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The Influence of the Two Stay Two Stray (TSTS) Model on the Learning Achievement of the Material Properties of Light in Elementary School 2 Sukamulya

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ABSTRACT

The study aims to determine the influence of the Two Stay Two Stray (TSTS) learning model on the learning science at fourth grade in SDN 2 Sukamulya. The problem in this study is that there are several obstracles in learning the material of science. Those are less attractive in learning the material the characteristics of radiance because it tends to use conventional learning, lack of use media-aided so students are less active, lack of implementing the learning model used in the learning process, low cognitive in learning achievement of students. In overcoming the problems that by using two stay two stray learning model (TSTS). In this learning model, students can be active in science learning and learn the material by using media-aids to make them understood easily. The research method used the quasi experimental with the design method using non-equivalent group design. The sampling technique uses total sampling, for the distribution of the control class and the experimental class selected randomly. There where each class is 20 students in class IV A, and also IV B were 20 students. Data collection techniques used unstructured interviews, test and documention, data analysis techniques used the normality test with the Shapiro-wilk formula, homogeneity test with one-way anova formula, and statistical hypotheses using the t-test formula. In the experimental class IV A SDN 2 Sukamulya as class experimental showed mean of pretest was 68,00 and the mean posttest value was 81,25. Moreover, in class IV B SDN 2 Sukamulya as control class. It showed the mean of pretest was 56,75 and the mean of posttest was 66,25. The results of the hypothesis test showed that the significance value is 0,000 < 0,05. It can be concluded that there is an influence of the TSTS learning model in the learning achievement of learning the material the radiances's characteriatics at class IV Sukamulya SDN 2.

Keyword: Model Two Stay Two Stray (TSTS), Science Learning Achievement, Characteristics Of Radiance

INTRODUCTION

The learning process is an interaction between teachers and students. Through the teaching and learning process students will experience a development process towards a better direction. In order for this to run smoothly, a conducive teaching and learning atmosphere is needed for students, in the implementation of teaching and learning teachers should choose and use learning models that can involve active students in learning.

In learning there are various kinds of subjects that are very important for students, one of which is the subject of Natural Sciences (IPA) because in this learning it increases more in experiments. in science learning is a simple form of the aspect of science as a process, namely carrying out scientific activities so as to arouse student motivation.

Therefore, scientific attitudes in carrying out experiments in the learning process are an absolute requirement that students must know and have. but in reality learning science is not easy to achieve the expected goals so that many obstacles are faced in the learning process.

Based on unstructured interviews with fourth grade teachers, the problems that arise at SDN 2 Sukamulya in the process of learning science still use conventional learning methods, namely the lecture method, questions and answers and assignments so that science learning has not been achieved optimally and does not involve active students.

In the material of the properties of light, students must be more active by using props but when learning takes place students only focus on the teacher who is conducting experiments to prove the material of the properties of light while students are not involved in the experiment so that some students respond some are not.

In learning science, every abstract concept is needed to be understood by students so that it is embedded in their mindset and actions. While the teacher still provides learning activities that are still dominant so that students only hear and record the material presented, students get bored more quickly and the information conveyed is difficult to absorb by students due to the lack of student involvement in the learning process.

In addition, the low level of understanding of students of the material being taught is one of the things that needs to be updated as a result of which the learning obtained by students is less than satisfactory, this is also contrary to the teacher's expectations to develop students' abilities so that students' cognitive learning achievement decreases and the value at the time of learning science each student's score is pas kkm which is 70 due to lack of understanding. The achievement of science learning objectives can be seen from the science learning achievement obtained by students. Science learning achievement is related to the learning outcomes of science subjects obtained by students. Djamarah (2017: 19) states that "Achievement is the result of an activity that has been done, created, both individually and in groups." The achievement is with the results done by individuals or groups so that the results that have been done can be satisfactory while according to Qohar in Djamarah (2017: 20), "Achievement is what has been created, the result of work, the results that please the heart obtained by working hard." With their own efforts, the results obtained will be satisfying from the results of hard work and tenacity can achieve good achievements as well.

