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The Influence of Pop-Up Book to The Student's Outcomes in Learning Ecosystem

U. Zuhdi & E. T. Wati
Universitas Negeri Surabaya, Surabaya

***Abstract*—This research aims to describe the effect of Pop-Up Book media, the implementation of Pop-Up Book media and the response of students in the use Pop-Up Book media in the fifth grade in SDN Karangpilang 1 Surabaya. It uses a quasi-experimental research by nonequivalent control group design. There is a significant effect on the provision of treatment by using Pop-Up Book media toward student learning outcomes in Ecosystem material. It is proved by test T, Sig. (2-tailed) around 0,000 < 0,05 then Ha (alternative hypothesis) received or there are significant differences between post-test and pre-test results in control class compared to the experimental class.**

Keywords—Pop-up book; learning media; ecosystem

1 INTRODUCTION

The professional teacher must build a good character in order to be a good example for his/her students. As explained by William Arthur in Rahayu (2013:5), there are 4 types of teachers namely, a good teacher who gives a good explanation, an excellent teacher who gives a good example, and a great teacher who can inspire. The key to improve the quality of education relies heavily on teachers' creativity and skills in delivering the media in the teaching and learning process in the classroom. Because education greatly affects the development of a country, the development here is essentially a conscious effort to provide progress, abilities and skills to the younger generation.

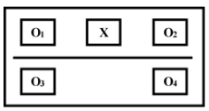
The use of media in the teaching and learning process is a supporting aspect especially in conveying and clarifying the meaning of the message to be conveyed because by utilizing the media, teachers can make concrete abstract learning, so that the learners will easy to understand the information and concern in long-term memory system that allows them to use ideas when thinking at a more complex and creative level. One alternative media that can be used by teachers to facilitate learners is by using Pop-Up Book media. According to Bluemel and Taylor (2012:1), the notion of Pop-Up Book is a 3-dimensional book that can move by opening closed and its visualization interesting by using paper as the material. Pop-Up Book Media can give a special impression to the students to attract attention and can increase the spirit of learners. The use of such media in learning will make the learners more focus to observe more detail the ecosystem components and structures as the learning material. The material about the ecosystem components is very interesting if presented with Pop-Up Book media because it contains many pictures that make the learners easier to memorize in detail.

This study aims: (1) to describe the effect of using Pop-Up Book media on the students' learning outcomes V-class ecosystem theme Karangpilang 1 Primary School Surabaya, (2) to describe the implementation of Pop-Up Book Student learning outcomes ecosystem theme of class V Karangpilang 1 Primary School Surabaya, (3) to describe students 'responses in the use of Pop-Up Book media on students' learning outcomes V-class ecosystem theme Karangpilang 1 Primary School Surabaya.

2 METHOD

This research puts on a quasi-experimental research design. The quasi-experimental design used by the researcher is nonequivalent control group design using two classes namely control class and experiment class. The selection for the experimental group or the control group is not randomly selected, but it is selected based on the existing groups. The design of this research will be planned in two meetings, the first meeting is done in the experiment class and the second meeting is done in the control class, the two meetings are exactly same as the first three steps: (1) At the beginning of the study the researcher gives a pre-test to the experimental class and the control class that aims to determine the initial ability possessed by the students, (2) Then, the researcher carries out the learning activities by using Pop-Up Book media for the experimental class while the control class learning activities are conducted conventionally by the lecture method, (3) After the learning activity, a post-test is given to determine student learning outcomes after being given treatment by using Pop-Up Book media and conventional learning.

According to Sugiyono (2014: 79), the formula nonequivalent control group design is as follows:



Information :
O1: pre-test of the experimental group
O2: the experimental group's final measurement (post-test)
O3: initial measurement (pre-test) of the control group
O4: final measurement (post-test) of the control group
X : experimental group treated (treatment)

The location used for this research is at Karangpilang 1 Primary School Surabaya. The selection of this school is based on some considerations such as: (1) The school is open to receive input from other parties in the form of Pop-Up Book media. (2) The low learning result of students in Karangpilang 1 Primary School Surabaya. (3) The purpose is to improve student learning outcomes by using Pop-Up Book media. The subject in this research is 45 students of class V that consists of 24 students of VA class and 21 students of class VB. The entire population of the VA and VB classes will be used as control classes and experimental classes. The data collection techniques used in this study are test result sheet, observation sheet of learning and questionnaires.

The data analysis techniques consist of instrument analysis and result analysis. The instrument analysis technique consists of validity and reliability test, while the result analysis technique consists of normality test, homogeneity test, hypothesis test, normalized N-Gain, learning implementation of the data analysis and student's response of the data analysis. The aim of using Normalized gains (g) is to provide an overview of the improvement of learning outcomes between before and after learning. After Normalized Gain results are obtained, then it analyzes based on the category of Normalize gain value (g) introduced by Hake (1999) and modified by Sundayana, as follows:

TABLE 1.INTERPRETED MODIFIED GAIN NORMALIZED.

