



The Effect of Using Interactive Digital Learning Media to Raise Environmental Awareness in Grade IV Elementary School Students on the Content of Pancasila Education

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Abstract. Monotonous conventional learning media has a bad impact on students, especially on students' environmental awareness of the environment. This research aims to raise environmental awareness in fourth grade elementary school students using interactive digital learning media Lumio By Smart. This research was conducted using quantitative experimental methods with a research design Quasi Experimental Design. The population in this study was class IV students at SDN Ancol 01 Pg, with a sample of class IVb totaling 31 students as the experimental class and class IVa totaling 31 students as the control class. The techniques for collecting research data used were observation, interviews, and written tests, namely pretest and posttest. The research results showed that the experimental class had a greater improvement compared to the control class. In the t-test results, it is known that the two-sided significance value is $0.000 < \text{significant value } 0.05$. This shows that H_0 is rejected and H_1 is accepted. From the results of this research, it can be concluded that the use of interactive digital learning media Lumio By Smart which has a significant influence on the environmental awareness of class IVb students at SDN Ancol 01 Pg.

Keywords: Environmental Awareness, Digital Learning Media, Pancasila Education..

1 INTRODUCTION

Pancasila is the ideals, foundation, views and understanding of the nation. As a state ideology Pancasila is a common goal achieved by the Indonesian state in developing the country, namely building a just and prosperous society with equality of material and soul [1].

Education is a complex activity, and includes various components that are closely related to each other. Education continues to develop and so does the learning process [2]. Therefore, if education is to be carried out in a planned and orderly manner, the various factors involved in education must be understood first. Various components in the education system, both micro and macro studies, need to be recognized in depth so that these components can be functioned and developed in order to optimize educational

achievements towards achieving the stated educational goals [3]. Pancasila education is the ideological education of the Indonesian nation which aims to form good citizens, understand the rights and obligations of citizenship, love the country, and have an Indonesian national spirit. Teaching can be carried out to school children starting from elementary school level. Pancasila education is a process for the younger generation to prepare themselves to take on roles and responsibilities as citizens. According to the Directorate General of Higher Education (2016), the meaning of learning Pancasila education is a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to have knowledge, personality and skills. Pancasila education learning teaches students how and how to implement values – Pancasila values in everyday life, one way to implement Pancasila values in daily life is by working together in the environment. In collaborating with the environment, students already

Pancasila values are taken from the views and cultural values of Indonesian people. In this regard, It is very important that Pancasila education is implemented in schools. Pancasila education teaches and applies Pancasila values and norms for daily life, including nurturing, tolerance, appreciation and respect. There are many differences within the Indonesian nation, therefore the community, especially students, must know the use of Pancasila values and norms in everyday life. There are students who are still unable to appreciate or respect their environment, examples that can be obtained are: many students who still don't care about differences so that differences can be used as a joke, students who still take respect for others for granted. If this continues to be allowed and becomes a normal thing for students, the greater the student's sense of unconsciousness towards their environment.

Based on the results of interviews conducted with the class IVb homeroom teacher as well as the Pancasila Education subject teacher, it can be seen that students' low awareness of the school environment in the Pancasila Education learning content refers to a low number. Especially in an attitude of working together with fellow students. Other research states that students' low awareness of the environment is caused by the use of learning media which tends to be monotonous and does not provide encouragement in developing students' attitudes regarding environmental awareness. This is in line with research conducted by Rafika Larasati which states that students' low awareness of the environment can be overcome with interactive digital learning media [4]. (Rafika Larasati, 2021). This problem was also found in class IVb students at SD Negeri 01 Ancol Pagi, which shows that students' lack of awareness of the environment still needs to be guided to be more aware of the environment.

