THE EFFECT OF EDUCATIONAL COMIC MEDIA USE ON STUDENTS' LEARNING OUTCOMES ON NATURAL SCIENCE CONTENT

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Abstract: The purpose of this study is to determine the effect of implementing educational comic media on student learning outcomes for science content of fifth-grade students at SDN 2 Pengenjek. This type of research is an experimental research design with a quasi-experimental type of non-equivalent control group design. The data collection technique used is an observation of the learning implementation applying educational comic media and tests to collect data on learning outcomes using multiple-choice tests. The research population was 44 respondents, namely the fifth-grade students of SDN 2 Pengenjek, determined by the saturated sampling technique. The data were analyzed using descriptive statistics and inferential statistical analysis (t-test). The results showed the average value in the experimental class was 69.09 while the class was 44.85. The results of the t-test analysis on students' science learning outcomes obtained a significance value of 0.000 at a significance level of 5%. Based on these results, it can be concluded that there is an impact of using educational comic media on the learning outcomes of fifth-grade students at SDN 2 Pengenjek.

PENDAHULUAN

The educational learning process in each primary and secondary learning institution, as stated in the Minister of National Education regulations number 41 of 2007 about Process Standard that it is carried out interactively, inspiring, challenging, and motivating so that students can participate actively and give appropriate space for the initiative, creativity, independence, in accordance with talents, desire, physical and psychological growth of students [1]. Teachers, as a professional educators, must be able to work it out. If the process is not carried out properly, it will not give optimal results as expected [2].

Science is one subject that students learn in elementary school, yet students' learning outcome is not satisfying enough. Students still experience difficulties in mastering the science concepts. If the learning material is presented monotonously, it causes students to be less interested and participate. Meanwhile, the science learning process requires students to participate actively so that it can give meaningful learning to students and lead to a satisfying result. Science education should be cohered to students' cognitive growth and interst. However, interest education for elementary schools should be designed attractively to grow students' curiosity and multidirectional interaction [3]. To achieve the expected result, there is a need for innovations in educational activities, one of which is implementing attractive learning media for students.

Basically, the accuracy of process packaging of learning is one of the alternative solutions needed to overcome all the learning problems. The learning process must consider all the learning aspects, including the implemented learning media and students' characteristics as the main concern. Science learning can't be separated from its learning media. However, the distributed media and textbooks do not meet the expectation of comprehensive scientific learning. Besides, media and textbooks are mostly designed with written material with small pictures to describe the material, making students experience boredom and less interest. Most students do not like a textbook, particularly books with no illustrations. Based on the experience, students prefer full-colored and picture books or cartoon, so that make them livelier [4]. However, less illustrated textbooks in science education are responsible for students' low achievement in the subject itself [5]. Less illustrated and colored textbooks causes students to be less interested and lead to low motivation. On the other hand, students already find science a difficult, very theoretical, and boring subject, yet the media used during the process is less innovative and adds to students' less interest in the subject.

On the other hand, in fact, science education in schools is presented in a teacher-centered way that grows assumption that teachers are the only source of the learning and students tend to only accept what's being delivered in the class causes them to be passive, and give no opportunity for students to take part during the process. In common, teachers' main role is to build a comfortable situation in the learning

process [7]. These are suspected as the factors of students' low learning motivation in which leads to the poor performance. Learning outcome is defined as students' achievement and expressed in the form of score which is obtained from the test results of a certain subject, the test result is defined as the skills students gained after the learning process takes place.

The problems, as what explained above, can be solved if the teachers implement the learning process which can attract students' attention. Hence, a teacher must apply the learning media which is aimed to create an active and attractive learning process so that it can make students to be more interested, focus, and understand the material [9]. The media is consisted of several educational components which is functioned as learning sources and offer a learning strategy. A learning media can be called and defined as one if it is used to deliver the material in which it can convey the purposes of learning in a way students can achieve as previously stated by Brigs and quoted by (Sadiman) that the learning media can convery the message and attract students' attention so that they will be highly motivated in the learning process [10]. Media can be divided into 3 parts which consist of visual, audio, and audiovisual media [11]. The media which assisted by illustrated stories is one of the way to attract students' attention in the preparation step of learning process, to be specific is to implement educational comic media. Educational comic media based on the learning material is an imajinative and attractive media implemented in the scince education, educational comic can build a pleasant learning atmosphere through the arranged storylines [12]

Educational comic is one of the reading or visual illustrated media which contains learning content and has the control to directly communicate the data [13]. In this concept, students can notice the natural conditions that can't be pictured.

Furthermore, students can be aware of the pollution and how it affects health in the form of pictures or illustrated media in which helps students to have a better understanding to the content being presented. Comic defined as illustrations and symbols which are arranged in a certain order aims to provide information to the readers [14]. Implementation of educational comic media will ease students to understand the learning content and give a more condusive learning process.

