



The Effectiveness of Using Pop-Up Book Media in Thematic Learning Reviewed from Learning Outcomes

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ABSTRACT

The purpose of this research was to determine the effectiveness of using Pop-Up Book Media in thematic learning at Madrasah Ibtidaiyah Asy-Syafi'iyah grade III. This research is using quantitative research with pre-experemintal methods. The research design is One Group-Pretest-Posttest Only. Population in this research were all the student of class III Madrasah Ibtidaiyah Asy-Syafi'iyah and then the population was selected using probability sampling techniques with cluster sampling type. Data of learning outcomes was obtained by Pretest-Posttest in a multiple choice form. The result of this research is average of pretest score is 77,27 while average of posttest score is 93,18 with an average N-Gain is 0,69 with a medium category. Pop-Up Book Media has succeeded in improving learning outcomes of grade III Madrasah Ibtidaiyah Asy-Syafi'iyah. This is proven by the hypothesis test results which show that the Sig. (2-Tailed.) value is $0.000 < 0.05$. Therefore, it can be concluded that the null hypothesis (H_0) is rejected and the alternative hypothesis (H_1) is accepted.

Kata Kunci: *Pop-Up Book Media, Learning Outcomes, Thematic Learning*

1. Introduction

The teacher's responsibility is not easy to create a conducive learning atmosphere and process. The learning process is not always smooth, but sometimes there are obstacles or difficulties faced by both teachers in teaching and students in learning. In practice, teachers must be more creative in understanding changes in their environment and being able to identify various types of learning strategies, methods and ways so that students can be actively involved in the teaching and learning process to design more effective and enjoyable learning. Based on the results of observations at Madrasah Ibtidaiyah Asy-Syafi'iyah, it shows that thematic learning is less interesting, so far teachers have used media in the form of picture media & textbooks that are usually available, In its presentation, thematic books still have shortcomings. Teachers at Madrasah Ibtidaiyah Asy-Syafi'iyah also use learning media in the form of powerpoint which is projected via LCD, The media used is also quite interesting but when the learning process takes place there are still students who are less

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focused on the material displayed. With the less interesting use of media, it can make students passive in learning.

To overcome this, there needs to be interesting and enjoyable learning media. The existence of interesting media to arouse interest in learning & help teachers and students in the learning process. Interactive media is needed so that teachers do not always rely on textbooks, the media that can be used is the Pop-Up Book learning media. Pop-Up Books are a type of 3D media that can provide an interesting effect, because each page is opened, an image will appear & the material that is still in the pop-up book can be adapted using the teaching material to be delivered. Previous research explained that the benefits of Pop-Up book media are that during learning it has a stronger influence on children's vocabulary mastery than learning without Pop-Up book media. This is because the use of Pop-Up media in learning is supported by colorful and dimensional images so that the story display becomes more interesting. In addition, Pop-Up books have been proven to be effective in improving children's cognitive abilities, this means that designing this type of book can promote creative thinking and the development of children's social skills. can increase student enthusiasm in the learning process. This is evidenced by the high attention and enthusiasm of students compared to using other learning media. On the other hand, the use of Pop-Up design as a platform for observation and reflection is a good practice for student teachers.

According to Devi & Maisaroh (2017:11) stated that "Pop-up book media is included in learning media in the form of books or printed media which still contain short story texts & images that are synchronous using the storyline that will be displayed on the pop-up book media. Pop-up book designs are always applied to many 3-dimensional media, for example picture books, greeting cards, book covers, book folds using many types, & in children's story books". Safitri (2014) stated that using pop-up books has the benefit of discussing a concept that is still formless & to indicate a real object image related to teaching materials. According to Seong and Kim (2018) Pop-Up book media can help students visualize the concepts and information presented to improve understanding and memory. This can be proven by the results of the study, based on the results of descriptive analysis and inferential statistical analysis.

The use of pop-up book media in thematic learning in class III of Madrasah Ibtidaiyah Asy-Syafi'iyah is one strategy to increase students' interest and learning outcomes through interactive visual displays. Pop-up books can help students understand abstract concepts more concretely and interestingly, so that they are expected to improve memory and understanding of the material. However, in practice, the effectiveness of using this media still faces various challenges. Not all students can understand the material well only through visual media, especially for those who have different learning styles, such as auditory or kinesthetic. In addition, not all teachers have sufficient skills in utilizing pop-up books optimally, so that sometimes their use has not achieved the expected results. The gap is also seen from the limited availability of pop-up books, both in terms of quantity and variety of materials presented. This causes not all students to get the same opportunity to interact with the media directly. In addition, the effectiveness of pop-up books in improving student learning outcomes has not been fully evaluated systematically, so it cannot be concluded whether this method is superior to other learning methods. Therefore, further research is needed to determine the extent of the impact of the use of pop-up

book media on student learning outcomes and the strategies that can be applied to make this media more effective and inclusive for all students in class III of Madrasah Ibtidaiyah Asy-Syafi'iyah.