Normalized Gain Value	Interpretation
$-1{,}00 \leq g < 0{,}00$	There was decline
$g = 0{,}00$	No increase
$0{,}00 < g < 0{,}30$	Low
$0{,}30 \leq g < 0{,}70$	Medium
$0{,}70 \leq g < 1{,}00$	High

(Sources: Hake in Sundayana, 2014:151)

3 RESULTS AND DISCUSSION

Validity test is performed to measure the validity of an instrument. Based on the description that has been described on the results of the research of 30 questions tested for the pre- and post-test questions, there are only 23 valid questions. The valid question has r count> r table, r table which is meant at the 5% significance level. This study uses SPSS 22 analysis to help the calculation, the formula used is the formula of Pearson correlation, in this case, a valid question is a matter that has an asterisk in the column of Pearson correlation. There are 23 valid questions used for the pre-test and post-test to collect the research data.

After a valid question is obtained, the reliability test is done. Reliability test aims to know how reliable the research instrument as a research data. This study uses multiple choice questions, therefore the calculation of reliability used is Spearman-Brown formula. The criterion for calculating reliability uses Cronbach Alpha and Spearman-Brown with a limit of 0.6. If r resulting from the calculation is greater than 0.6, then the instrument can be declared reliable, and vice versa. The calculation of SPSS 22 analysis of the obtained data is presented as follows:

TABLE 3. RELIABILITY TEST

Reliability Statistics

Cronbach's Alpha	Part 1	Value	,795
		N of Items	15[a]
	Part 2	Value	,974
		N of Items	15[b]
	Total N of Items		30
Correlation Between Forms			,798
Spearman-Brown Coefficient	Equal Length		,888
	Unequal Length		,888
Guttman Split-Half Coefficient			,797

Concerning to the table above, it can be concluded that the calculation value of Spearman-Brown> 0.6 is 0.888 and 30 all valid questions that can be seen on N of Items. So that the test instrument of objective questions of multiple choice with the total of 30 questions all is reliable.

At the end of this study, the obtained data that includes data on student learning outcomes (post-test value), assessment of learning implementation, and student questionnaire data. Regarding the result of the research and the analysis of the research data are (1) Learning result data obtained from post-test value in control class and experimental class. Next is the average comparison of the result of pre-test and post-test score in the control class and in the experimental class.

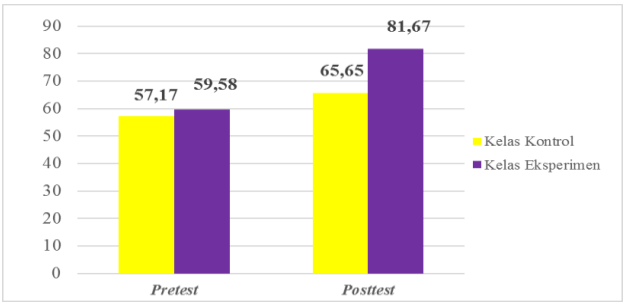


Diagram 1. Results of Pre-and Post-test of Control and Experiment Class

From the diagram 1 above, the average pre-test value in the control class is 57.17 and the average post-test value is 65.65, although it has gained an increase from the previous pre-test results, but the mean post-test value in the control class still has a value below the Minimum Completeness Criteria that has been determined by the school that is 75. As in the experimental class, the average pre-test value of 59.58 and the average post-test value of 81.67 has increased from the previous pre-test results. In addition to the average post-test

value in the experimental class has a value above the predefined Minimum Completeness Criteria. (2) The learning implementation data is obtained from the assessment of the implementation of the learning done by the teacher in the classroom. Furthermore, the results of learning implementation assessment in the experimental class and control class.

Analysis of learning result data (1) Normality test: The normality test of pre-test data is done in the control class as well as in the experimental class. Furthermore, the normality test using the help of SPSS 22 application, about the results of the calculation can be seen in Table 4:

TABLE 4. NORMALITY TEST OF THE POST-TEST RESULT

Tests of Normality

	Kelas	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Nilai_Pretest	1	,148	23	,200*	,936	23	,149
	2	,160	24	,113	,936	24	,132

*. This is a lower bound of the true significance.

Based on the above calculation table using SPSS 22 analysis, then the calculation of normality can be seen in the table as a part Kolmogorov-Smirnova. In class 1, it shows the pre-test value in the control class, and vice versa for class 2 shows the pre-test value in the experimental class. It can be seen from the table 4 that the Sig value in the pre-test of the control class shows the value of 0.200> 0.05 and the df 23. Therefore, it can be deduced that the pre-test data in the control class is normally distributed. Likewise, the pre-test data of the experimental class shows the data of 0.113> 0.05 and df 24, therefore, it can be deduced that the pre-test data in the experimental class is also normally distributed. Furthermore, normality test of post-test data is done in the control class as well as in the experimental class. Furthermore, the normality test using the help of SPSS 22, about the results of the calculation can be seen in Table 5:

TABLE 5. POST TEST NORMALITY TEST RESULT

Tests of Normality

	Kelas	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Nilai_Posttest	1	,149	23	,200*	,944	23	,217
	2	,161	24	,107	,943	24	,191

*. This is a lower bound of the true significance.