This problem occurs because the learning media used by teachers is less attractive and there is a lack of love for the right environment. This makes students care less about the environment and lack respect for others and help. In fact, nowadays and in this era, technology is very sophisticated, especially technology in the field of education which can make students interesting and who can digest material well and also increase students' awareness of the environment

Responding to these problems, obstacles that occur arise in the learning process. The learning process involves teachers and students who are supported by learning media to help facilitate the achievement of learning goals. The alternative solution to this

problem is by using learning media. Understanding Learning Media that "media" comes from the Latin "medium" which means "intermediary" or "introduction" [5]. Learning media is defined as anything that can be used to convey messages, stimulate students' thoughts, feelings, attention and will so that they can encourage the teaching and learning process [6]. Through this learning media, it is a tool used by teachers in delivering material, in order to obtain planned learning targets. Learning media are tools, methods and techniques that are useful in realizing effective communication or interaction between teachers and students during the learning process in the classroom [7]. The creation of a new curriculum is a tool to improve educational standards[8]. One of the educational standards can be seen from the success of students in learning, for example in learning Pancasila Education by increasing students' awareness of the environment. The success of students in learning Pancasila Education is influenced by various factors, one of which is the learning media used by teachers in the learning process. There are quite a lot of learning media that have been developed in this era and era, especially now that education is quite up to date with developments. By developing existing ones, today's learning media has turned into interactive technology or digital. The objectives of learning media are: 1. Facilitate the teaching and learning process. 2. Increase teaching and learning efficiency. 3. Maintain relevance to learning objectives. 4. Helps student concentration. 5. According to Gagne: Components of learning resources that can stimulate students to learn. 6. According to Briggs: Physical rides that contain instructional material. 7. According to Schramm: Information carrier technology or instructional messages. 8. According to Y. Miarso: Everything that can stimulate the student learning process [9].

Interactive multimedia is: interactive learning multimedia (interactive multimedia-based learning), game applications and others. Interactive media is classified as constructivist media which consists of learning, students, and the learning process. The interactive learning model according to [10]. Refers to the interaction between students and educators, students and teachers, or also students and learning media/resources. Emphasizes the importance of media as a tool to stimulate the learning process [11]. The quality of learning media can also be assessed through certain measures and methods, as well as through software tests. In the learning process, technology such as computers is a multimedia tool and the largest web network in the world which has a huge influence on students in the learning process. The definition of interactive is related to two-way communication[12]. The choice of learning media must adapt to the situation and conditions, both in terms of space, time, and subject or student. This interactive digital learning media can be a way to increase students' awareness of the environment, but also respect for their environment. This interactive digital learning media can also be applied to all learning, one of which is the Pancasila Education subject. One of the educational standards can be seen from the success of students in learning, for example in learning Pancasila Education by increasing students' awareness of the environment. The success of students in learning Pancasila Education is influenced by various factors, one of which is the learning media used by teachers in the learning process. There are quite a lot of interactive digital learning media that can be used as learning media in Pancasila education learning, one of which is Interactive Digital Learning MediaLumio. Lumio by smartis an innovative and collaborative digital learning platform

designed for teachers and students to interact and collaborate in learning wherever they are. Learning that uses media or simulations will be implemented more effectively [13].

There are several previous researchers who support digital learning media research interactive. The results of previous research show that involvement in the use of interactive digital learning media has quite an influence on students, especially in instilling and fostering an attitude of awareness towards the environment. Interactive digital learning media developed in research uses motion picture animation and is presented in a pleasant atmosphere. This way students can learn while playing but can also make students think more critically and can instill students' awareness of the environment. This means that using interactive digital learning media in Pancasila Education subjects is suitable for raising students' awareness of the environment. Other research results too states that interactive digital learning media integrated with environmental awareness character education is suitable for use as learning media for class IV Pancasila Education subjects.

Based on several previous research results, it can be found that the latest in this research is that it focuses on cultivating students' awareness of the environment with Lumio interactive digital learning media in class IV elementary school (SD). Apart from that, this research is also linked to the Pancasila Education lesson on Cooperation in My Environment which aims to further explore students' awareness of the environment. This research does not only use conventional learning media but uses Lumio interactive digital learning media where students can also play an active role in learning, think critically, understand the material, and foster awareness in class IV students towards the environment.