Based on the background explained above, the study titled "The Effect of Educational Comic Media Use to Students' Learning Outcome on Natural Science Content" was conducted in SDN 2 Pengenjek. The formulation of problems in the study is whether there is an effect of educational comic media on the natural science learning outcome of fifth-grade students at SDN 2 Pengenjek. The purpose of the study is to determine the effect of educational comic media on natural science learning outcomes of fifth-grade students at SDN 2 Pengenjek.

RESEARCH METHODS

The study is a quantitative study with quasi-experimental type *nonequivalent control group design* because the design applies two groups of study, respectively control and experiment, in which each class isn't randomly.

The study was conducted at SDN 2 Pengnejek in the second semester of the academic year of 2020/2021. The study population was fifth-grade students at SDN 2 Penganjek, with a total of 44 students. The sample was taken using the saturated sampling method, in which the total amount of population is taken as a sample [15]. The type of the study is quasi-experiment using *a nonequivalent control group design. The* study design is presented in the table below.

Table 1. Study Design

Class	Pretest	Treatment	Posttest
Experiment	O_1	X	O_2
Control	O_3		O_4

The data collection method was carried out by observation and tests. Observation is used to collect the data related to the implementation of educational comic media during the learning process. Test in the form of multiple choices is used to collect data of cognitive science learning outcomes, in which previously had been passed the expert judgement and realibity test. The collected data was analyzed using descriptive analysis and inferential statistic analysis (t-test). The data in the study is

presented in graph.

Before testing the hyphotesis, several prerequisite tests must be done at an early stage of the study, namely normality and homogeneity tests. Normality test of the data distribution is done to determine whether the data of two groups are normally distributed or no. The normality test of students' science learning outcomes was analyzed using *kolmogorov smirnov* with calculation of SPSS 21 for windows. The data is categorized as normally

distributed if the value greater than 0.05 at significance level of 5%. Homogenity test was done to determine the data distribution was completely homogeneous. Homogenity test of both groups used *Levene statistic* with calculation of SPSS 21 for windows. The data is categorized homogenous if the value is greater than 0.05 at significance level of 5%.If the value is lower than 0.05 at significance level 0f 5%, data is categorized as not homogenous. The analysis method of hyphothesis test was t test using independent sample t-test formula.

RESULTS AND DISCUSSION

In order to picture students' science learning outcome, tha data was analyzed descriptively to determine the highest, lowest, average values, and deviation standard. The data results of descriptive analysis are presented in Table 2.

Table 2. Descriptive data of students' science learning outcome of experiment and control groups

Class	The number of data	Highest value	Lowest value	Average value	Deviation standar
Experiment	22	93	40	69,09	14,63
Control	22	60	27	44,85	10,53

Based on the Table 2 presented above, the number of students in the experiment and control groups was each 22 students. The average value of experiment group was 55.45, while the control group was 40.91, the highest value of both groups was 80 while the lowest value of experiment and control group was respectively 33 and 7, in which only one student passed the pretest and two students in the control group respectively 80 and 73.3 while the other students' got the value under 70.

In the post test, students in experiment class got average value of 69.09 with the highest and lowest value respectively 93.33 and 40.00, in which 17 students got above 60 categorized as passed while 5 students got under 60 categorized as not passed. Meanwhile in the control class, the average value was 44.85 with the highest and lowest value respectively 60.00 and 26.67. In the control class, 17 students who got value under 60 didn't pass, while the 5 students passed with value above 60. The data is presented in the following graph (Figure 1).
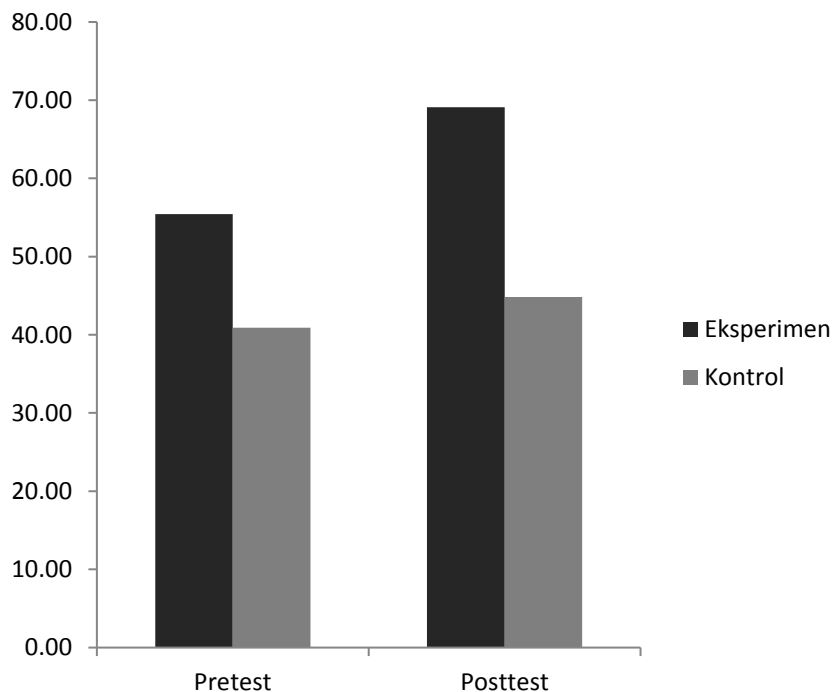

