



The Effect Of Pop Up Book Media On Student Learning Outcomes In The Subject Of Sciences In Grade Iv

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Abstract

This study aims to determine the effect of Pop-Up Book media on student learning outcomes in the IPAS subject for Grade IV at UPTD SD Negeri 122371 Pematangsiantar. The research used a quantitative approach with a one-group pretest-posttest design. The sample consisted of 25 Grade IV students. The instrument used was a multiple-choice test. Based on statistical data analysis using the normality test, the value obtained was 0.192, which is greater than 0.05, indicating that the data is normally distributed. The results of the t-test showed that the calculated t-value was 9.891, while the table t-value was 2.064, meaning $t_{\text{count}} > t_{\text{table}}$ ($9.891 > 2.064$). This indicates a significant difference between pretest and posttest scores, leading to the rejection of the null hypothesis (H_0) and acceptance of the alternative hypothesis (H_a). Therefore, it can be concluded that Pop-Up Book media has a significant effect on student learning outcomes in the IPAS subject for Grade IV at UPTD SD Negeri 122371 Pematangsiantar.

Keywords : Pop-Up Book Learning Media, Learning Outcomes, Science

INTRODUCTION

Education is a complex process, where individuals not only receive information, but also engage in social interactions that shape their character and personality. Quality education plays an important role in creating competent and potential human resources, especially in students, which in turn will contribute to the progress of a nation (AFIF, 2019). The delivery of information or messages in learning can be done directly or indirectly, in other words, teachers convey information directly to students through lectures and indirectly, namely information conveyed through media such as videos, so that the information or messages conveyed by teachers can be well received by students, but not all things can be said that information or messages can be well received by students, there may also be failures in capturing information or messages, because students are less focused in listening to the

teacher's explanation and do not understand the teaching material (Lestari, Pratiwi, & Sunanih, 2020).

In line with the explanation above, the researcher conducted an observation in Class IV of UPTD SD Negeri 122371 Pematangsiantar that there are still many students who lack focus when the teacher explains the material, especially in the subject of science. Therefore, in the teaching and learning process that focuses on students receiving information by providing learning media that can help the correct information process. Learning media is a tool that can be used in the learning process to help students understand the learning and can stimulate student attention (Sentarik & Kusmariyatni, 2020). One of the media that can improve student learning outcomes is the Pop-Up Book media which is very interesting and interactive, especially for elementary school children (SD) who can increase student learning motivation and student creativity. This Pop-Up Book media displays three dimensions when opened, the main material of which is cardboard or thick paper that is strong enough. So the researcher conducted a study in Class IV on the Effect of Pop-Up Book Media to see student learning outcomes that are still low (Ahda Aulia Fajriah, Halimatu Sadiyah, & Dede Indra Setiabudi, 2022).

So, based on the conclusions above, using Pop-Up Books is a highly engaging and interactive tool, especially for elementary school children. This medium can increase student motivation and engage students actively. Therefore, using Pop-Up Books not only helps with understanding the subject matter but also enriches students' learning experiences in a fun and engaging way (Fitriani & Fauzy, 2020).

Based on the results of observations that have been observed by the author on Wednesday, May 28, 2025, which were conducted at the UPTD of Public Elementary School 122371 Jl. Kesatria, located on Jl. Kesatria, Siopat Suhu Village, East Siantar District, Pematangsiantar City. The problem found by the author is that the learning process is often ineffective due to the lack of learning media and there are still students who do not understand what science is, especially about nature and lack focus in listening to the teacher when explaining the material. Teachers use monotonous learning media, which are only centered on the teacher. Therefore, students have difficulty in developing abilities in the learning process. The less than optimal quality of learning has a direct impact on student learning outcomes, this can be seen from the fact that there are still many students who have not achieved the Learning Objective Achievement Criteria (KKTP). This affects the value of the science subject below the KKTP, namely 70.

Based on the above, it can be seen that the student learning outcomes show that out of 25 students, 14 students or 56% did not complete the science subject, while only 11 students or 44% achieved the KKTP (Yahzunka & Astuti, 2022).