By composing the introduction and the problems that were obtained, the author tested the effect of using interactive digital learning media between Lumio interactive digital learning media in the Pancasila Education subject which will be carried out in two different classes, with other digital learning media such as Power Point media on learning content. and the same learning materials. With this the author decided to raise the title "The Influence of Using Interactive Digital Learning Media to Cultivate Environmental Awareness in Class IV Elementary School Students on the Content of Pancasila Education"

2 METHOD

2.1 Research Approach

This research uses a quantitative approach, quantitative research is used to examine populations or samples which are usually randomly determined to collect data, with the aim of testing the hypothesis that has been proposed. Research methods are scientific ways to obtain data with specific purposes and uses. The research method used in this research is Quasi Experiment. quasi-experimental method which uses two experimental classes and a control class. The type of research used in this research is experimentation.

Experimental research is research that explains the cause and effect relationship (causality) between one variable and another (variable x and variable y).

2.2 Research design

Explaining that experimental research is divided into several forms, namely Pre-Experimental Design, True Experimental Design, Factorial Design, and Quasi Experimental Design [14]. This research design uses a True Experimental Design research design with a PretestPosttest Control Group Design model. Researchers used two groups or two classes, one class as the experimental class and one class as the control class. True experimental design is a type of experiment that is considered good because it meets the requirements [15]. Before taking any action, the researcher first observes two classes and decides which subjects will be used as the control class and the experimental class, the researcher uses true experimental design because in this research there are still external variables that also influence the dependent variable.

2.3 Data collection technique

This research uses two variables where there is an independent variable and a dependent variable. The independent variable is the interactive digital learning media Lumio By Smart while the dependent variable is increasing students' environmental awareness. The instruments used in this research were observation sheets, tests and documentation. The data analysis technique in this research uses instrument testing, prerequisite testing, and hypothesis testing. Data collection used in this research was by using a test method by giving (post-test). This posttest was carried out after treatment for class IV students. In this posttest, which aims to measure the results of increasing students' environmental awareness, in the posttest the researchers made a maximum of 20 multiple choice questions. In this research, data collection techniques are very important because they have the main objective in this research, which is to obtain valid data and meet predetermined standards.

2.4 Population and Sample

The population in this study were fourth grade students at SDN Ancol 01 Pagi. This research was conducted using two class samples, namely class IVa with 28 students as a control class using conventional learning media and class IVb with 32 students as an experimental class using Lumio By Smart digital learning media. This sample is part of the number and characteristics possessed by the population. This research uses a saturated sampling technique, Sugiyono (2014:118), a saturated sampling technique is a sample determination technique when all members of the population are used as samples [16]. Therefore, researchers chose saturated sampling because the population size was relatively small. So the sampling used in this research was 32 students from class IV as an experimental group where this class received treatment in the form of interactive digital learning media Lumio By Smart

2.5 Validity and Reliability

a) Validity Test

Validity test is a test used to show the extent to which the measuring instrument used in measuring what is being measured [17]. (Ghozali: 2009). An instrument can be used in research if it has been declared valid. The correlation formula is as follows:

$$r_{xy} = \frac{N(\sum XY) - (\sum X)(\sum Y)}{\sqrt{N(\sum X^2) - (\sum X)^2} \sqrt{N(\sum Y^2) - (\sum Y)^2}}$$

Information:

r_{xy} : Pearson product moment correlation coefficient

N = Number of test participants

$\sum xy$: The sum of the results of multiplying score X and variable Y

X : Item score

Y: Total score

$\sum X$: Total score of item X on the observation sheet.

