

THE EFFECT OF DEMONSTRATION METHOD ON LEARNING RESULT STUDENTS ON MATERIAL OF LIGHTNICAL PROPERTIES IN CLASS V SD NEGERI 1 KOTA BANDA ACEH

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ABSTRACT

This research entitled "The Effect of Demonstration Method on Student Learning Result on Material of Light Characteristic in Class V SD Negeri 1 Kota Banda Aceh". Problem formulation in this research is is there influence of method of demonstration to result of student learning on material of light nature in class V SD Negeri 1 Kota Banda Aceh?. This study aims to determine the effect of demonstration methods on student learning outcomes on light properties in class V SD Negeri 1 Kota Banda Aceh. The approach of this research is quantitative approach, with kind of pure experimental research. Population in this research is all student of class V SD Negeri 1 Kota Banda Aceh which consist of three classes namely class Va, Vb and Vc which amounts to 128 people. In this study population more than 100 then the sample taken 50% (64 students) from the population amount taken at random. Then from the sample in the random again to obtain the experimental class and control class. Technique of data collecting done by test (posttest) in the form of multiple choice as much 20 question. The data were processed by using t-test statistic formula, at significant level $\alpha = 0,05$. After data is processed by using t-test, so obtained t count = 25,61 and ttable = 1.67 then tcount > ttable that is 25,61 > 1,67, then H_0 rejected and H_1 accepted. Thus, the hypothesis in this study states that students' learning outcomes taught by demontration methods are better than those taught without using demonstration methods on light properties in class V SD Negeri 1 Kota Banda Aceh.

Keywords : *Demonstration Method, Learning Outcome, Nature of Light.*

1. INTRODUCTION

Education is a necessity for everyone. Education from the past has an important role to build human quality from generation to generation, in the sense that the human resources of educational path depends on the quality of education itself. Recognizing the importance of education, various efforts have been made one of them with a quality learning strategy, especially in science learning.

Natural Science (IPA) is one of the subjects in elementary school that learn about the universe with all its contents. IPA is closely related to everyday life, every time we often find natural events that then cause curiosity. Therefore, IPA learning needs to apply learning methods that allow students easy to understand IPA concepts by developing more effective media and methods.

In education, of course, obtained from a variety of knowledge a number of fields of science. In the field of science, knowledge can be raised logically, critically and systematically. Natural Science (IPA) as one of the subjects taught

in Elementary School that has a lot of material, one of the materials is the light properties studied in V SD. The nature of light is a real concept for elementary school students, it is necessary appropriate method and can help students in learning the material.

The choice of strategy or learning method is very important because the method is one of the tools to achieve the learning objectives in teaching and learning process. Submission of materials will be effective and efficient by using learning methods. This is because the function of the method itself is to facilitate students in understanding the material that is taught well.

One of the learning methods that can be used to help students understand the material is the method of demonstration, because by using this method can make students active in the learning process. Demonstration method is a method that approaches through direct practice which is exhibited by teacher in front of class, so it can give a deep impression on the students to understand the material. Demonstration methods can deepen students' knowledge both in theory and practice. Basically the method of demonstration learning is a method that invites students to demonstrate and observe directly the process and results of a performance.

According to Sanjaya (2012: 152) "demonstration method is a method of presenting a lesson by demonstrating and showing students about a particular process, situation or object, whether real or merely a clone". So the method of demonstration is one of the learning methods that show, show about a process done by the teacher.

Based on the results of question and answer that the author did in SD Negeri 1 Kota Banda Aceh with class V teachers about the influence of methods of demonstration of student learning outcomes on the material properties of light has not received a convincing answer because teachers have not compare specifically the results of student learning taught through the method Demonstrated by the usual method of learning, and in the school has never used research on the method of demonstration on the material properties of light.

From the background presented above, the authors feel interested to examine further with the title "The Effect of Demonstration Method on Student Learning Result on Material of Light Nature in Class V SD Negeri 1 Banda Aceh".

2. RESEARCH METHODS

The approach used in this research is quantitative approach. This research uses a kind of pure experimental research. Pure experimental research is characterized by a partially or completely selected sample of the study population determined randomly (Sugiyono, 2010: 14).

Results were compared with one control group not subject to treatment. The purpose of this research is to know the effect of the demonstration method on the students' learning outcomes on the material of light properties in class V SD Negeri 1 Banda Aceh.

As for the population of this study are all students of class V SD Negeri 1 Banda Aceh consisting of three classes of classes Va, Vb and Vc which amounted to 128 people.

According to Arikunto (2006:134) said: "If the population is below 100, then the sample is the entire population and if the population is above 100, then the sample is taken 10-15% or 20-25% or more". In this study population more than 100 then the sample taken 50% (64 students) from the population amount taken at random. Then from the sample (64 students) in the random again to obtain the experimental class and control class.

Sampling in this study by using random sampling technique that is random sampling. Taking two classes as a sample because researchers want to know the effect of methods of demonstration on student learning outcomes on the material properties of light.