So from the results of the table above, the researcher found that there were obstacles that occurred in grade IV, namely there were still students who received scores below the KKTP, and students were also less active in participating in the science learning given, this can be seen from the activity of students who tended to just listen quietly to the teacher explaining the material without any students responding. From the results of the initial observations that I did, it was known that in the learning process, there were still several obstacles that affected the effectiveness of delivering material to students. One of them was the lack of learning media used by the teacher, so that students were less active and had difficulty in understanding the material well. In addition, student attention during learning also tended

to be low because the media used, such as printed books, were less interesting and did not encourage interaction. This condition was exacerbated by the fact that many students still did not clearly understand what the science subject was, including that this subject covered topics related to nature and the environment (Sidabutar, Khadijah, & Sitorus, 2019).

The reason for the lack of student understanding is because teachers are still lacking in preparing learning media, also only focusing on lectures. To be able to help clarify what the teacher will convey and be easily understood by students, media is needed (Yunika, Imansyah, & Riyanti, 2022). Media allows for direct interaction between students and students, students with teachers and also students with their environment (Sitanggang Gusar, Valentina Gultom, Siallagan, Indah Sari Purba, & Simbolon, 2024). Teachers are not enough to have knowledge about media alone, but teachers must also have the ability to choose and use media well. Based on the problems above, it is necessary to improve student learning outcomes by using Pop-Up Book media which is expected to improve student learning outcomes in the learning process effectively and efficiently, so that students think actively and can solve problems during the teaching and learning process. Based on this background, the researcher conducted a study with the title "The Effect of Pop-Up-Book Media on Student Learning Outcomes in the Science Subject of Grade IV UPTD SD Negeri 122371 Pematangsiantar"

RESEARCH METHODS

The type of research used in this study was quantitative research using an experimental method. This method was used to determine the influence of the learning media used by teachers. Experimental research is research that attempts to determine the effect of certain variables on other variables under strictly controlled conditions.

Sukmadinata (Yuliani, Herman, & Tarmizi, 2020) in his book states that experimental research based on its variations consists of pure research (true experimental), quasi-experimental, weak experimental, and single subject experimental. The method used in this research is an experimental research method using a pre-experimental design which shows that this research design where external variables can still influence the dependent variable because there are no control variables and the sample selection is not used randomly.

This study employed an experimental research design with a one-group pretest-posttest. This design allows for more accurate results because researchers can compare conditions before and after treatment (Nikmah, Nuroso, & Reffiane, 2019).

This research design used an experimental research method, namely a pre-experimental design. Procedurally, this research used a research design pattern that was conducted using a pretest before being administered and a posttest after being administered.

The pre-experimental design used in this study was a one-group pretest-posttest design. This design employed only one group as subjects because it administered a pretest before administering the intervention. This allowed for the study to assess the effect of the intervention on the students.

This research was conducted at the UPTD of State Elementary School 122371 Pematangsiantar, located on Jl. Kesatria, East Siantar District, Pematangsiantar City. The class used was grade IV.

This research was conducted in August of the odd semester of the 2025/2026 academic year. Morissan (Musfirah, Maryam, & Yunasri, 2020) defines a population as a collection of

subjects, variables, concepts, or phenomena. We can examine each member of the population to determine its characteristics. The population in this study was all 25 fourth-grade students. The following table shows the number of fourth-grade students at the UPTD of SD Negeri 122371 Pematangsiantar.

A sample is a summation of a portion of a population that is considered to represent all the characteristics within that population. Sugiyono (Loliyana, Anggraini, & Efendi, 2022) states that a sample is a portion of the whole and the characteristics possessed by a population.

Based on the above opinion, it can be concluded that a sample is a portion of the total number that represents a population. The sample used in this study is a saturated sample. Saturated sampling is a sampling technique where all members of the population are used as samples. Therefore, the sample for this study is all fourth-grade students at the UPTD of SD Negeri 122371 Pematangsiantar.