$\sum Y$: Total score of the total items on the observation sheet

$\sum X^2$: Sum of squares of item scores

$\sum Y^2$: Sum of squares of total scores

Validity Coefficient Classification:

0.80-1.00 : very high

0.60-0.80 : high

0.40-0.60 : medium

0.20-0.40: low

0.00-0.20 : very low

b) Reliability Test

Validity is a measure that shows the level of validity and authenticity of something instrument [18]. (Arikunto 2006). With the reliability test of the questions that the researchers have created and has met the requirements. The next step will be to test its reliability, using a test formula following reliability:

➤ **Rumus KR 20 :**

$$r_i = \frac{k}{(k-1)} \left\{ \frac{S_t^2 - \sum p_i q_i}{S_t^2} \right\}$$

Information :

- k = number of items in the instrument
- $\sum Si^2$ = mean squared error
- S_t^2 = total variance

➤ **Rumus Varian Total Dan Varian Item :**

$$x_t^2 = \sum x_t^2 - \frac{(\sum x_1)^2}{n}$$

$$S_t^2 = \frac{x^2}{n}$$

2.6 Data analysis technique

The research carried out by the researcher is experimental research with the title "The Effect of Using Interactive Learning Media to Raise Awareness Class IV Student Environment on the Content of Pancasila Education. Based on the formula problems that have been described in the initial chapter, this research uses analytical techniques comparative, namely by comparing the pretest and posttest results of the students' results. Data analysis was carried out by researchers to determine the influence of media application interactive learning using Lumio towards students' environmental awareness, namely through test questions on student learning outcomes which are distributed before and after learning Pancasila Education.

1. Normality Test

The normality test is a test obtained from the distribution of data to find out whether The data has a normal or close to normal distribution. Test carried out Normality aims to find out whether the data is normally distributed. In This study used the Kolmogrov-Smirnov normality test with a significance of 0.05 Where if the data tested has a difference of less than 0.05 then the data is not normal. The following is the Kolmogrov Smirnov Normality Test formula:

$$D = [F_{s(x)-F_1}(x)]max$$

2. Homogeneity Test

The homogeneity test is a formula used in the F test. The criterion in this test is that if F Calculated is smaller than F Table then it can be said that the sample is homogeneous or vice versa. Carrying out a homogeneity test aims to find out whether the two data variances are the same or vice versa after knowing that the two groups are normally distributed. In this research, testing homogeneity can be obtained using the Anova (Analysis of Variance) homogeneity test. In this research, before homogeneity is tested, the researcher can determine the testing rules, after determining this the researcher can calculate the average value – average with the formula below:

- Ho: both variances are the same
- Ha: the two variances are different.

The Homogeneity Test formula is :

$$\begin{aligned} X_1 &= \frac{\Sigma X_1}{n} \\ X_2 &= \frac{\Sigma X_2}{n} \end{aligned}$$

After calculating the average value, researchers can calculate the variance value The variance value formula is:

$$\begin{aligned} S_1^2 &= \frac{\sqrt{n \times \Sigma X^2 - (\Sigma X)^2}}{n(n-1)} \\ S_2^2 &= \frac{\sqrt{n \times \Sigma x^2 - (\Sigma x)^2}}{n(n-1)} \end{aligned}$$

After calculating the variance value, the researcher looks for Fcount, here is the Fcount formula :

$$F = \frac{\text{varians terbesar}}{\text{varians terkecil}}$$

After the researcher carried out Fcount, the researcher continued to calculate the Ftable value. The following is the Ftable formula:

$$F_{tabel}(\alpha, V1_{n-1}, V2_{n-2})$$

3. Hypothesis testing

After the normality test, it was found that the data had a normal distribution, a t test was carried out which aims to determine the effect of using interactive digital media in improving Environmental Awareness of Class IV Students on the Content of Pancasila Education. If the variance of the two groups is found to be the same, the formula used is:

$$t_0 = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{(n_1 - 1)s^2_1 + (n_2 - 1)s^2_2}{n_1 + n_2 - 2} \left(\frac{1}{n_1} + \frac{1}{n_2} \right)}}$$

