. In Indonesia, basic education plays a crucial role in shaping students' character and competency. Syamsu (2017:26) states that education is a deliberate and planned effort to help students reach their full potential, acquiring the intelligence,

skills, personality, spirituality, and religion needed by themselves and society. Through education, humans can develop their potential, becoming individuals with good personalities, intelligence, and morals, as well as skills useful to themselves and society (Egok, 2022:119). Teachers are one of the many aspects influencing education. In this context, teachers play a crucial role and bear significant responsibility for achieving the goals of a quality student education program. Therefore, the future of a nation lies in the hands of teachers.

In addition to imparting knowledge, teachers also play a crucial role in the learning process by providing examples, encouraging students' creativity and potential, and guiding the teaching and learning process. Learning is a system designed to support student learning, consisting of planned events structured in such a way as to influence and support students' internal learning processes.

Learning is a crucial element and a top priority in human life. To gain knowledge, master skills, and build confidence in students, educators are required to provide a variety of learning methods. The curriculum changes implemented by the Ministry of Education, Culture, Research, and Technology (Kemendikbudristek) are an effort to improve the quality of learning in Indonesia.

Science and Natural Sciences (IPAS) is a subject that can be considered new due to its innovation. It represents an actualization of integrated learning from two aspects of scientific understanding that have different fundamentals, but when combined, they can form a cohesive whole. Teachers must be able to implement effective learning in schools so that the core of science and natural science learning can be understood and truly applied by students in their daily lives. IPAS is an abbreviation for Natural and Social Sciences (IPAS). Looking at the acronym, it can be seen that the science and social science subjects are merged into one in the Independent Curriculum. The definition of IPAS is also stated in the KBSKAP Kemdikbudristek Decree No. 033/H/KR/2022 as follows: "Natural and Social Sciences (IPAS) is the science that studies living things and inanimate objects in the universe and their interactions, and examines human life as individuals and as social beings interacting with their environment." (in Afifah et al., 58:2023)

One of the main causes of students' lack of interest and motivation in learning science is monotonous learning methods, which makes the learning process feel uninteresting. Learning media is also needed in the learning process to facilitate the teaching and learning process. According to Munadi (2013:7), learning media is anything that can convey messages from sources in a planned manner as an effort to create an effective and efficient learning process. Therefore, learning media is an intermediary between educators and students in learning that is able to connect, provide information and provide and convey messages so that an effective and efficient learning process is created. In this case, educators must have high creativity in creating interesting learning media so that it fosters students' enthusiasm for learning.

The learning process also requires a learning model to facilitate the teaching and learning process. Trianto (2020:78) states that a learning model is a framework encompassing various learning components that must be systematically and structured, including objectives, materials, methods, and evaluation, with the aim of improving the quality of learning and student learning outcomes. In this regard, educators must be highly creative in implementing engaging learning models to foster student enthusiasm for learning.

Based on the results of observations and interviews conducted on Wednesday, January 15, 2025 with the homeroom teacher of grade V, namely Mrs. Desna Filawati, S.Pd. she explained that student learning outcomes in the subject of social studies tend to be low due to the lack of use of varied learning models and effective learning media. According to her, many teachers still rely on conventional methods that only focus on lectures, so that students are less actively involved in the learning process. In addition, the learning media used are also limited, so they are less able to facilitate various learning styles of students. The teacher emphasized the importance of implementing a more interactive learning model and the use of supporting media to improve students' understanding of social studies material and students found that the teaching and learning process there were 23 students in one class with KKTP (criteria for achieving learning objectives) of 65. This can be proven

that most of the learning outcomes of grade V students who have not completed as many as 69.56% or 16 students and those who have completed as many as 30.44% or 7 students.

To address the problem of low science learning outcomes caused by the suboptimal use of effective learning models and media, one solution that can be implemented is to combine the Snowball Throwing learning model and flashcard media. The Snowball Throwing model is a cooperative learning strategy that encourages students to be active in the learning process by writing questions or material on paper balls, which are then thrown to a friend to answer, thus creating a fun and collaborative learning atmosphere (Trianto, 2020: 87). Meanwhile, flashcards are an interesting and interactive visual learning medium, which functions to help students remember and understand concepts more effectively through repetition and association of images or words (Arsyad, 2021: 119). The combination of this participatory learning model and communicative media is believed to increase student engagement and strengthen their understanding of science material.

According to Sani (2014:78), the Snowball Throwing learning model can increase student engagement, activate students in discussions, and facilitate them in building knowledge more effectively. This model emphasizes cooperative and interactive learning, which motivates students to learn more actively.