Research variables are components that act as attributes and objects that need to be considered in research. According to Sugiyono (Elfiana, Widiyono, & Zumrotun, 2022) variables are anything in any form that researchers determine to be studied to obtain information about it and then draw conclusions.

In this study, there are 2 variables observed, namely the independent variable (X) and the dependent variable (Y).

1. Independent Variable

According to Sugiyono (Hajerah & Syamsuardi, 2019a) this variable is often referred to as a stimulus, predictor, or antecedent variable. In Indonesian, it is often referred to as an independent variable. An independent variable is a variable that influences or causes changes in or the emergence of a dependent variable. In other words, an independent variable is a variable that causes changes in the dependent variable. The independent variable (X) in this study is the Pop-Up Book Learning Media.

2. Dependent Variable

According to Sugiyono (Sekar Arum & Yuanta, 2019) this variable is often referred to as an output variable, criterion, or consequence. In Indonesian, it is often called a dependent variable. A dependent variable is a variable that is influenced or becomes a consequence of the presence of an independent variable. In other words, a dependent variable is a consequence that arises from the presence of an independent variable. The dependent variable (Y) in this study is the learning outcomes of fourth-grade science students at the UPTD of SD Negeri 122371.

Sugiyono (Multiani, Hasmy, & Muskania, 2021) defines an operational definition as something that becomes an object of observation that has certain variations and is determined by the researcher to be studied and then conclusions drawn. Defining a variable operationally means describing or describing the research variable in such a way that the variable is specific (not open to multiple interpretations) and measurable (observable or measurable). Operationalization of variables is made to facilitate data collection and avoid differences in interpretation and limit the scope of the variable.

RESULTS AND DISCUSSION

Descriptive Research Results

This research was conducted at the UPTD of SD Negeri 122371 Pematangsiantar located at Jl. Kesatria, Siantar Timur District, Pematangsiantar City. This research is a pre-

experimental design study with a one group pretest posttest research type conducted on 25 fourth graders. This research was conducted on August 22-29, 2025 where students were given a pretest and posttest. The pretest was given before the treatment to determine the initial state of students before being given treatment. The posttest was given after the learning material was delivered using Pop-Up Book media, the aim was to determine the final state of students after being given treatment (Jannah & Sukidi, 2018).

Instrument Trial Results

The trial instrument was administered to fourth-grade students of UPTD SD 124391 Pematangsiantar on August 22, 2025. The instrument consisted of 30 multiple-choice questions covering the topic "Plant Parts." After students completed the test, the collected data were processed to assess the validity of each question. After the assessment, questions that were proven valid were used as instruments in this study.

Validity Test Results

Validity testing aims to determine the extent to which an instrument is able to measure what it is supposed to measure (Erica, 2021). Validity testing is carried out using Ms. Excel. A test item is considered valid if the calculated r value is greater than the table r value, using a significance level of 5% or 0.05. To determine this, the table r value can be seen in the product moment r table.

Hypothesis Testing

In this study, a sample test was used to assess the effect of *Pop-Up Book learning media* on student outcomes in the fourth grade science subject at UPTD SD Negeri 122371 Pematangsiantar. *The Praired Samples Test* used SPSS 26. The hypothesis in this study is:

H_0 : There is no significant influence of *Pop-Up Book Media* on Student Learning Outcomes in the Science Subject of Class IV UPTD SD Negeri 122371 Pematangsiantar.

H_a : There is a significant influence of the influence of *Pop-Up Book Media* on Student Learning Outcomes in the Science Subject of Class IV UPTD SD Negeri 122371 Pematangsiantar.

