

The Influence of Simple Respiratory System Media on Students' Learning Outcomes in Class V Science and Science Subjects at SD GMT Airnona 1 Kupang

Mardini Y.L Batmaro¹, Femberianus S. Tanggur², Kristina E. Noya Nahak³

Program Studi Pendidikan Guru Sekolah Dasar, Fakultas Keguruan Dan Ilmu Pendidikan Universitas Citra Bangsa

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Abstrak

The aim of the research was to determine the effect of simple respiratory system media on student learning outcomes at SD GMT Airnona 1 Kupang. This type of research is Quasi Experimental Design in the form of Nonequivalent Control Group Design. The population of all fifth-grade students at SD GMT Airnona 1 Kupang is 24 students, with a sample size of 24 students and data collection techniques using observation, documentation and multiple-choice test questions. Data were analyzed using hypothesis testing and t-test. The results of the research show that the average posttest for the experimental class and control class using the t-test was $82.08 > 53.75$ with a difference of 7.525. Furthermore, through hypothesis testing (paired samples test), it shows that the sig (2-tailed) t-test for equality of means is $0.000 < 0.05$, meaning that H_0 is rejected and H_a is accepted. So it can be concluded that there is a significant influence of the influence of simple respiratory system media on learning outcomes in science and science subjects in class V of SD GMT Airnona 1 Kupang.

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Corresponding Author:

Mardini Y.L Batmaro

Universitas Citra Bangsa

Email : mardinibatmaro08@gmail.com

1. INTRODUCTION

Education is the most important aspect in supporting the progress of the nation and state in the future, because through education humans can develop the achievements within themselves, both spiritual and physical potential. Education is obtained through a learning process that is carried out or held in schools as formal educational institutions. The learning process is a process of educational interaction that takes place between teachers and students in the classroom. Learning is the assistance provided by educators to students so that the process of acquiring knowledge, acquiring skills and forming attitudes can occur. Learning is all efforts made by educators so that the learning process occurs in students. The learning process has two activities, namely the learning process and the teaching process (Sutikno, 2014). Learning can run well if an educator can create an effective and conducive learning atmosphere. The learning process consists of several interrelated components, one of which is learning tools or learning media.

Learning media is one of the basics needed for the success of the learning process because its function can help the process of conveying information from teachers to students. Learning media is a tool used as a messenger to achieve learning goals (Satrianawati, 2018). The use of learning media is able to provide a more real experience, motivate students and facilitate understanding and improve students' memory in the learning process. Basically, the use of learning media can help teachers create an interesting learning atmosphere for students.

The choice of type of learning media must be based on student characteristics, where students at elementary school level are in the developmental phase. They are very active, prefer to play and have a very high level of curiosity about something, so teachers must be able to create a learning atmosphere where students can learn while playing. "Learning while playing is an effort to convey material to children by playing or in a fun way, so that without realizing it, children gain knowledge and experience from an easy learning process" (Sapriyah, 2019). Thus, learning while playing is an effective and not boring way of the learning process. One medium that fits these characteristics is a simple respiratory system medium.

Simple respiratory system media has the advantage if implemented in learning, namely that it is fun, entertaining and interesting to do because all students will compete to play using simple respiratory system media (Susanto. 2016). By using the respiratory system in science learning, students will be more active and encouraged to participate in learning, students will be more enthusiastic and enthusiastic in learning, and can improve students' memory and thinking speed. Respiratory system media can be used in science learning.

Science learning is an important process to help students learn about the human respiratory system and how to maintain health in the respiratory system from an early age. One of the materials studied is the respiratory system. Human respiratory system material is lesson material that introduces students to the human respiratory system and how to maintain cleanliness of the respiratory organs. Through this material, students will better understand what organs play a role in the process of taking in oxygen and removing carbon dioxide and what diseases can attack the respiratory system. This can be achieved by following the right learning steps, namely using varied learning methods, involving students in learning, and using interesting learning media.