Thus, the researcher is interested in examining the effectiveness of using Pop-Up book media in terms of learning outcomes in thematic learning for class III at Madrasah Ibtidaiyah Asy-Syafi'iyah to overcome the problem of students who become passive in learning due to the selection of media that is not diverse. Pop-Up Books aim to improve students' learning outcomes on thematic learning material theme 6: Energy and Its Changes with Sub Theme 1: Energy Sources. This study aims to determine the effectiveness of using Pop-Up book media for the effectiveness of using Pop-Up books in thematic learning for class III of Madrasah Ibtidaiyah Asy-Syafi'iyah. This study is expected to be useful practically and empirically. Practically, this study is useful for helping teachers in delivering thematic learning and encouraging teachers to use more interesting learning media and fostering enthusiasm and motivation for students to learn, especially providing interesting learning experiences. Empirically, this study is useful for adding ideas and knowledge to design an effective learning process.

2. Methods

The type of research used is quantitative research with a pre-experimental method. This research was conducted at Madrasah Ibtidaiyah Asy-Syafi'iyah located on Jl. Pasar Sentral, Baruga, Kendari City. This research was conducted in the even semester of the 2022/2023 academic year, while the research was conducted in February-March 2023. The population in this study were all students of class III of Madrasah Ibtidaiyah Asy-Syafi'iyah and then the population was selected using a probability sampling technique with a cluster sampling type. The data source for researchers is primary data. Researchers receive primary data in the form of values that have been determined through tests for students. So the primary data obtained is used by researchers to determine the effectiveness between the independent variable (use of pop-up book learning media) and the dependent variable (learning outcomes). The instrument used in this study was a multiple-choice test, the test given before the treatment was given, namely the pre-test, and the test given after the treatment was the post-test. The questions given to the research sample have gone through validity and reliability tests to collect questions that are considered valid and appropriate. The data analysis techniques used in this study are descriptive analysis and inferential statistical analysis.

The research design used is One Group Pretest-Posttest Only, One Groups Pretest-Posttest Design", which is a research project that has a pretest before being given treatment and a post-test after being given treatment. In this design, before the treatment is carried out, the sample is given a pre-test and at the end of the learning the sample is given a post-test or final test. This design aims to determine the effectiveness of using Pop-Up book media, so that it can be known more accurately because it can be compared before and after being given treatment. In this study, the validity used is content validity. In validating the contents of the test items, the researcher asked for help from 2 experts/validators consisting of 2 lecturers of Tadris IPA. Experts/validators assessed and provided input using the validation sheet that had been provided for the four instrument packages that had been prepared. In proving the validity of the contents of the instrument items. The resulting values are then ranked

based on their validity. The classification of the instrument's content validity is based on the following table:

Table 1. Classification of Instrument Content Validity

Classification	Validity
< 0,4	Low
0,4 - 0,8	Medium
0,8 - 1,0	High

Based on the expert validation test that has been calculated using the v-aiken index formula, the results obtained show that the contents of the instrument are highly validated with an average value of 1.0. For reliability testing, Reliability is a description of the ability of an instrument to be used reliably in the data collection process. Something measurement can only be trusted several times to measure the same group of substances, relatively the same measurements are obtained as long as the measured side of the subject matter does not change. The reliability test used in this study is This reliability test uses the Cronbach alpha coefficient formula with the help of SPSS. The rules for determining whether an instrument or research question is reliable or not are If the Cronbach Alpha reliability number exceeds 0.6 then the instrument is reliable, the questionnaire is reliable and can be used, If the Cronbach Alpha reliability number is less than 0.6 then the instrument is not reliable, the questionnaire is not reliable and cannot be used. Based on the calculations carried out, the results obtained are that the statistical value for the 10 questions in the Cronbach's Alpha value is known that the Cronbach's Alpha value is 0.940 then for the ten questions > 0.60, so it can be concluded that the 10 questions of the questionnaire items are reliable.