According to Sari & Pratiwi (2021:43), flashcards are a highly effective learning medium for improving students' memory through repetition, making the material more easily remembered in the long term. Flashcards can also be used in various learning activities that actively engage students, such as games, quizzes, or group discussions.

This result is in line with previous research conducted by Kurniasar and Rezania (2022) on the Application of the Snowball Throwing Method Assisted by Audio Visual Media in Improving Social Studies Learning Outcomes of Fourth Grade Students. Thus, it can be concluded that the Snowball Throwing learning method assisted by audio visual media can improve the social studies learning outcomes of fourth grade students at SDN Banjarpanji.

Based on the formulation of the problem above, the objective to be achieved is "to determine the completeness of the results of learning science in class V of SD Negeri Durian Remuk after the implementation ofSnowball Throwing Learning Model Assisted by Flashcard Media". This research is expected to contribute to our knowledge and understanding of the use of the Snowball Throwing Learning Model Assisted by Flashcard Media in the context of elementary education. In addition, this research is expected to be a reference and source of inspiration for further research in the field of education.

2. METHODS

MethodThe research method used in this study is the Experimental method. The experimental method used in this study is a quasi-experimental method. This type of research is Experimental Research (Pre-Experimental Designs) with an experimental design in the form of a One Group Pre-test and Post-test design. The experimental designs for the Pre-Test and Post-test are shown in Table 1.

Table 1. Pre-Test and Post-Test Experimental Design

Pre-test	Treatment	Post-test
0_1	X	0_2

Source: Jakni (2016:70)

Information:

0_1 : Pre-test (before being given treatment)

0_2 : Post-test (after being given treatment)

X : Treatment

This research will be conducted at Durian Remuk State Elementary School, located at Jalan Desa DurianRemuk, Muara Beliti District, Muara Beliti Regency, Postal Code 31661. ResearchThis will be implemented in the Odd Semester of 2025. The population in this study were all fifth grade students of Durian Remuk State Elementary School, totaling 23 students consisting of 14 male students and 9 female students. The sampling in this study used a saturated sampling technique. The sample in this study was all fifth grade students totaling 23 people consisting of 9 female students and 14 male students.

The data collection techniques used in this study were testing and documentation. The test consisted of 20 multiple-choice questions for each cycle. In quantitative research, there are two methods of data collection: pre-test and post-test. The pre-test is used to determine the subject's initial condition before receiving treatment, while the post-test is used to determine the condition after receiving treatment using the Snowball Throwing Learning Model Assisted by Flashcards.Data analysis techniques thatused in this study are through the average value and standard deviation, data normality test, and hypothesis test.

3. FINDINGS AND DISCUSSION

In the implementation, the researcher conducted four meetings, namely one initial ability test (Pretest), two learning sessions or treatments using the Snowball Throwing learning model assisted by Flashcard Media, and one final ability test (Posttest) which was conducted the following day after providing the material. The Pretest was used to determine students' initial abilities in the Science lesson. Initial abilities are the abilities that each student has before they participate in the learning provided. These initial abilities describe the students' readiness to receive the learning delivered by the teacher.

The implementation and research began with the provision of a Pretest conducted on Friday, July 18, 2025. Based on the results of the research conducted, the Snowball Throwing learning model Assisted by Flashcard Media can be used as an alternative in the teaching and learning process in the classroom. The implementation of this research was carried out in four meetings, with details of one Pretest at the beginning of the meeting, two times of learning using the Snowball Throwing learning model assisted by flashcard media and one meeting to provide a Posttest which is useful for knowing student learning outcomes after the implementation of the Snowball Throwing learning model assisted by Flashcard media.

Pretestgiven before treatment using the Snowball Throwing learning model assisted by flashcard media which is used to determine students' initial abilities. The test given to students is related to Pancasila lessons. In this Pretest activity, students are assigned to answer 15 multiple-choice test questions. After all students have completed the questions given, the author then provides an assessment of the results of the pretest that has been done by each student. It turns out that the average score of students in answering questions before using the Snowball Throwing learning model assisted by flashcard media is 46.96. This is evidenced by the results of the initial test (Pretest) which can be described that students who get a score ≥ 65 with the criteria of completion are no students who have completed the initial test that has been conducted by the researcher.

The implementation stage, namely the first meeting on Friday, July 18, 2025, which was conducted in class V with 23 students in the Science material. Before the learning began, the researcher explained the material briefly to the students and provided stimulus so that the students got an idea of the material to be studied. Then, after the teacher had provided stimulus or explained the material

briefly to the students, the next activity was a question and answer session between the teacher and students. The teacher asked the students to ask questions about the material that had been delivered and the teacher also asked the students about the material that had been explained, so that students could understand the material that had been delivered. So that the learning process does not only take place in one direction.

