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The Effect of the Snowball Throwing Learning Model on the Learning Outcomes of Grade X Students

Amiya Linda Yani[1], Sarkowi[2], Yadri Irwansyah[3]

[1] Universitas PGRI Silampari, Indonesia; amiyalindayani2@gmail.com
[2] Universitas PGRI Silampari, Indonesia; sarkowisulaiman@gmail.com
[3] Universitas PGRI Silampari, Indonesia; yadriirwansyah@gmail.com

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ABSTRACT

Education is the main foundation in forming quality and competitive human resources. In the context of learning in schools, the success of the educational process can be measured through the achievement of student learning outcomes. This study aims to examine the effect of the Snowball Throwing learning model on the learning outcomes of class X students at SMAN 5 Lubuklinggau City on the Dongson Culture material. This research method uses a quantitative approach with a pre-test post-test control group design with samples of the experimental class (XE8) and the control class (XE4). Data were collected through multiple choice tests and analyzed using the t-test after first being tested for normality and homogeneity. The results showed a significant effect of the Snowball Throwing learning model on improving student learning outcomes (t-count = 80.09; t-table = 2.021; α = 0.05). The experimental class using the Snowball Throwing model experienced a more significant increase in learning outcomes than the control class using conventional methods. Therefore, the Snowball Throwing learning model is recommended as an alternative effective learning model to improve student learning outcomes in the History subject.

Corresponding Author:
Amiya Linda Yani
Universitas PGRI Silampari, Indonesia; amiyalindayani2@gmail.com

1. INTRODUCTION

Education is a system and a way for humans to improve the quality of life in all areas. According to Redja Mudyahardjo (in Maunah, 2009:3), education is a form of teaching conducted in schools as formal educational institutions. Education is also a process of providing humans with various situations aimed at empowering themselves and acquiring knowledge through learning or study. In the education and learning process, teachers play a crucial role, where teachers play a role in imparting knowledge to students.

From the above opinion, it can be seen that education is the main foundation in developing quality and competitive human resources. In the context of learning in schools, the success of the educational process can be measured through student learning outcomes. However, the reality in the field shows that many factors influence low student learning outcomes, one of which is a learning model that lacks variety and is still teacher-centered. This causes students to tend to be passive, less motivated, and have difficulty understanding the material in depth. Therefore, innovation is needed in learning models that can increase active student participation and create a fun and effective learning environment. One learning model that is considered potential to address this problem is Snowball Throwing.

This model falls into the cooperative learning category, emphasizing interaction between students through physical activity and discussion. The process involves students creating questions on paper snowballs and then throwing them to classmates for answers. This activity not only increases student engagement but also fosters critical thinking, collaboration, and communication skills. Therefore, Snowball Throwing is expected to be a solution for optimizing student learning outcomes. Several previous studies have tested the effectiveness of the Snowball Throwing model. For example, a study by Pratiwi (2019) showed a significant improvement in junior high school students' science learning outcomes after implementing this model. However, similar research at the high school/vocational school level is still limited, particularly among tenth-grade students who are in the transition phase from basic to complex learning. Furthermore, most previous studies have been qualitative or mixed methods, thus lacking strong quantitative evidence regarding the model's impact on learning outcomes.

Based on this phenomenon, this study aims to quantitatively analyze the effect of the Snowball Throwing learning model on tenth-grade students' learning outcomes. This study focused on History to ensure data validity. The results are expected to serve as a reference for educators in selecting innovative learning models, while also providing empirical contributions to the development of cooperative learning theory in Indonesia. Thus, efforts to improve educational quality can be realized through a more participatory and enjoyable approach for students.

During the learning process, teachers, as educators, have the task of motivating the learning process at school. According to Khanifatul (2013:22), learning outcomes have three domains: affective, cognitive, and psychomotor. The affective domain is the ability related to attitudes, the psychomotor domain is the ability related to skills, and the cognitive domain is the ability in the form of knowledge. The aspect that will be examined in this study is the cognitive aspect or the knowledge aspect.

Student learning outcomes are one of the main indicators in assessing the effectiveness of a learning model. Good learning outcomes reflect students' understanding of the material being taught, as well as their ability to apply that knowledge in real situations. Therefore, it is important to explore the influence of the Snowball Throwing learning model on student learning outcomes, especially in grade X. Grade ten is the initial stage for students to face more complex and diverse materials, so the application of an appropriate learning model is very necessary to build a strong foundation for further learning. Based on this background, this study aims to examine the influence of the Snowball Throwing learning model on the learning outcomes of grade X students. This study is expected to provide deeper insights into the effectiveness of this learning model in improving student learning outcomes. In addition, the results of this study are expected to contribute to the development of more innovative and effective learning methods, as well as become a reference for educators in designing learning strategies that can increase student motivation and engagement. Thus, this study does not only focus on academic aspects, but also on the development of students' character and social skills. It is expected that by implementing the Snowball Throwing learning model, students will not only gain knowledge, but also collaboration, critical thinking, and communication skills that will be useful in their future lives. This research is expected to provide a positive contribution to the world of education, especially in efforts to improve the quality of learning in high schools.