Based on pre-observations carried out by researchers, especially on class V students at SD GMIT Airnona 1 Kupang, it was found that student learning outcomes were still low. This can be seen during the teaching and learning process, many students are less active, sleepy, noisy, tell stories and do not pay attention to the teacher when teaching in front of the class. In the class there are 14 students or 60% of the 24 students and there are 10 students or 40% who have not yet reached the KKTP. This shows that the science and science learning outcomes of class V students are still low. Apart from that, when learning, teachers do not use learning media in science learning, one of which is simple respiratory system media, where the teacher only uses textbooks and a blackboard. This makes students feel bored, bored and don't understand the material explained by the teacher which makes the lesson less than optimal. Lack of student activity during the learning process in class. Students are less active in the learning process because teachers are less able to design an interesting learning process. This makes students feel bored and do not understand the material explained by the teacher. Therefore, teachers must be creative, innovative and inspiring and able to increase student activity in an interesting learning process so that it has an impact on learning achievement and achievement of learning goals.

Based on the problems that have been determined, improvements are needed in the learning process so that student learning outcomes can increase, namely through the use of appropriate learning media and making students not passive and not having to prioritize teacher dominance in the learning process. Because the use of learning media can improve student learning outcomes. One of the appropriate and appropriate learning media for science learning is simple respiratory system media. So, with this the researcher uses the title "The Influence of Simple Respiratory System Media on Student Learning Outcomes in Science and Technology Subjects in Class V of SD GMIT Airnona 1 Kupang".

2. RESEARCH METHOD

This research is an experimental type of research called Quasi *Experimental Design*. This research uses *Nonequivalent Control Group Design*. This design was chosen because it was impossible for the experiment to change existing classes (Sugiyono. 2017). Research design used *Is a Nonequivalent Control Group Design*, a design that takes scores into account *pretest* conducted at the start of the study and scores *posttest* which was carried out at the end of the research (Sugiyono, 2015). Research Design can be described as follows:

Table 1. Research Design Design

Group	Pre test	Treatment	Post test
AND	THE₁	X₁	THE₁
K	THE₂	X₂	THE₂

Design non-equivalent control group

Information:

AND : Experimental Group

K : Control Group

THE₁ : *Pretest* towards the experimental group

THE₂ : *For the test* control group

X₁ : Treatment using simple respiratory system media

X₂ : Treatment using conventional models

THE₁ : *Post test* towards the experimental group

THE₂ : *Post test* against the control group

3. RESEARCH RESULTS AND DISCUSSION

Description of data from research conducted from 27 May to 3 June 2024 at SD GMT Airnona 1 Kupang. Researchers used one class as a research class, namely class V which was divided into two groups. Class A is the experimental class and class B is the control class. The sample used was 24 students, namely 12 experimental class students and 12 control class students.

3.1 Research Results

Table 2. Learning Results *Pretest* and *Posttest* Control Class

		Statistics	
		<i>pretest</i>	<i>Posttest</i>
<i>N</i>	<i>Valid</i>	12	12
	<i>Missing</i>	0	0
<i>Mean</i>		53,75	65,08
<i>Std. Error of Mean</i>		41,80	21,72
<i>Median</i>		52,50	80,00
<i>Mode</i>		40 ^a	80
<i>Std. Deviation</i>		14,48	75,25
<i>Variance</i>		209,659	56,629
<i>Range</i>		50	25
<i>Minimum</i>		30	70

<i>Maximum</i>	80	95
<i>Sum</i>	645	985

Based on the results of calculations using SPSS in the table above shows the number of students pretest and posttest in the control class 12 students. Missing 0 indicates that the missing data is zero, thus there is no unprocessed data. On pretest the mean value or average value was 53.75. The median or midpoint is 52.50 and the Mode or value that appears most frequently is 40 while the minimum value is 30 and the maximum value is 80. In the posttest The mean or average value obtained was 65.08. The median or midpoint is 80.00 and the Mode or value that appears most often is 80 while the minimum value is 70 and the maximum value is 95.

Frequency distribution of learning outcome scores pretest and posttest in the control class the class can be seen in the table as follows:

Table 3 Distribution Pretest Control Class

PRETEST					
		<i>Frequency</i>	<i>Percent</i>	<i>Valid Percent</i>	<i>Cumulative Percent</i>
Valid	30	1	8,3	8,3	8,3
	40	2	16,7	16,7	25,0
	45	1	8,3	8,3	33,3
	50	2	16,7	16,7	50,0
	55	2	16,7	16,7	66,7
	60	1	8,3	8,3	75,0
	70	2	16,7	16,7	91,7
	80	1	8,3	8,3	100,0
Total		12	100,0	100,0	

Source: Processed SPSS Data Version 2021

Assess the result *Pretest* in the control class in the table above, it is known that there was 1 student who got 30 with a percentage (8.3%), who got a score of 40 as many as 1 student with a percentage (16.7%), who got a score of 45 there was 1 student with a percentage (8.3%), who got a score of 50-55 were 2 students with a percentage (16.7%), who got a score of 60 there was 1 student with a percentage (8.3%), who got a score of 70 there was 1 student with a percentage (16.7%) and there was 1 student who got a score of 80 with a percentage of (8.3%). The KKTP for the science and science subjects at SD GMIT Airnana 1 Kupang is 70, so it can be concluded that of the 12 students in the class *Pretest* In the control class there were 9 students who did not meet the KKTP and 2 other students reached the minimum KKTP score.