3. Findings and Discussion

3.1 Findings

The effectiveness of using pop-up book media in thematic learning in class III of Madrasah Ibtidaiyah Asy-Syafi'iyah can be seen from the increase in student learning outcomes, especially in understanding abstract concepts. This media helps students understand the material more easily through interesting and interactive visualizations, thereby increasing their memory and involvement in learning. In addition, pop-up books can also stimulate students' creativity and reading interest, which contributes to improving overall understanding of the material. However, its effectiveness is highly dependent on the teacher's skills in using it, the availability of adequate media, and the suitability of the learning method to the characteristics of the students. Therefore, to ensure that the use of pop-up books is truly effective in improving learning outcomes, careful planning, training for teachers, and systematic evaluation of its impact on student understanding are needed.

Descriptive Analysis

The pre-test results showed variations in student achievement scores, with a significant difference between the highest and lowest scores. The average score obtained reflects the initial level of understanding before using the Pop-Up book media. In addition, the level of spread of scores within the group can be seen from the standard deviation which shows the extent to which the scores vary from the average. The higher this number, the wider the differences between students in completing the pre-test.

Table 2. Data on Pretest Values of Learning Outcomes for Class III A

Amount of Data	The highest score	Lowest Value	Value Range	Average value	Standard Deviation
22	100	50	50	77,27	15,79

Students achieved a highest score of 100 and a lowest score of 50 in the pre-test, with a range of scores of 50, measuring variation in the data. The average pre-test score was 77.27, reflecting the average score of students before using the Pop-Up book media. The standard deviation was 15.79, indicating the distribution of variability in scores within the group. The higher the standard deviation, the greater the variation in scores in the data.

Table 3. Learning Outcome Completion Criteria

Score	Category	Frequency	Percentage
< 75	Not Completed	8	36,3%
75-100	Completed	14	63,6%

A student at Madrasah Ibtidaiyah Asy-Syafi'iyah is considered to have completed learning if they get a minimum score of 75. From the data, 14 people (63.6%) managed to meet this criterion, while 8 people (36.3%) have not completed it. The Maximum Completion Criteria (KKM) used is 75. Before the use of Pop-Up book media, the majority of students met the KKM, but there were still 36.3% who had not achieved completion. This shows that there is room for improving understanding of the material. The learning outcomes of class III A students have not achieved classical completion ($\geq 80\%$), indicating the need to improve the quality of learning, perhaps by implementing Pop-Up books. Further evaluation is needed to assess the effectiveness of Pop-Up books in improving learning completion.

Table 4. Post-test Value Data for Learning Outcomes of Class III A

Amount of Data	The highest score	Lowest Value	Value Range	Average value	Standard Deviation
22	100	80	20	93,18	7,79

In the post-test, the highest score achieved by students was 100 and the lowest score was 80, with a range of 20, indicating a smaller variation in data compared to the pre-test. The average post-test score was 93.18, indicating a significant increase in students' understanding after using the Pop-Up book media. The standard deviation in the post-test was 7.79, indicating that the distribution of students' scores was closer to the average, indicating consistency in increasing their understanding. This confirms the effectiveness of the Pop-Up book media in improving thematic learning outcomes of class III A in accordance with the Maximum Completion Criteria (KKM).

Table 5. Learning Outcome Completion Score

Score	Category	Frequency	Percentage
< 75	Not Completed	0	0%
75-100	Completed	22	100%

After using Pop-Up book media in thematic learning, all students (22 people or 100%) successfully achieved or exceeded the Maximum Completion Criteria (KKM), with no students who did not complete (0%). This shows that Pop-Up book media is very effective in improving the understanding and learning

outcomes of class III A students at Madrasah Ibtidaiyah Asy-Syafi'iyah. The use of this media has succeeded in ensuring that all students understand the learning material well. These results confirm the effectiveness of Pop-Up books as a reliable thematic learning method.

Inferential statistical analysis is an analysis that tests learning success before and after using Pop-Up book media. In this study, inferential statistical analysis was carried out by means of prerequisite tests and hypothesis tests.

Prerequisites Test

Normality Test is a form of testing the normality of data distribution. The purpose of this test is to determine whether the sample studied is normally distributed or not. The normality test used in this study is the one-sample Kolmogorov Smirnov test because the number of samples is small, less than 50. This test is carried out using the formula:

$$Z = \frac{X - \bar{x}}{S}$$

Description:

Z = Standard score

X = Score of each sample

$\bar{x}$ = Average sample score

S = Standard deviation

This test was conducted with the help of the SPSS program. The form of the conclusion of the normality test in this study is as follows: 1) If the alpha value (Sig.) Is greater than 0.05 then the research data is normally distributed; 2) If the alpha value (Sig.) Is less than 0.05 then the research data is normally distributed.