Based on the observations that researchers conducted on class X students of SMAN 5 Lubuklinggau and interviews with history subject teachers that in the learning process, teachers

complained that the expected learning process did not occur because students were less active or low student involvement in learning, so that in the learning process the classroom atmosphere looked monotonous so that the learning outcomes obtained were far from the desired expectations. The implementation of learning in SMA N 5, especially class X, found the following facts; students were less active in learning, this can be seen from student activities such as listening, reading very little in the History learning process; Students' attention to history lessons was lacking; The number of students who raised their hands, answered, gave opinions and asked questions in the learning process was still small; Many students had not completed and many students had not understood history lessons optimally because student activity was very low.

Therefore, from the results that researchers found that students are very lacking in learning History, it is proven that students whose learning outcomes have reached the minimum completion criteria (KKM)) are 20 (45.20%), while students whose learning outcomes have not reached the completion criteria are 27 (57.82%). The minimum criteria for history subjects is 65. Therefore, based on these problems, researchers chose the snowball throwing learning model in this study because the snowball throwing learning model is effective because it can increase student interaction and participation in class. This method also trains students' listening, critical thinking, and memory skills through active discussion and collaboration. From that, researchers want to conduct research entitled "The Effect of Using the Snowball Throwing Learning Model on the Learning Outcomes of Class X Students of SMA N 5 Lubuklinggau.

The purpose of this study is to determine the effect of the Snowball Throwing learning model on the learning outcomes of class X students of SMAN 5, Lubuklinggau City. This study provides theoretical benefits that are useful as a contribution of thought to the world of education, as well as being useful for developing science in the field of education, especially regarding the effect of the Snowball Throwing learning model on the learning outcomes of class X students of SMA N 5, Lubuklinggau City..

2. METHODS

The research method used in this study is quantitative, which is used to examine the population or sample where data analysis uses statistics to test predetermined hypotheses and this quantitative research is a research method that only focuses on the study of certain factors. In this study, the researcher determined two sample groups, namely one experimental class and one control class. Before conducting the experiment, a pre-test will be conducted in the experimental class and the control class with the aim of finding the initial value. The pre-test was carried out before the Indonesian history learning was held using the Snowball Throwing learning model in the experimental class and the conventional method in the control class. Then, the Indonesian history learning treatment was carried out using the Snowball Throwing learning model in the experimental class and the conventional method in the control class. After the treatment activity was carried out, a post-test was held in the experimental class. The pre-test results will be compared with the post-test results, then a final score will be obtained which will indicate whether or not there is an effect of the Snowball Throwing learning model used in the learning process.

This research is an experimental study, namely a type of pre-experimental design. This design is not yet a true experiment because there are still external variables that influence the formation of the dependent variable. So the results of the experiment, which is the dependent variable, are not solely influenced by the independent variable. This can occur because there are no control variables, and the sample was not selected randomly. The population in this study is all 322 students of class X SMAN 5 Lubuklinggau in the 2024/2025 academic year, along with data from class X SMAN 5 Lubuklinggau students. In this sampling, the researcher used a saturated sampling technique. The data collection technique used in this study was a test, a test is a tool for collecting information in the form of questions. The test used in this study is a multiple-choice test. Before conducting the test, the researcher first conducted an instrument test totaling 50 questions. The analysis techniques in this study are the

average score and standard deviation, normality test, homogeneity test, test of equality of two means, statistical hypothesis

3. FINDINGS AND DISCUSSION

A pretest is a measure of a student's abilities before receiving treatment. Pretests were used in both the experimental and control classes. A summary of the pretest mean and standard deviation results can be seen in Table 4.1 (attachment).

Table 1. Recapitulation of Pre-Test Results Data

NO	N	Mark Lowest	Highest Value	Average	Deviation Baku
Experiment	32	16	60	032, 87	4,364
Control	34	28	48	37.52	39.42

From table 1. it can be seen that the average pre-test value in the experimental class is 0.32.87 and the standard deviation is 4.364. For the control class the average value is 37.52 and the standard deviation is 39.42. This means that the average ability of experimental and control class students before being given treatment is almost the same. Where the average value of the initial ability of experimental class students is 0.32.87 and the control class is 37.52, the average value of the two classes is almost the same, and this happens because both classes are still given the same treatment in the learning process.