To collect the necessary data in the research conducted by the test in accordance with the subject matter presented. Test is a series of questions given to students or test participants to know the ability of students in understanding and mastering the properties of light by the method of demonstration. The test will be given to both groups of both experiment and control classes. The test is done after the learning (posttest).

After all research activities are completed then the next is to analyze all data obtained during the study. The collected data is then processed using t-test statistic at the 5% level ($\alpha = 0.05$). As for the procedure performed before the hypothesis test, the first prerequisite analysis is to make a list of frequency distributions, calculate the variance (S^2), find the combined variance, calculate the normality test by Chi Square test (χ^2) with $dk = (k - 3)$ At the α level and test the similarity (homogeneity) of both variance.

Testing hypothesis in this research used t-test statistic according to Sudjana (2005: 239) as follows:

$$t = \frac{\bar{x}_1 - \bar{x}_2}{s \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

According to Sudjana (2005:243), the accepted criterion is accept H_0 if $t \text{ count} < t(1-\alpha)$ and reject H_0 if $t \text{ count} > t(1-\alpha)$ and with $dk = (n_1 + n_2 - 2)$ and probability $(1 - \alpha)$.

The hypothesis formulation of this research is as follows:

$H_0 : \mu_1 = \mu_2$: Student learning outcomes taught by demonstration methods are similar to student learning outcomes taught without using demonstration methods.

$H_1 : \mu_1 > \mu_2$: Student learning outcomes taught by demonstration method are better than student learning outcomes taught without using demonstration methods.

3. RESEARCH RESULT AND DISCUSSION

The data collected in this study comes from the final test (posttest) done after completion of the material that is after learning the subject of Light Characteristic by using the method of demonstration in the experimental class after the learning ended, while in the control class the researcher did not apply the learning method Demonstrated, but with ordinary learning without using the demonstration method. The test is made in the form of multiple choice, with the number of questions as many as 20 questions.

Based on the data obtained from the students of the experimental class, the average value (\bar{x}_1) = 85,88, variance (s_1^2) = 93.29 and standard deviation (s_1) = 9.66. While the data obtained from the control class students, then obtained the average value (\bar{x}_1) = 66.42 variance (s_1^2) = 224.92 and standard deviation (s_1) = 14.99.

The results of this final test data processing is used to test the normality and hypothesis of data by using the t-test.

The hypothesis to be tested on the significant level $\alpha = 0.05$ are:

$$H_0 : \sigma_1^2 = \sigma_2^2$$

$$H_1 : \sigma_1^2 \neq \sigma_2^2$$

Since the test is a two-tailed test, the test criterion receives H_0 if $F_{(1-\alpha)(n_1-1)} < F < F_{\frac{1}{2}\alpha}(n_1 - 1, n_2 - 1)$ in other cases H_1 received" .

Based on the distribution list F, it is obtained $F_{0,05}(32,32) = 1.82$ the price $F_{0,95}(32,32) = \frac{1}{1,82}$ the test criterion is accept H_0 if $0,54 < F > 1,82$ reject H_0 in other respects. In this case $F = 2.41$. So H_0 is accepted. Thus it can be concluded that the variance of the experimental class data and the control class is homogeneous.

To test the normality of data distribution, the data is taken from the final test grade of the experimental class and the control class. Based on the previous calculation, for the final test data of the experimental class obtained $\bar{x}_1 = 85,88$, and $s_1 = 9,66$.

The value of chi squared count is -56.91. With a significant level of $\alpha = 0.05$ and many interval classes (k) = 6, the degrees of freedom (dk) for the chi square distribution of magnitude is 7.81.

In another case the hypothesis H_0 is the distribution sample following the normal distribution. Therefore H_0 if χ^2 count $<$ χ^2 table then H_0 received H_1 is rejected. χ^2 count $<$ χ^2 table is $-56,91 < 7,81$ then H_0 accepted and it can be concluded that the value of students taught by the method of distribution demonstration follows the normal distribution.

Based on the previous calculation, for the final test data of control class obtained $\bar{x}_2 = 66,42$ and $s_2 = 14,99$. The value of chi squared count is $-31,2$. With a significant level of $\alpha = 0,05$ and many interval classes (k) = 6, the degrees of freedom (dk) for the chi square distribution of magnitude is 7.81.

In another case the hypothesis H_0 is the distribution sample following the normal distribution. Therefore H_0 if χ^2 count $<$ χ^2 table then H_0 received H_1 is rejected. if χ^2 count $<$ χ^2 table ie $-31,2 < 7,81$ then H_0 accepted and it can be concluded that the value of students taught by the method of distribution demonstration follows the normal distribution.

After the data of the two classes (experimental class and control class) then the next step is to calculate or compare the two results of the calculation. The statistics used here are t-test statistics,

The value of t research students in $t = 25,61$ to compare t_{table} then need to look for first degrees of freedom (dk) with a value of 1.67.

The accepted criterion is accept H_0 if t count $<$ t table and reject H_0 if t count $>$ t table. From the results of data processing obtained t count = 25.61 and t table = 1.67 then t count $>$ t table is $25,61 > 1,67$. Thus H_0 is rejected or H_1 accepted. This means that student learning outcomes taught by demonstration methods are better than those taught without using demonstration methods on light properties in grade V SD Negeri 1 Banda Aceh.