Table 6. Recapitulation of Normality Test of Learning Outcomes of Class III A Students

		Unstandardized Residual
N		22
Normal Parameters	Mean	0,0000000
	Std. Deviation	7,30398619
Most Extreme Differences	Absolute	0,134
	Positive	0,128
	Negative	-,134
Test Statistic		0,134
Asymp. Sig. (2-tailed)		0,200

The table above shows that the normality test of the learning outcomes of class III A students has exceeded the alpha value (0.05) and it can be concluded that the data is normally distributed and means that the samples taken come from the same population. After conducting the normality test, the researcher then conducted a Homogeneity Test. The homogeneity test is a statistical test procedure that aims to show that two or more groups of data samples are taken from populations that have the same variance. The homogeneity test used in

this study is the Lavene's test with the help of SPSS, the Lavene's test formula is:

$$F_{\text{Count}} = \frac{\text{Varians The Biggest}}{\text{Varians The Smallest}}$$

The form of the conclusion of the homogeneity test in this study is as follows: 1) If the significance value (Sig.) is greater than 0.05 then the data has a homogeneous variance; 2) If the significance value (Sig.) is less than 0.05 then the data has a non-homogeneous variance.

Table 7. Recapitulation of Homogeneity Test

		Levene	df1	df2	Sig.
		Statistic			
Results	Based on Mean	2,619	1	36	0,114
	Based on Median	2,267	1	36	0,141
	Based on Median and with adjusted df	2,267	1	33,369	0,142
	Based on trimmed mean	2,734	1	36	0,107

The table above shows that the homogeneity test of the learning outcomes of class III A students has exceeded the sig value (0.05) and it can be concluded that the data is homogeneous and means that the sample data studied has the same variance.

Hypothesis testing

Hypothesis testing in this study uses Statistical Hypothesis and N-Gain Test, Statistical hypothesis is an operational hypothesis that is translated into statistical figures according to the data measurement tool chosen by the researcher. Statistically, the research hypothesis can be formulated as follows:

H₀: The use of Pop-Up book media does not affect the learning outcomes of thematic learning in class III of Madrasah Ibtidaiyah Asy-Syafi'iyah.

H₁: The use of Pop-Up book media affects the learning outcomes of thematic learning in class III of Madrasah Ibtidaiyah Asy-Syafi'iyah.

With the following hypothesis decision-making criteria: 1) If Significance > 0.05 then H₀ is accepted; 2) If Significance < 0.05 then H₀ is rejected H₁ is accepted. Based on the calculation results using SPSS, the following information is obtained:

Table 8. Hypothesis Test Results

Paired Samples Test									
Paired Differences									
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	Df	Sig. (2-tailed)
					Lower	Upper			
Pair 1	Pretest-posttest	-15,90909	14,36235	3,06206	-22,27700	-9,54118	-5,196	21	0,000

Based on table 4.10, it is obtained that the Sig. (2-Tailed.) value is 0.000 < 0.05. Therefore, it can be concluded that the null hypothesis (H₀) is rejected and the alternative hypothesis (H₁) is accepted, which indicates that there is a significant difference between learning without using Pop-Up book learning

media and learning using Pop-Up book learning media. After conducting a hypothesis test using a statistical hypothesis test, the researcher then tested the N-Gain Test. The N-Gain Test aims to determine the increase in value, the normalized gain formula (N-Gain) is used. The gain value is obtained by comparing the pre-test and post-test values. The normalized gain formula is.

$$g = \frac{S_{Post} - S_{Pre}}{S_{Maks}}$$

Description:

g: Normalized gain

S_{Post} : Post-test average

S_{Pre} : Pre-test average

S_{Maks} : Maximum average

Then, for the categorization of the N-Gain Score value obtained to measure the level of effectiveness of the Pop-Up book learning media, it can be seen in the following table:

Table 9. Average Value of Pre-Test, Post-Test, N-Gain of Student Learning Outcomes

Data Source	Average				
	N	Pre-Test	Post-Test	N-Gain	N-Gain %
Learning outcomes	22	77,27	93,18	0,65	65,9%

Based on the table above, it can be seen that the N-gain value (N-Gain Score) is 0.65 and the N-Gain percent value is 65.9% so that the score increase is categorized as moderate, so it can be said that the use of Pop-up book media is quite effective in thematic learning for class III of Madrasah Ibtidaiyah Asy-Syafi'iyah.