Post Test Data Description

The final ability in mastering Dongsong Culture material is the learning outcome obtained by students after participating in the learning process with the given treatment, namely for the experimental class using the Snowball Throwing learning model and the conventional method for the control class. This final student ability can be obtained through a post-test. The post-test is used to determine the effect of using the Snowball Throwing learning model. To recapitulate the results of the calculation of the average value and standard deviation of the post-test, which can be seen in Table 4.2 (attachment).

Table 2. Recapitulation of post-test data results

NO	N	Mark Lowest	Highest Value	Average	Deviation Baku
Experiment	32	80	100	97.75	3,619
Control	34	48	100	87,625	1,201

Based on table 2. it can be seen that the post-test score in the experimental class, the lowest score in the experimental class is 80, the highest score is 100 and the average post-test score of the experimental class is 97.75 and for the standard deviation is 3, 619. In the control class the lowest score is 48, the highest is 100, and the average score is 87.625 and for the standard deviation is 1, 201. From the post-test results can be compared with the initial abilities of students. The average post-test score in the experimental class is 97.75, this means that the final ability of students in the experimental class after following the learning process has increased by 197.5%.

Meanwhile, the average pre-test score in the control class was 37.52, the post-test score in the control class was 87.625, meaning there was an increase of 133.5%. From the data, it is known that there was an increase in the average score of the class given treatment using the Snowball Throwing learning model, the increase in the average score was higher than the increase in the average score of the control class given treatment using the conventional method.

Requirements Analysis Testing

The normality test aims to see whether the data is normally distributed or not. The formula used is to use the chi square test formula (X^2), then compare the calculated X^2 with the X^2 table with degrees of freedom dk = n-1, where n is the number of interval classes and the error is set at 5% then if the calculated $X^2 < X^2$ table then the data distribution can be stated as normal, and a larger bar (>) is stated as not normal.

The recapitulation of the results of the pre-test and post-test normality test calculations is listed in the (attachment) which can be seen in table 3.

Table 3. Pretest and Posttest Results

NO	Data	Class	X^2 count	DK	X^2table	Conclusion
1	Pre-test	Experiment	94,336	4	9.49	Normal
		Control	2, 2507	5	9.49	Normal
2	Post-test	Experiment	2,7373	4	9.49	Normal
		Control	584.25	5	11.07	Normal

Based on the provisions of statistical calculations using the normality test formula by showing the calculated X^2 value data for the initial and final test data for the experimental class and the control class is smaller than the X^2 table. Based on the provisions of normality testing using the X^2 goodness-of-fit test (chi square) it can be concluded that each class for the pre-test and post-test data in the experimental class and the control class is normally distributed with a confidence level ofa= 0.05 and degrees of freedom dk= n-1, because the table.

Homogeneity Test Analysis

The homogeneity test aims to see whether the data of the two sample classes have homogeneous variance or not. Based on the results of calculations using the homogeneity test value formula (attachment), the results can be seen in the attachment f count < f table, then the variance of the two classes is homogeneous. The results of the homogeneity test of the initial and final test variances at the confidence levela= 0.05.

Table 4. Homogeneity Recapitulation

No	Data	Ƒcount	DK	Ƒtable	Conclusion
1	Pre-test	0.28	16.25	0.93	Homogeneous
2	Post-test	0, 10	16.25	0.93	Homogeneous

Based on table 4, it can be seen that the variances of the two groups compared in the pre-test and post-test are homogeneous because f count < f table so that the data can be trusted by researchers.

Hypothesis Testing

Based on the normality and homogeneity tests, it was found that both pre-test and post-test data groups were normal and homogeneous. Therefore, a hypothesis test can be carried out, namely the test of the similarity of the two averages between the experimental class and the control class of pre-test and post-test data using the t-test, based on the analysis of the t-test calculations (attachment) for the initial and final test data can be seen in table 4.5 as follows:

Table 5. Results of the Similarity of Two Pre-Test and Post-Test Averages

No	Data	T count	DK	T table	Conclusion	
1	Pre-test	0, 204	41	2,021	T count < t table	Ho is accepted Ha is rejected

2	Post-test	80.09	41	2, 021	T count > t table	Ho is accepted Ha is accepted

Table 5 shows that the results of the t-test analysis regarding the initial abilities of students in the experimental class and the control class have the same abilities with a confidence level.a= 0.05 because t count < t table, namely t count 0.204 and t table = 2.021. After providing different treatments for the experimental class and the control class, there was an increase in scores. These scores are student learning outcomes. The experimental class used the Snowball Throwing learning model in the learning process. Meanwhile, the control class did not use this model in the learning process but used conventional methods.

Based on the t-test analysis regarding the final ability of the attachment, it shows that the average value of the experimental class is better than the control class. The results of the data analysis using the t-test of the final test value obtained t count > t table 80.09 > t table 2.021, at the confidence levela0.05 and degrees of freedom (dk= 41), then Horejected Ha accepted. Thus, there is an influence of the snowball throwing learning model on the learning outcomes of Indonesian history of class X students of SMAN 5 Lubuklinggau. This proves that learning using the snowball throwing learning model has an influence in improving student learning outcomes.