Table 4 Distribution Posttest Control class

POSTTEST					
		<i>Frequency</i>	<i>Percent</i>	<i>Valid Percent</i>	<i>Cumulative Percent</i>
Valid	70	1	8,3	8,3	8,3
	75	2	16,7	16,7	25,0
	80	4	33,3	33,3	58,3
	85	3	25,0	25,0	83,3
	95	2	16,7	16,7	100,0
	Total		12	100,0	100,0

Source: Processed SPSS Data Version 2021

Assess the result *Posttest* In the control class in the table above, it is known that there was 1 student who got a 70 with a percentage (8.3%), who got a score of 75 as many as 2 students with a percentage (16.7%), who got a score of 80 there were 4 students with a percentage (33.3%), students who got a score of 85 were 3 students with a percentage (25.0%) and those who got a score of 95 were 2 students with a percentage (16.7%). The KKTP for the science and science subject at SD GMT Airnona 1 Kupang is 70, so it can be concluded that of the 12 students in the control class *Posttest* all of them reached the minimum KKTP value.

Table 5 Learning Results Pretest and Posttest Experimental Class

		<i>Statistic</i>	
		<i>pretest</i>	<i>Posttest</i>
<i>N</i>	<i>Valid</i>	12	12
	<i>Missing</i>	0	0
<i>Mean</i>		55,67	86,58
<i>Std. Error of Mean</i>		53,77	27,84
<i>Median</i>		42,50	77,50
<i>Mode</i>		60 ^a	70
<i>Std. Deviation</i>		18,627	96,43
<i>Variance</i>		346,970	92,992
<i>Range</i>		55	25
<i>Minimum</i>		40	70
<i>Maximum</i>		95	95
<i>Sum</i>		860	955

Source: SPSS Data Processing Version 2021

Based on the results of calculations using SPSS in the table above, it shows that the number of students *pretest* and *posttest* in the experimental class there were 12 students. Missing 0 indicates that the missing data is zero, thus there is no unprocessed data. On *pretest* the mean or average value obtained was 55.67. The median or midpoint is 42.50 and the Mode or value that appears most often is 60 while the minimum value is 40 and the maximum value is 95. In *posttest* the mean or average value obtained was 86.58. The median or midpoint is 77.50 and the Mode or value that appears most frequently is 70 while the minimum value is 7 and the maximum value is 95.

Frequency distribution of learning outcome scores *pretest* and *posttest* in the experimental class can be seen in the following table:

Table 6. Frequency Distribution pretest Class Experiment

PRETEST					
		<i>Frequenc y</i>	<i>Percent</i>	<i>Valid Percent</i>	<i>Cumulative Percent</i>
<i>Valid</i>	40	1	8,3	8,3	8,3
	45	1	8,3	8,3	16,7
	60	2	16,7	16,7	33,3
	65	2	16,7	16,7	50,0
	80	2	16,7	16,7	66,7
	85	1	8,3	8,3	75,0
	90	1	8,3	8,3	83,3
	95	2	16,7	16,7	100,0
	Total	12	100,0	100,0	

Source: Processed SPSS Data Version 2021

Based on the results of calculations using SPSS, it can be seen that the result value *pretest* In the experimental class in the table above, it is known that 2 students got 40-45 with a percentage (8.3%), 2 students got a score of 60-65 with a percentage (16.7%), 2 students got 80. with a percentage (16.7%) who got a score of 85-90 as many as 3 students with a percentage (16.7%), students who got a score of 95 as many as 1 student with a percentage (16.7%). It can be concluded that the KKTP for the science and science subject at SD GMIT Airnona 1 Kupang is 70. So, it can be said that of the 12 students in the experimental class, 6 students met the KKTP while the other 6 have not yet reached the KKTP.