Learning achievement that is not optimal cannot be separated from the factors that influence it, namely internal factors and external factors. And learning strategy factors which include learning models affect learning achievement. Thus a change is needed, learning must also change along with changes in other aspects so that there is balance and compatibility in improving science learning achievement. One of the learning models that makes students active is the Two Stay Two Stray (TSTS) learning model or two stay two

guests. According to Huda (2018: 207): The Two Stay Two Stray (TSTS) learning model as a group learning system with the aim that students can work together, be responsible, help each other solve problems, and encourage each other to excel and train students to socialize well. [2]

advantages of the Two Stay Two Stray (TSTS) Learning Model According to Shoimin (2017: 225), the advantages of the Two Stay Two Stray (TSTS) Learning Model are Easy to break into pairs, more tasks are done, can be applied to all classes / ranks, the tendency for student learning to be more meaningful, more oriented to activeness, students' speaking skills can be improved, help improve learning achievement.

Every learning model has weaknesses, Shoimin (2017: 225) states that the weaknesses of the Two Stay Two Stray (TSTS) Learning Model are that it takes a long time, for teachers it requires a lot of preparation (material, funds, and energy), requires better socialization, even numbers can make it difficult to form groups, students easily break away from involvement and do not pay attention to the teacher[3]

The purpose of this study was to determine the effect of the Two Stay Two Stray (TSTS) learning model on the learning achievement of the properties of light in class IV SDN 2 Sukamulya.

METHOD

According to Sugiyono (2015: 107) “experimental research methods can be interpreted as research methods used to seek the effect of certain treatments on others under controlled conditions.” *The research used is the Quasi Experimental Design method. According to Sugiyono (2018: 120) “Quasi Experimental Design, used because in reality it is difficult to get a control group used for research.” This type of research with the Quasi Experimental Design method uses the Non Equivalent Control Group Design experiment design. Non Equivalent Control Group Design.

Sugiyono (2015: 117) states that "Population is a generalization area consisting of objects / subjects that have certain qualities and characteristics set by researchers to study and then draw conclusions." The population in this study were all fourth grade students of SDN 2 Sukamulya, Cihaurbeuti District, totaling 40 students. The number of students from each class IV A totaled 20 students and IV B totaled 20 students. The sampling technique uses total sampling technique. According to Sugiyono's (2018: 140) total sampling is a sampling technique where all members of the population are sampled. "Then to determine the experimental class and control class, the class A and class B were randomly selected by shuffling between class A and class B, the class that came out first from the shuffle was used as the experimental class and then used as the control class. The participants used in this study were 40 fourth grade students of SDN 2 Sukam ulya Kecam atan Cihaurbeuti, obtained two classes that were used as research based on random class selection.

The place to conduct this research was at SDN 2 Sukamulya, Cihaurbeuti District, Ciamis Regency. The research was conducted through unstructured interviews with the fourth grade teacher of SDN 2 Sukamulya, Sri Kayanti, S.Pd. The school has never used the Two Stay Two Stray (TSTS) learning model and in science learning rarely experiments with props, due to limited props and on this material the properties of light students are rarely involved so that learning achievement decreases.

Research Variables Free Variable (X) is the Two Stay Two Stray (TSTS) Model and the Bound Variable (Y) Learning Achievement. Data Collection Techniques using Tests, Unstructured Interviews, Documentation and Data Collection Instruments using test-shaped instruments. The test is given in the form of

multiple choice totaling 20 questions consisting of 4 alternative answer choices, namely A, B, C, D. The test is compiled based on the 2013 curriculum which includes KI and KD and adjusts the indicators with the material of the properties of light in science subjects found in the student book theme 5 my hero, subtheme 1, the struggle of the heroes learning to 1. The score given on multiple choice, on 1 question the weight of the question gets a score of 5 for each correct answer and is worth 0 for each wrong answer and the maximum score is 100. Before the questions are given, they must be tested for validity According to Sugiyono (2015: 172) states that "research results are valid if there is a similarity between the data collected and the data that actually occurs on the object under study." If the data is different, the research results will not be valid.