This study aims to test the effect of the Snowball Throwing learning model on the learning outcomes of class X students of SMAN 5 Lubuklinggau on the Dongson Culture material. Based on the results of hypothesis testing, it is proven that there is a significant influence of the Snowball Throwing learning model on student learning outcomes, this is evidenced by the calculated t value (80.06) which is greater than the t table (2.021) at a significance level of 5%. This finding supports the proposed research hypothesis, namely that the application of the Snowball Throwing learning model produces better learning outcomes than conventional methods.

The significant improvement in learning outcomes in the experimental class using the Snowball Throwing learning model can be explained by several factors. First, the Snowball Throwing model encourages active student participation. The activity of throwing and answering questions in the form of "snowballs" creates a dynamic and interactive learning atmosphere, in contrast to conventional methods that tend to be passive. This is in line with the constructivist learning theory which emphasizes the importance of active student involvement in the learning process to build their own understanding, according to Piaget (1954). Second, the Snowball Throwing model increases interaction between students. The process of discussion and explanation between friends in groups encourages students to share knowledge and clarify their understanding. This interaction strengthens students' collaboration and communication skills according to Suprijono (2011). Third, this model also trains students' critical thinking skills. Students are required to formulate relevant questions and answer questions from their friends, thus encouraging them to think more deeply about the material. Critical thinking skills are an important aspect in the cognitive domain that needs to be developed, Bloom, BS (1956).

The findings of this study are in line with several previous studies that show the effectiveness of the Snowball Throwing learning model in improving learning outcomes. In a previous study, (Setiawati et al., 2022) entitled "The Effect of the Snowball Throwing Learning Method on Student Learning Motivation in History Subjects in Class X IPS-1MA Al - Istiqomah Rajadesa" based on the results of the study, the use of the snowball throwing method in history subjects in class X is effective in increasing student learning motivation if carried out according to the learning stage procedures and the snowball throwing learning method has an influence on student learning motivation as evidenced by the t-count value of 34.567 while the t-table is 2.048 with a significant rate of 5%.

However, this study has differences with the research of other researchers, the differences are as previous studies increase enthusiasm, activeness, and motivation to learn while this study focuses on learning outcomes that increase the average value of learning completeness, the research approach emphasizes cognitive and academic achievement previous studies emphasize psychological and motivational aspects and the results of the study in this study the value of learning completeness increased significantly while previous studies students were more active and motivated in learning

history. This study has several limitations. First, this study was only conducted in one school and two classes, so the generalization of the findings needs to be considered. Second, this study only focuses on the cognitive aspect of learning outcomes and has not examined the affective and psychomotor aspects etc.

The findings of this study provide important implications for educators, especially history teachers. The Snowball Throwing learning model can be an alternative, effective and enjoyable learning method to improve student learning outcomes, especially in materials that require in-depth conceptual understanding such as Dongson Culture. Suggestions for further research are: Replication of this study on larger and more diverse samples, in various schools and regions. Examine the affective and psychomotor aspects of student learning outcomes using the Snowball Throwing learning model. Compare the Snowball Throwing model with other cooperative learning models.

Developing and testing a modified Snowball Throwing model that better suits student characteristics and specific learning materials. In conclusion, this study provides empirical evidence regarding the effectiveness of the Snowball Throwing learning model in improving student learning outcomes in Dongson Culture material. However, further research is needed to assess and develop this learning model so that it can be applied more broadly and effectively in various learning contexts.

4. CONCLUSION

Based on the research results described in the previous chapter, it can be concluded that: There is a difference in learning outcomes between the experimental class using the Snowball Throwing learning model and the control class using the conventional method. The t-test results show that the calculated t (80.09) is greater than the t-table (2.021) at a significance level of 5%, so the alternative hypothesis (Ha) is accepted. This means that the Snowball Throwing learning model has a significant effect on improving the learning outcomes of class X students at SMAN 5 Kota Lubuklinggau. Both the experimental and control classes show a normal and homogeneous distribution of pre-test and post-test data. This indicates that the data obtained is valid and suitable for analysis using the t-test.The use of the Snowball Throwing learning model has been proven effective in improving the learning outcomes of 10th-grade students in Dongson Culture at SMAN 5, Lubuklinggau City. More significant improvements were seen in the experimental class compared to the control class.

Based on the conclusions above, the researcher offers the following suggestions: that further research could develop the Snowball Throwing learning model with wider variations, for example by integrating technology or other learning media to increase learning effectiveness. Further research could examine other factors that influence student learning outcomes besides the learning model, such as motivation, learning interest, and the learning environment.

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