Discussion of Research Results

The researchers conducted experimental class teaching three times a meeting and one-time control class with time allocation 3 x 35. In each meeting the researchers gave the task of LKS in each group that aims to make students better understand the material properties of light that is being taught for the experimental class and class control. After completion in three-texts the researcher gives the final test of the entire material of light properties called posttest, to prove the effect of the demonstration method tested by using t-test statistics.

The use of demonstration methods can help students understand the science lesson and can improve student learning outcomes on light properties in class V SD Negeri 1 Banda Aceh. From result of statistical data analysis that is with t-test to know result of student learning taught by method of demonstration at significant level $\alpha = 0,05$ indicate that learning by using demonstration result of learning better because hence t count $>$ t table that is $25,61 > 1,67$. Thus H_0 is rejected or H_1 accepted. This means that student learning outcomes taught by demonstration methods are better than those taught without using demonstration methods on light properties in grade V SD Negeri 1 Banda Aceh.

In the implementation of learning, teachers classify students in several groups, after which the teacher provides contextual problems related to the material properties of light. Then the teacher gives a brief explanation if there are students who have not understood the problem given, then the teacher prepares the tools and materials that will be used to demonstrate the properties of the light and provide explanation about the demonstration steps and distribute LKS in each group. During the teaching and learning activities the students are active in every activity, both in group discussions and class discussions when presentations of their work. Students are very creative in using experimental tools, in accordance with the instructions contained in the LKS. The results of the experiments at the LKS were then presented to the class by the respective group representatives and other groups responded, after which the teacher gave a reinforcement of the results of the discussion and the students were asked to lengthen the results of the group discussion.

In this learning students also practice using tools for demonstration and work on LKS, so that students are more interested in learning can also understand the subject matter easily. Demonstration method not only to improve student learning outcomes, but also to see the sense of responsibility in each student, the interaction between students in the group can enhance the sense of togetherness and create a sense of social interaction is good, so that knowledge can be more meaningful not just rote.

The results showed that the demonstration method can improve student learning outcomes. This can be seen from the results of the average score of the final test that has a significant increase of student learning outcomes, develop thinking skills, increase confidence and foster students' motivation in learning because students are invited to think concretely faced with everyday circumstances.

4. CONCLUSION

Based on the previous discussion, it can be concluded the results of research is from data processing by using t-test known that H_0 rejected and H_1 accepted, meaning that the results of student learning taught by demonstrasi method better than taught without using the method of demonstration, this Means the method of demonstration effect on the students' learning outcomes on the material of light properties in class V SD Negeri 1 Banda Aceh.

5. REFERENCES

- [1]. Arikunto, Suharsimi. 2006. *Prosedur Penelitian Suatu Pendekatan Praktik*. Jakarta: Pustaka Prima.
- [2]. Arsyad, Azhar. 2010. *Media Pembelajaran*. Jakarta: PT Raja Grafindo Persada.
- [3]. Djamarah, Syaiful Bahri dan Aswan Zain. 2010. *Strategi Belajar Mengajar*. Jakarta: PT Rineka Cipta.
- [4]. Hamalik, Oemar. 2010. *Kurikulum dan Pembelajaran*. Jakarta: Bumi Aksara.
- [5]. Hamzah dan Nina Lamatenggo. 2010. *Teknologi Komunikasi dan Informasi Pembelajaran*. Jakarta: Bumi Aksara.
- [6]. Hanafiah, Nanang dan Cucu Suhana. 2010. *Konsep Strategi Pembelajaran*. Bandung: PT Refika Aditama.
- [7]. Haryanto. 2006. *Sains untuk Sekolah Dasar Kelas V*, Jakarta Erlangga.
- [8]. Johar, Rahmah dkk. 2006. *Strategi Belajar Mengajar*. Banda Aceh : Pustaka FKIP Unsyiah.
- [9]. Sadiman, S. Arief. dkk. 2009. *Media Pendidikan*. Jakarta: PT Raja Grafindo Persada.
- [10]. Sanjaya, Wina. 2009. *Kurikulum dan Pembelajaran*. Jakarta: Kencana.
- [11]. Sanjaya, Wina. 2012. *Strategi Pembelajaran Berorientasi Standar Proses Pendidikan*. Jakarta: Kencana.
- [12]. Soetopo, Hendyat. 2005. *Pendidikan dan Pembelajaran*. Malang: Universitas Muhammadiyah Malang.
- [13]. Sudjana, Nana. 2009. *Penilaian Hasil Proses Belajar Mengajar*. Bandung: PT Remaja Rosdakarya.
- [14]. Sugiyono. 2010. *Metode Penelitian Pendidikan*. Bandung : CV. Alfabeta.
- [15]. Sulistyanto, Heri dan Edi Wiyono. 2008. *Ilmu Pengetahuan Alam*. Jakarta: Pusat Perbukuan, Depdiknas.
- [17]. Tarwoko, Edi dan Muharomah Yani Rukmiati. 2009. *Mengenal Alam Sekitar*. Jakarta: Pusat Perbukuan, Depdiknas.