Information:

t0 : calculated value

x1 : average value of group 1

x2 : average value of group 2

s2/1 : deviation value of group 1

s2/2 : deviation value of group 2

n1 : number of subjects in group 1

n2 : number of subjects in group 2

3 RESULTS AND DISCUSSION

3.1 Results

This research is experimental research used to find the effect of interactive digital learning media with Lumio By Smart to wards raising students' awareness of the environment in class IVb at SD Negeri Ancol 01 Pagi. This research was carried out by giving different treatment to two classes, namely class IVb as an experimental class by being treated using interactive digital learning media with Lumio By Smart and class IVa as the control class was treated using Powerpoint learning media. This research was carried out by giving a pretest before learning and a posttest after learning on the Pancasila education subject, mutual cooperation material. This research begins with the process of validating the question test instrument so that each question item is valid.

Table 1. Validity Test Results

No. Soal	<i>Rhitung</i>	<i>Rtabel</i>	Keterangan
1.	0,509	0.355	Valid
2.	0,625	0.355	Valid
3.	0.714	0.355	Valid
4.	0.491	0.355	Valid
5.	0.402	0.355	Valid
6.	0.439	0.355	Valid
7.	0.408	0.355	Valid
8.	0.606	0.355	Valid
9.	0.385	0.355	Valid

Validity test is a test of the extent to which a concept or measurement has a strong basis. Based on the Validity Test table above with multiple choice questions calculated manually using Microsoft Excel. The total number of multiple choice questions is 20 questions and there are 9 questions which are declared valid because the calculated R value is $>$ the R table value at the level a significant 5%, so that multiple choice questions can be used to measure environmental awareness in students using the Lumio By Smart digital learning media in class IV students at SDN Ancol 01 Pg, North Jakarta.

Table 2. Test results Reliability

Reliabilitas KR 21	0,621
Tingkat Reliabilitas	Tinggi

After carrying out the test Validity means the application of the Reliability Test. If 9 multiple choice questions are said to be valid, they are tested at SDN Ancol 01 Pg and the results are still equally valid. Reliability Test An Instrument can be said to be reliable if the reliability coefficient value using manual calculation of KR 21 Reliability is more than 0.60. Based on the calculations above, testing the reliability of the question items was carried out using the KR 21 technique which was calculated manually using Microsoft Excel. The resulting reliability coefficient was 0.621, indicating that the instrument questions were reliable.

Table 3. Normality test

Tests of Normality						
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
PretestEksperimen	.120	31	.200 [*]	.938	31	.072
NewPosttestEksp	.076	31	.200 [*]	.989	31	.985
NewPretestKontr	.098	31	.200 [*]	.956	31	.228
NewPosttestKontrl	.101	31	.200 [*]	.975	31	.676

Based on the results of the normality test in the table above using the Shapiro Wilk test, the significance of the pretest value in the experimental class is 0.072 and the control class is 0.985 > with a significance level of 0.05 so that the data is normally distributed. There is the same thing in the significance of the posttest value in the experimental class of 0.228 and the control class of 0.676 > a significance level of 0.05 so that the data is normally distributed.

Table 4. Homogeneity test

Tests of Homogeneity of Variances					
		Levene Statistic	df1	df2	Sig.
NilaiPosttest	Based on Mean	1.378	1	60	.245
	Based on Median	.305	1	60	.583
	Based on Median and with adjusted df	.305	1	56.283	.583
	Based on trimmed mean	1.298	1	60	.259

The homogeneity test aims to find out whether the variants are the same or not. Based on From the results of calculations using Levene in the table above, it is known that the value is significant posttestin the experimental and control classes, namely 0.245 > significance level 0.05 Data can It is said to be homogeneous if there is a significant value of more than 0.05, while the data is said to be inhomogeneous if the significance value is less than 0.05. so that the data is in nature homogeneous and have the same variance.