Figure 1. Comparison Graph of Pretest and Posttest for Experiment and Control Group

Prerequisite test, namely normality and homogeinity tests, was carried out after the descriptive analysis result obtained. Normality test was carried out to determine whether the data of both groups was distributed normally. Based on the calculation using SPSS 21 for windows, the data value of significancy was .061 and .200 for pretest and .200 and .200 for posttest. If it is being interpreted, the value became 0.061 and 0.200 for prestest and 0.200 and 0.200 for pretest. Compared to significance level of 0.05, the significance level of both groups' normality test was greater than 0.05, therefore the data in this study was distributed normally.

Homogeinity test was carried out in the next step using SPSS 21 for windows, the significancy value obtained in the pretest and posttest was 0.087 > 0.05, therefore the pretest and posttest variants categorized as homogenous. Based on the analysis result of prerequisite test, the data of students' science learning outcome of students in the experiment and control class was normal and homogenous, therefore the t-test could take place at the next step.

The hyphothesis of study tested whether there was significant difference of students' science learning between students who learned using educational comic media and students who learned conventionally. hyphothesis test was carried out using t-test statistic using *independent sample t-test* fotmula.

Table 3. Hyphothesis Test

| | Levene's Test for Equality of Variances | | t-test for equality of mens | | | | | | |
| | F | Sig. | T | Df | Sig. (2-Tailed) | Mean Difference | Std. error difference | 95% Confidence interval of the difference | |
								Lower	Upper
Science learning outcome	3.150	.083	6.269	42	.000	24.18182	3.85718	16.39772	31.96591
			6.269	38.224	.000	24.18182	3.85718	16.37488	31.98876

The results of t-test above showed that value of Sig(2-tailed) was 0.000 which was lower than 0.05. Therefore, it can be interfered that there is an impact of educational comic media use to students' science learning outrome of fifth grade students at SDN 2 Pengenjek.

Discussion related to the result of hyphothesis test was carried out based on the analysis result of independent variable, namely the educational comic media, dependent variable namely the students' science learning outcome on the learning material of Fungi and Human Digestive System Disorders.

The results of the study found that there is an effect of educational comic media use to fifth grade students' science learning outcome at SDN 2 Pengenjek in the academic year of 2020/2021. The effect is proved by the results of the data analysis which found there was a positif and significant difference between the average values before and after the treatment. The results of study is in accordance with the previous study about Learning Reference to Students' Learning Outcomes using Science Comic got a value of 64.776 ± 15.941 (X ±SB) in the category of very significant compared to students' learning outcome when using conventional text book with a value of 47.771 ± 14.319 (tcount = 6.873 ; P = 0,000). Therefore the average value of students' science learning outcome was 35.59 % in the category of very significant. [16].

The early stage of the study was carried out by conducting pretest to the students in order to determine students' initial knowledge and skills. The average value of students' pretest was 55.45 with the highest and lowest value respectively 80 and 33.33. The next step done was giving treatment to students by implementing educational comic media of science content in two meetings. The first meeting was held on May 24, 2021 while the second one was on May 25, 2021. Students' did the posttest after the treatment in order to determine the students' learning outcome of the natural science content. The average values of the posttest, the highest, and the lowest value respectively 63.09; 93.33; and 40.00.

The constraint during the study was the matter of a very short time, namely only 4 meetings in each class, so that students in the experiment class weren't familiar enough to learn using educational comic since they were adapted to lecture method, as the saying goes "Old habits die hard". However,

students were quite active and paid a good attention when the learning process of implementing educational comic media was held. This is probably because the educational comic media is a learning media that emphasizes image in the form of cartoons and students in elementary school are still at the concrete thinking level makes them easier to remember things in the form of illustration instead of written material. Therefore, the implementation of educational comic media during the learning process of science gives impact to students learning outcomes.

Students became interested and motivated during the learning process when the educational comic media was implemented in the class, it also eased students to understand the learning material, and they seemed to get very excited to learn using the media prepared by the researcher [17].

Based on the explanation above, it can be concluded that the implementation of educational comic media in the natural science content gives an impact to the learning outcomes of fifth grade students at SDN 2 Pengenjek in the academic year of 2020/2021.

CONCLUSION

Based on the study results, data analysis, and discussion explained above, it can be concluded that the average value of the experiment class was 69.09 while the control class was 44.85. The significant results were $0.000 < 0.05$, which indicated an impact of educational comic media on the science learning outcomes of fifth-grade students at SDN 2 Pengenjek, Jonggat, Central Lombok district in the academic year of 2020/2021.

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