Based on the above calculation table using SPSS 22, the analysis then the calculation of normality can be seen in the table part Kolmogorov-Smirnova. In 1st graders, it shows the post-test value in the control class, and vice versa for 2nd graders shows the post-test value in the experimental class. It can be seen from the table above that the Sig. value of the control class post-test shows the value of 0.200> 0.05 and the df 23. Thus, it can be concluded that the post-test data in the control class is normally distributed. Likewise, the post-test data of the experimental class shows the data of 0.107> 0.05 and df 24, therefore, the conclusion of the post-test data in the experimental class is also normally distributed.

After passing the next normality test stage is homogeneity test performed both in the control class as well as in the experimental class. Test homogeneity using SPSS 22 through Levene Test (Levene Test). For the calculation results can be seen in the following table:

TABLE 6. PRETEST HOMOGENEITY DATA

Test of Homogeneity of Variances

Nilai_Pretest

Levene Statistic	df1	df2	Sig.
,001	1	45	,976

A data can be said that it has the same or so-called homogeneous variant when the data has a greater significance than 0.05 or sig> 0.05. Based on the results data values expressed in the above table Test of Homogeneity of variance in the sig column, it shows a significance value of 0.976> 0.05 which means pretest data control class with experiment class has the same variant or can be said homogeneous

Furthermore, the homogeneity of post-test data both in the experimental class and control class. The homogeneity test using SPSS 22 through Levene Test can be seen in Table 7:

TABLE 7. POST-TEST HOMOGENEITY DATA

Test of Homogeneity of Variances

Nilai_Posttest

Levene Statistic	df1	df2	Sig.
1,029	1	45	,316

A data can be said to have the same or so-called a homogeneous variant when the data has a greater significance than 0.05 or sig> 0.05. Based on the results data values expressed in the table Test of Homogeneity of Variance in the sig column, it shows the significance value of 0.316> 0.05 which means the data of control class post-test with the experimental class has the same variant or homogenous.

After having homogeneity test, next is T-test, T-test leads to the calculation of difference post-test result of both classes. T-test using Independent Sample T-test calculations, caused in this study using two groups of samples that do not affect each other. This T-test calculation uses SPSS 22

analysis, the calculation result can be seen in the following Table 8:

TABLE 8. T-TEST THE DIFFERENCE CONTROL CLASS AND EXPERIMENT CLASS

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Gain	Equal variances assumed	,317	,576	-5,029	45	,000	-13,60507	2,70516	-19,05354	-8,15661
	Equal variances not assumed			-5,045	44,585	,000	-13,60507	2,69695	-19,03841	-8,17173

STUDY RESULT

Based on table 8, it can be seen that t arithmetic is -5.029 which means that the <t table is -5,029 <-2.014 at the level of significance 5%. So, it can be concluded that there is a significant influence on the class who is given treatment in the form of use of Pop-Up Book media on student learning outcomes.

The last stage is by passing the N-Gain test that leads to improve the learning outcomes both in the experimental class and control class. Based on table result of N-Gain mean calculation in control class get 0,19 that means low category and experiment class get 0,56 that means medium in the category. The average score of N-Gain in the control group that is as much as 0.19 with a low category and the average score of the experimental group is 0.56 that enter in the medium category. So, it can be concluded that in the class that does not use the media Pop-Up Book increased learning outcomes in the low category, as well as for the experimental class that the process of learning using the media Pop-Up Book increase learning outcomes into the medium category.

The analysis of student responses can be obtained from the questionnaire distributed to the experimental class students after following the learning process using the Pop-Up Book media. This students' responses to the questionnaires lead to the formula how students respond by using Pop-Up Book media in learning. The questionnaire consists of 20 items of statements with 5 choices of answers strongly agree, agree, hesitate, disagree and strongly disagree. Questionnaire division is done at the end of the learning process which is answered by all students of class V-B with the number of students as many as 24 children.

Based on the results of data analysis acquisition of answers, the entire question on the questionnaires of student responses as much as 2083, While the maximum score for all the questions as much as 2400. The maximum score is obtained from the total multiplication of total answers with the number of questions in the questionnaires 120 x 20 = 2400. So, the number of scores obtained in the study for all statements on the questionnaires of student responses is 2083 equivalent to 86.79% and is categorized as excellent and students' responses to the use of media Pop-Up Book achieves the positive response.

4 CONCLUSION

It can be concluded that the Pop-Up Book media has an effect on the improvement of student learning outcomes of grade V in SDN Karangpilang 1 Surabaya. The lesson of learning by using Pop-Up Book media ran well in accordance with the steps listed in the lesson plan and included in the category very well. Moreover, the students' responses to the learning process by using Pop-Up Book media also has very a good category, it can be shown by looking at the results of questionnaire scores of students who reached the score of 87% agree with learning Ecosystem using Pop-Up Book media.

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