In the first meeting, the teacher began the lesson by providing an overview of the material on light and its properties through a brief explanation and visual media. Students were then divided into small heterogeneous groups of six students each. Each group received a flashcard containing a summary of the material, and the group leader was tasked with presenting it to the group members. Next, students discussed the contents of the flashcard to deepen their understanding. Afterward, each student wrote a question on a piece of paper, rolled it into a snowball, and threw it randomly. The student who received the ball read the question and attempted to answer it, while the teacher guided and provided additional explanations. The activity concluded with a group discussion and clarification of the answers that had emerged.

The second meeting on Saturday, July 19, 2025, was conducted in class V with 23 students in the science learning material. After carrying out learning using the Snowball Throwing learning model assisted by flashcard media in the first meeting previously, now in the second meeting the students have begun to understand the learning process of the Snowball Throwing learning model assisted by flashcard media, so that the researcher did not have too much difficulty explaining how to use the Snowball Throwing learning model assisted by flashcard media.

In the second meeting, students began to become accustomed to the Snowball Throwing model. The teacher again began the lesson with a brief apperception, then provided new material accompanied by images to aid student understanding. Students discussed in groups using flashcards, then compiled questions and rolled them into snowballs. The process of throwing and answering questions went more smoothly than the first meeting. Afterward, the groups presented their discussion results to the class, and the teacher and students confirmed the correct answers and gave appreciation to the groups that performed.

Then, each group will explain and present the results of their discussion to the class. Each group will have an equal opportunity to present their findings. The researcher will then summarize the discussion results from each group to determine the most correct answer. Each group that advances will be given a commendation. In this second meeting, the researcher did not experience too much difficulty because the students had begun to understand the Snowball Throwing learning model, so the researcher did not have to explain too many times how to use the Snowball Throwing learning model. The third meeting on Wednesday, July 23, 2025, which was conducted in class V with 23 students in the Science material, at this last meeting, all groups of students already understood the use of the Snowball Throwing learning process so that researchers could easily explain how to use the Snowball Throwing learning model to students and students no longer asked many questions about the use of the Snowball Throwing learning model,

In this third meeting, the researcher opened the lesson by greeting, asking how students were, praying, checking attendance, and then proceeded to the learning process. By the final meeting, students had mastered the Snowball Throwing model, making the activity more effective and conducive. The teacher presented a summary of the material, then students discussed using flashcards to identify important concepts. Each student continued to generate questions, throw snowballs, and answer the questions received. The discussion became more lively because students understood the

learning mechanism. The groups then presented the results of their discussions, while the teacher guided and concluded the most appropriate answers. The activity closed with reflection and reinforcement of the material from the teacher.

Then each group will explain and present the results of their discussion in front of the class, each group gets the same opportunity to explain the results of their discussion in front. Then the researcher concludes the results of the discussion from each group to determine the most correct answer and each group that has advanced to the front will be given appreciation, In this final meeting the researcher did not experience any difficulty teaching in using the Snowball Throwing learning model.
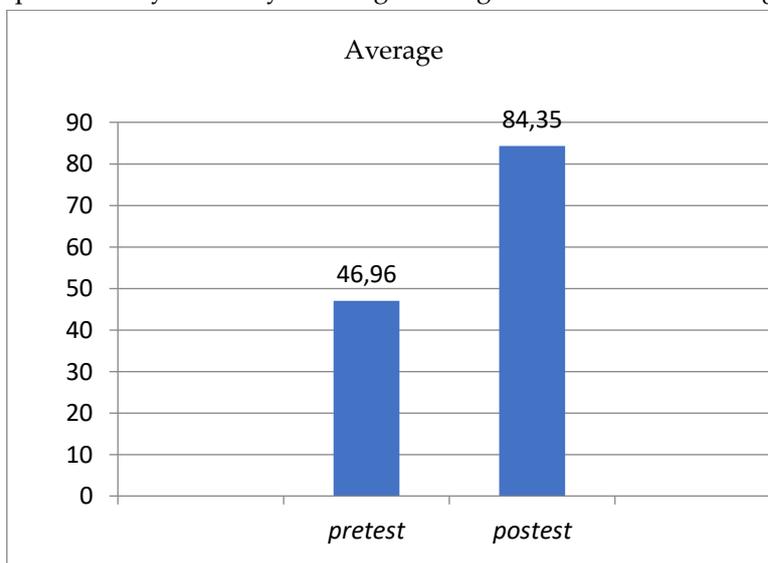

Figure 1. Graph of Average Pretest and Posttest Scores

Average value of resultsPretestThe pretest and posttest results can be seen in graph 4.1. Based on the calculation results, it can be seen that students' initial abilities are classified as incomplete. After being given treatment using the learning modelSnowball ThrowingThere is a difference in learning outcomes between the pretest and posttest. This is due to the treatment given in the posttest using the learning model. Snowball Throwing an average increase of 37.49 was obtained.