Table 7. Frequency Distribution Posttest Experimental Class

POSTEST					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	70	4	33,3	33,3	33,3
	75	2	16,7	16,7	50,0
	80	2	16,7	16,7	66,7
	85	1	8,3	8,3	75,0
	90	1	8,3	8,3	83,3
	95	2	16,7	16,7	100,0
	Total	12	100,0	100,0	

Source: Processed SPSS Data Version 2021

Assess the result posttest in the experimental class in the table above, it is known that 2 students got 70 with a percentage (33.3%), 2 students got a score of 75-80 with a percentage (16.7%), who got a score of 85-90 as many as 3 students with a percentage (8.3%), students who got a score of 95 were 1 student with a percentage (16.7). The KKTP for the science and science subjects at SD GMIT Airnona 1 Kupang is 70, so it can be concluded that of the 12 students in the class *Posttest* experiments all reached the minimum KKTP value.

Based on the two tables above, it can be concluded that there are differences between the values *pretest* and *posttest* in the experimental class before learning the value of the results *from the priest* there were 6 out of 12 students who met the KKTP, then a posttest was given after the learning activities were carried out with posttest scores, there were 12 students who met the KKTP.

The increased learning outcomes are supported by data from observations of learning *activities* which show that the simple respiratory system in class V is so good that it can influence student learning outcomes.

Table 8. Normality Test Results

Tests of Normality							
	Class	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statisti c	df	Say.	Statisti c	df	Say.
Student Grades	Pre-Test Experiments(SGD M)	,132	12	,200*	,973	12	,944

	Post -Test Experiment(SGDM)	,192	12	,200*	,920	12	,286
	Pre-Test Control (Conventional)	,173	12	,200*	,930	12	,383
	Post-Test Control (Conventional)	,183	12	,200*	,862	12	,051

Source: Processed SPSS Data Version 2021

Data normality test results *posttest* the experimental group had *P-value* (sig.) worth 0.286. Thus, for the normality test *Lilliefors (Kolmogorov-Smirnov)* the experimental class value is greater than $\alpha = 0.05$, so the data comes from samples with a normal distribution and is accepted. So, data *pretest* for the experimental class normal distribution. Data normality test results *posttest* the control group had *P-value* (sig.) worth 0.051. Thus, for the normality test *Lilliefors (Shapiro-Wilk)* the control class value is greater than $\alpha = 0.05$, so the data comes from a sample with a normal distribution and is accepted. So, data *pretest* for the control class normal distribution.

Table 9. Homogeneity Test Results

Test of Homogeneity of Variance					
		Levene Statistic	df1	df2	Sig.
Student Learning Outcomes	Based on Mean	4.859	3	44	.130
	Based on Median	4.724	3	44	.115
	Based on Median and with adjusted df	4.724	3	37.115	.115
	Based on trimmed mean	4.853	3	44	.123

SPSS version 21 data processing source

Based on the calculation results in the homogeneity test output table, the data shows that the significance value is the average of the data *pretest* And *posttest* of 0.130, provided that the significance level or probability value is more than 0.05, it can be said that the population has the same variance. So, with the results of these significance values, it can be concluded that the populations in the experimental class and control class have the same variance or the data is homogeneous.

Table 10. Average Value Posttest Experimental Class And Control Class

Independent Samples Test									
Levene's Test for Equality of Variances		t-test for Equality of Means							
F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference		
								Lower	Upper

Learning outcomes	Equal variances assumed	3,927	,060	- 6,015	22	,000	- 28,333	4,711	- 38,103	- 18,564
	Equal variances not assumed			- 6,015	16,538	,000	- 28,333	4,711	- 38,293	- 18,373

Source: Processed SPSS Data Version 2021

Based on the table, the sig value is known. (2-tailed) of $0.000 < 0.05$, then the basis for decision making in the independent sample t test can be concluded that H_0 is rejected and H_a is accepted, which means that there is a significant difference between the average learning outcomes in the experimental class and the learning outcomes in control class.