Table 5. Hypothesis testing

		Levene's Test for Equality of Variances		Independent Samples Test		t-test for Equality of Means		95% Confidence Interval of the Difference	
		F	Sig.	t	df	Significance One-Sided p	Significance Two-Sided p	Mean Difference	Std. Error Difference
a) Posttest	Equal variances assumed	1.378	.245	3.622	60	< .001	< .001	5.484	1.514
	Equal variances not assumed			3.622	58.319	< .001	< .001	5.484	1.514
								Lower	Upper
								2.455	8.513
								2.451	8.517

Hypothesis testing aims to determine the effect of using interactive learning media using Lumio By Smart to raise awareness of class IV students in the Pancasila education subject. Based on the results of the hypothesis test in table 6, it is known that the two-sided significance value is $0.000 < \text{significant value } 0.05$. this shows that H_0 is rejected and H_1 is accepted, which means there is a difference in the results of using interactive digital learning media on students' environmental awareness compared to conventional learning media.

3.2 Discussion

Based on the research results above, it can be seen that Digital Learning Media Interactive Lumio Bu Smart in raising awareness of class IVb students at SDN Ancol 01 Pg has a significant influence. This can be shown in the experimental class which experienced a greater increase in the environmental awareness of class IVb students compared to the control class.

The results of this research are in line with research conducted by Aina Wirda, Amalia Rhoma Dhoni, Elsa Rahayu Setianingsih, Destrinelli in 2023 entitled "Improving Student Learning Outcomes through Interactive Multimedia Based on Lumio By Smart" while the research results show: The research results show that the use of interactive multimedia Lumio by Smart can improve student learning outcomes. After using Lumio by Smart presentation media, it is known that there is an increase in student learning outcomes [19]. Significant influence on interactive digital learning media Lumio By Smart also supported by the results of research conducted by Rafika Larasati. (2021), the results of this research also suggest the development of interactive digital learning media that is suitable for use in the learning process and can encourage environmental awareness in fourth grade elementary school students [5].

To get good results in raising environmental awareness in class IV students, interactive digital learning media using Lumio By Smart can be used by teachers as an interesting medium in explaining material to students. There are steps in using interactive digital learning media using Lumio By Smart. The first step, the teacher shares a Lumio link specifically for students. In the second step, students are allowed to access the link using their cellphones. In the third step, the teacher provides an ID code to be able to access the material on the interactive PowerPoint on the website Lumio By Smart, the fourth step, when all students can access the student ID code and enter the material, the teacher can start explaining the mutual cooperation material to the students. So students can view the material easily via the website Lumio By Smart, which includes material that the teacher displays, namely mutual cooperation material.

In using the website Lumio By Smart This also has shortcomings, as in research conducted by Novita Sundar Riyanti et al. (2024) Shows that students are not used to the learning atmosphere using website-based media such as Lumio By Smart This means that the teacher's role as a facilitator is needed in directing students to access the website and how this media works. Therefore, students need to familiarize themselves first with the use of Lumio By Smart media in the learning process, so that [20].

4 CONCLUSION

Based on the research results and discussion above, it can be concluded that interactive digital learning media uses websites Lumio By Smart can influence the growing awareness of class IVb students towards the environment in the Pancasila Education subject, mutual cooperation material at SD Negeri Ancol 01 Pagi. By implementing the use of interactive digital learning media with Lumio By Smart In this way, students can learn and play educational games, so that during Pancasila Education learning, students do not get bored, because with Lumio By Smart media, teachers can also provide educational games about mutual cooperation material to stimulate or raise students' awareness of the environment. The use of interactive digital learning media Lumio By Smart has proven to be effective in learning Pancasila Education to foster environmental awareness in class IVb students. This effectiveness is demonstrated by a significant increase in the average learning outcomes for Pancasila Education using interactive digital learning media with Lumio By Smart.

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