3.2 Discussion

The use of Pop-Up book media in thematic learning in class III A of Madrasah Ibtidaiyah Asy-Syafi'iyah has been proven to have a positive impact on improving student learning outcomes. Before using this media, there were still variations in understanding among students, which can be seen from the fairly large differences in scores. In addition, not all students managed to achieve the set completion standards. This shows that the previous learning method was not fully effective in helping all students understand the material well. After the application of Pop-Up book media, there was a significant increase in student understanding. The average value of learning outcomes increased, and the variation in understanding between students became smaller. This shows that the use of Pop-Up books helps create a more even understanding, so that each student has the same opportunity to achieve better learning outcomes. Consistency in increasing scores also indicates that this method is effective in delivering material in a more interesting and easy-to-understand way.

Learning completion, Pop-Up book media successfully ensured that all students achieved the set standards. Before its use, there were still students who had not met the completion criteria, but after its implementation, all students were able to understand the material well. There were no more

students who had difficulty in achieving the expected learning outcomes. This success proves that interactive visual media can be a solution in improving students' understanding as a whole. Based on the results of this analysis, it can be concluded that the use of Pop-Up book media is very effective in improving thematic learning outcomes at the elementary level. This media not only helps students understand the material better, but also creates a more interesting and enjoyable learning atmosphere. Therefore, it is recommended that this learning method can be applied more widely to support the achievement of optimal learning outcomes and improve the quality of learning in elementary schools.

Based on the results of the prerequisite tests conducted, the research data meets the requirements for normality. The normality test using the one-sample Kolmogorov-Smirnov test shows that the significance value is greater than 0.05, which means that the data is normally distributed. Thus, the samples used in this study come from the same population, so they can be used for further analysis. In addition to the normality test, this study also conducted a homogeneity test to ensure that the data used have the same variance. The homogeneity test was conducted using Levene's Test with the help of the SPSS program. The test results show that the significance value is greater than 0.05, which means that the data has homogeneous variance. The fulfillment of the requirements for normality and homogeneity, the data in this study is considered to meet the criteria for further statistical analysis. This is important to ensure that the research results are valid and can be interpreted accurately. Normality indicates that the data is distributed fairly, while homogeneity indicates that differences in the data are not caused by differences in variance between groups. This prerequisite test indicates that the analysis method to be used can run well without any bias due to abnormal data distribution or inhomogeneous variance. Thus, the next steps in the research can be undertaken with confidence that the data has met the standards required to obtain valid and reliable results.

Based on the results of the statistical hypothesis test that has been conducted, it can be concluded that the use of Pop-Up book media has a significant effect on the learning outcomes of thematic learning of class III students of Madrasah Ibtidaiyah Asy-Syafi'iyah. This is evidenced by a significance value that is smaller than 0.05, so that the null hypothesis (H_0) is rejected and the alternative hypothesis (H_1) is accepted. Thus, the use of Pop-Up book-based learning media has proven effective in improving students' understanding and learning outcomes compared to learning without the media. In addition to statistical hypothesis testing, this study also uses the N-Gain test to measure the increase in student learning outcomes after the implementation of Pop-Up book media. Further analysis through the N-Gain test is expected to provide an overview of the effectiveness of improving learning outcomes before and after the use of this media. Thus, this study provides empirical evidence that the use of innovative learning media, such as Pop-Up books, can be an effective strategy in improving the quality of thematic learning at the elementary school level.

4. Conclusion

Based on the results of the research and data analysis, it can be concluded that the use of Pop-Up book media is effective in improving student learning outcomes. This is proven by the results of the paired sample t-test which shows a Sig. (2-Tailed) value of 0.000, which is smaller than 0.05. This value indicates

a significant difference between learning without using Pop-Up book media and learning that applies the media. Thus, the use of Pop-Up books has been proven to have a positive impact on students' understanding and academic achievement. In addition, the effectiveness of Pop-Up books as a learning medium can be associated with its interactive and interesting characteristics, so that it can increase students' interest in learning. Pop-Up books not only present material in text form, but also in visual form that can help students understand concepts more concretely. With the active involvement of students in the learning process, this method contributes to increasing information retention and overall learning outcomes. Therefore, the use of Pop-Up books can be an innovative strategy in improving the quality of learning at various levels of education.

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