The research data obtained from the posttest results were used to statistically test the hypothesis. The hypothesis in this study is "The learning outcomes of Pancasila education for fifth-grade students at Durian Remuk Elementary School after the implementation of the Snowball Throwing learning model assisted by Flashcard Media have been significantly completed." Before the hypothesis was tested, the data were analyzed using a normality test.

Table 1. Recapitulation of the results of the calculation of the normality test for the Pretest and Posttest

Test	χ^2_{count}	χ^2_{table}	Conclusion
Pretest	0,7824	9.48	Normal
Final Test (Posttest)	0,7763	9.48	Normal

Source: Appendix C, pages 144 and 147

Based on table 4.3, the calculated values of the pretest and posttest data are smaller than those in the table (calculation < table). Thus, the pretest and posttest data are normally distributed at a significance level of $\alpha = 0.05.\chi^2\chi^2\chi^2\chi^2$

Based on the results of the hypothesis test data calculations for the Posttest data, it can be seen in table 2.

Table 2. Recapitulation of Posttest Data Hypothesis Test Results

Data		zhitung	ztable	Conclusion
Final	Test	9.04	1.64	zcount>ztable
(Posttest)				Ha accepted

Source: Appendix C, page 148

Based on the calculation results obtained z_{count}= and ztable = Next, compare the calculated z with the ztable in the z test list with a significant level.α= 0.05. Testing criteria if zcount > ztable, then Ho is rejected and Ha is accepted. If zcount < ztable, then Ho is accepted and Ha is rejected. Based on the calculation above, zcount>ztable (9.04 > 1.64) is obtained, then Ho is rejected and Ha is accepted. In other words, the hypothesis proposed in this study can be accepted as true, meaning "The Science Learning Outcomes of Grade V Students of Durian Remuk Elementary School After Implementing the Snowball Throwing Learning Model Assisted by Flashcard Media Have Significantly Improved".

The results of the final test (Posttest) conducted on July 23, 2025, after participating in learning using the Snowball Throwing learning model or after carrying out treatment activities or providing treatment using the Snowball Throwing learning model. Researchers assessed the work results of fifth-grade students of Durian Remuk State Elementary School, it turned out that the average score of the final test (Posttest) of students after using the Snowball Throwing learning model increased to 84.35 The amount of increase from Pretest to Posttest was 37.49 This is because the Snowball Throwing model is able to influence the activeness of all students when participating in the learning process and train students to dare to express their opinions. As proof of the description above, a data normality test calculation was carried out aimed at seeing whether the student's Pretest and Posttest data were normally distributed or not. The results of the data normality test calculation using the goodness-of-fit test (chi-square) can be concluded that the Pretest and Posttest showed normally distributed data at a significance level of α = 0.05, because the count <table. Then, after being analyzed using the z-test, the calculated z value was found to be 4.90, and the calculated z value compared to the table value was 1.64. So, the calculated z value > z table or 9.04 > 1.64. Therefore, it can be concluded that the Snowball Throwing learning model assisted by Flashcard Media was significantly completed or equal to 65%.$\chi^2 \chi^2 \chi^2$.

4. CONCLUSION

Based on the results of research and discussion regarding the application of the Snowball Throwing learning model assisted by flashcard media in the subject of Science for fifth grade students of SD Negeri Durian Remuk, it is known that there is an increase in student learning outcomes after the implementation of the learning model. Before the learning process took place, students' initial abilities were still relatively low. After the application of the Snowball Throwing model assisted by flashcard media, there was a significant increase in student learning outcomes. In addition to improving learning outcomes, the application of the Snowball Throwing model assisted by flashcard media also changed students' learning behavior to be more active, brave in expressing opinions, and enthusiastic in participating in learning. Interaction between students is getting better through discussion and collaboration, while the use of flashcards makes it easier to understand the material and encourages independent learning. This model has been proven to have a positive impact not only on cognitive aspects, but also on students' social skills and attitudes.

Suggestions for this research are expected to be used as a comparative study in conducting further research and become provisions for prospective teachers in improving the completion of learning outcomes, especially in the subject of science and science.

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