With the criteria

- 1.If $t \text{ count} < t \text{ table}$ then H_0 is rejected, with a significance level of 0.05
- 2.If $t \text{ count} > t \text{ table}$ then H_a is accepted with a significance level < 0.05

The following are the results of the Hypothesis Test that was carried out at the UPTD of State Elementary School 122371 Pematangsiantar:

Table 1. Hypothesis Test Results

Information	Mark
<i>t-count</i>	9,891
<i>t-table</i>	2,064

Sig	0,000
Significant level	0.05

Based on the table above, it is known that the Sig value (2-tailed) is 0.000 and this value is significant < 0.05 . To find the t_{table} , The researcher used a t-distribution table with a significance level of $\alpha = 0.05$ and $db = N - 1 = 25 - 1 = 24$. After obtaining $t_{count} = 9.981$ and $t_{table} = 2,064$, it was obtained that $t_{count} > t_{table}$ or $9,981 > 2,063$ which showed that there was a significant influence between student learning outcomes in the *pretest* and *posttest*. So it can be concluded that in this study H_a is accepted and H_0 is rejected, which means that there is an influence of *Pop-Up Book media* on student learning outcomes in the science subject of class IV UPTD SD Negeri 122371 Pematangsiantar.

Discussion of research results

The research was conducted in the fourth grade of UPTD SD Negeri 122371 Pematangsiantar in the 2025/2026 academic year. The population used in this study were all fourth grade students of UPTD SD Negeri 122371 Pematangsiantar (Gusar, Gultom, Siallagan, Purba, & Simbolon, 2024). In this section, the results found in the research will be described. The results in question are conclusions drawn based on the collected data and data analysis that have been carried out (Hanifah, 2014). This study aims to determine the Effect of *Pop-Up Book Media* on Student Learning Outcomes in the Fourth Grade Science Subject of UPTD SD Negeri 122371 Pematangsiantar (Afandi, Yustiana, & Kesuma, 2021).

pre-test results, the average learning outcome score was 51.36, with all students scoring below the minimum competency criteria (KKTP) (Prayogo, Anita, & Sari, 2022). Looking at the percentages, it can be concluded that the level of student learning outcomes before using the *Pop-Up Book learning media* was relatively low (Umam, Bakhtiar, & Iskandar, 2019).

Furthermore, after using the *Pop-Up Book learning media*, the average *post-test* score increased by 82.24. This proves that students have better learning outcomes after using the *Pop-Up Book learning media*. In the *pretest* and *post-test normality tests* that have been carried out, the value obtained for all significant data is 0.192. Based on the predetermined criteria, if the sig value is > 0.05 , the data is not normal. In this case, it can be seen that $0.192 > 0.05$. So it can be concluded that the distribution is normal (Hajerah & Syamsuardi, 2019b).

After the *pretest* and *posttest* normality tests were conducted, the hypothesis test proceeded. The student test results were $t_{hitung} 9.891$ and $t_{tabel} 2.064$, respectively. $t_{hitung} > t_{tabel} = 9.891 > 2.064$ which means H_0 is rejected and H_a is accepted which indicates that there is an influence of *pop-up book learning media* on student learning outcomes with regular learning.

CONCLUSION

Based on the results of research that has been conducted regarding the influence of Pop-Up Book media on student learning outcomes in the subject of science class IV UPTD SD Negeri 122371 Pematangsiantar, it can be concluded that student learning outcomes obtained an average *pretest* score of 51.36 while after being given treatment using *Pop-Up Book media*, an average *posttest* score of 82.24 was obtained and there was a significant influence of the use of *Pop-Up Book media* on student learning outcomes. based on the results of the hypothesis

test with a significance level = 0.05 and t_{tabel} as large as 2.064 and t_{hitung} as large as 9.891 . Thus $t_{hitung} 9.891 > t_{tabel} 2.064$, it can be concluded that there is a significant influence of *pop-up book learning media* on the science learning outcomes of fourth grade students at UPTD SD Negeri 122379 Pematangsiantar.

Suggestion

Based on the results of research that has been carried out by researchers, suggestions can be put forward that can build successful learning in schools, including the following:

1. For Researchers: Researchers are expected to be able to develop *Pop-Up Book learning media* by applying other materials to determine whether other materials are suitable for the application of *Pop-Up Book learning media*.
2. For students . Students UPTD SD Negeri 122371 Pematangsiantar , during the learning process, students are expected to always be active in order to improve learning outcomes with maximum effort .
3. For schools, so that they can use facilities and infrastructure as optimally as possible to support learning in order to improve student and school achievement.

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