Table 11 Differences in Mean Values of Control Class And Experimental Class

Group Statistics					
	Class	N	Mean	Std. Deviation	Std. Error Mean
Learning outcomes	Post-Test Experiment	12	82,08	7,525	4,180
	Control Class Post-Test	12	53,75	14,480	2,172

Source: Processed SPSS Data Version 2021

Based on the data in the table, it can be concluded that the test results for the difference in the average value of the control class are (53.75) with a standard deviation of 14.480 and the average value of the experimental class is (82.08) with a standard deviation of 7.525 so it can be said that the average value the average value of the experimental class is higher than the average value of the control class. After calculating the average *posttest* experimental class and control class (*Group Statistics*), Next, hypothesis testing is carried out with *Paired Sample Tests* to find out whether there is a significant influence on learning outcomes using respiratory system learning media. From the results of the hypothesis test in table 4.10 T-Test (*Paired Samples Tests*) above, at the sig value. (2-tailed) test *t-test for equal variances assumed* is 0.000, then the significant value is < 0.05 , which means H_0 rejected or in other words H_a accepted, so it can be concluded that there is a significant influence of simple respiratory system media on student learning outcomes in the Class V science and science subject at SD GMIT Airnona 1 Kupang.

3.2 Discussion

The influence of simple respiratory system media in class V can improve student learning outcomes in the teaching and learning process which ultimately can

improve the quality of student learning outcomes. This is supported by the results of research that researchers have conducted, where researchers used class V as a control class and an experimental class. There is a difference between the learning outcomes of the control class and the experimental class, this occurs because of differences in treatment. The control class was treated using conventional learning, while the experimental class was given test treatment. This research shows that the control class got an average score *pretest* amounting to 53.75 with the highest value of 80 and the lowest value of 30, while the average value *posttest* amounting to 62.08 with the highest score being 79 and the lowest being 70. Meanwhile, the experimental class got an average score *pretest* amounting to 55.67 with the highest value being 95 and the lowest being 40, while the average value *posttest* amounting to 86.58 with the highest value of 95 and the lowest value of 70.

Results data *pretest* and *posttest* which has been described, both the control class and the experimental class, it is concluded that there is an influence of learning motivation on the learning achievement of class V students. This can be seen from the calculation of the average value *posttest* in the control class and experimental class, where the average value *posttest* in the experimental class was higher, namely 79.58, while the control class average was 53.75.

Normality test results using SPSS version 2021 data on experimental class learning results tested with *Shapiro-wilk* amounting to 0.944 which shows a significance level greater than 0.05. On the learning outcomes of the control class with testing *Shapiro-wilk* amounting to 0.383 which also shows a number with a significance level greater than 0.05. Thus, all data has a normal distribution, whether it is control class or experimental class learning outcomes data, because it has a sig value > 0.05 .

This research uses the T test hypothesis test using SPSS 16 *Paired sample test* to obtain a sig (2-tailed) value that is smaller than 0.05, namely 0.000, so the significance value is < 0.05 , meaning H_0 rejected and H_a accepted. For this reason, it can be concluded that there is an influence of simple respiratory system media on student learning outcomes in the Class V science and science subject at SD GMIT Airnona 1 Kupang.

Based on previous research, Ester, (2024) ""The Effect of Using Teaching Aids on Student Learning Outcomes in Human Respiratory System Material for Class V of Sd Negeri 104219 Tanjung Anom". The type of research used is quasi-experimental with the aim of seeing the effect of a treatment on student learning outcomes in the human respiratory system material using teaching aids.

Based on the explanation above, it is proven that simple respiratory system media has an effect in improving student learning outcomes in the experimental class, which is better than the learning outcomes in the control class. The results of this research provide the implication that simple respiratory system media has been able to make a positive contribution in improving the science and science learning outcomes of fifth grade students at SD GMIT Airnona 1 Kupang. Therefore, simple respiratory system media can be used as a creative and innovative learning alternative in an effort to improve the quality of education, especially in science and science subjects.

4. CONCLUSION

Based on the results of the data analysis carried out in Chapter IV, there are several conclusions that can be drawn, namely, there is an influence of simple respiratory system media on learning outcomes in science and science subjects in class V of SD GMIT Airnona

1 Kupang, where the results of the simple linear regression test using SPSS version 2021 experimental class learning outcomes data tested with *Shapiro-wilk* amounting to 0.944 which shows a significance level greater than 0.05. On the learning outcomes of the control class with tests *Shapiro-wilk* amounting to 0.383 which also shows a number with a significance level greater than 0.05. Thus, all data has a normal distribution, whether it is control class or experimental class learning outcomes data, because it has a sig value of $0.000 > 0.05$, meaning H_0 rejected while H_a accepted, so it can be concluded that there is an influence of simple respiratory system media on learning outcomes in science and science subjects in class V of SD GMIT Airnona 1 Kupang.

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