The validity test that will be carried out by researchers uses construct validity. So it can be concluded that testing the questions by testing the validity, after being tested all questions can be used and are suitable for knowing the learning achievement of grade IV students of SDN 2 Sukamulya. After the validity test, then test the reliability to measure the consistency of the question until it is suitable for research. Reliability aims to determine the extent to which the measurement results remain consistent, when measuring two or more times on the same question using the same measuring instrument.

Table 1. Test Results Reliability Instrumentation

Shape Instrument	**Coefficient Reliability**	**Category**
Choice Double	0,615	Reliable

So from the table above, the results of the calculation with spss for windows 23 with the Cronbach Alpha technique obtained the results of 0, 615 if the coefficient obtained is> 0.60 then it is reliable so that it can be known that the results are good so it can be used to measure student learning achievement by using these questions in the experimental class and control class in class IV students of SDN 2 Sukamulya. And Data Analysis Techniques According to Sugiyono (2015: 2017), "data analysis is an activity after data from all respondents or other data sources are collected." As for data analysis with the Data Normality Test, the normality test is obtained using the Shapiro-Wilk Test throughout the calculation with SPSS for windows 23. Researchers tested the normality of pretest and posttest data using the Shapiro-Wilk Test. If the value (p>0.05) then the data is normally distributed. If the value (p <0.05) then the data is not normally distributed. And the homogeneity test is to determine whether the data from a variable comes from a homogeneous population or not, the calculation of homogeneity test data using SPSS for windows 23 using the one way anova formula. While the Statistical Hypothesis Test The hypothesis applies the following conditions:

1) If the sig value (2-tailed) <0.05 then Ho is rejected and Ha is accepted
2) If the sig value (2-tailed) >0.05 then Ha is rejected and Ho is accepted

Hypothesis testing of student learning achievement test data was analyzed using the I t-test on the sample (Independent Sample T-test). In this study to determine the effect of the Two Stay Two Stray (TSTS) learning model on the learning achievement of class IV SDN 2 Sukamulya. Data collection was carried out at the time before and after being given treatment (treatmen). The following is the Research Hypothesis:

H_o = The Two Stay Two Stray (TSTS) learning model has no effect on the learning achievement of Class IV SDN 2 Sukamulya.

H_a = The Two Stay Two Stray (TSTS) learning model affects the learning achievement of Class VI SDN 2 Sukamulya.

RESULT

a. Normality Test

The results obtained after testing the data analysis are as follows:

Table 2. Normality Data Data Shapiro-Wilk Test

Statistic	Experiment		Control	
	Pretest	**Post Test.**	**Pretest**	**Posttest**
Sig.	0, 198	1,16 8	0,58 0	0,075
Test Shapiro-Wilk	Sig. ≥ 0,05	Sig. ≥ 0,05	Sig. ≥ 0,05	Sig.≥ 0.05
Conclusion	Normal	Normal	Normal	Normal

Based on the table above, it can be concluded that the normality test using the Shapiro-Wilk Test on the pretest normality test of the experimental class and control class is normally distributed and the posttest normality test of the experimental class and control class is also normally distributed because both have sig. ≥ 0.05, so it is declared a normal normality test.

b. Homogeneity Test

After both data in the experimental class and control class are normally distributed, the next homogeneity test is carried out to find out whether the two data are homogeneous (the same) or not.

Table 3. Test Results Homogeneity

	Living Statistics	**df1**	**df2**	**Sig.**
Pretest	.880	1	38	.178
Posttest	.350	1	38	.558

Data from the pretest and posttest results of the experimental class and control class have been tested for homogeneity. It can be seen that the significant value of the pretest is 0.178>0.05 and the significance value of the posttest is 0.55 ≥ 0.05. It can be concluded that the significance value of the pretest and posttest of the experimental class and control class is homogeneous because the sig value> 0.05.

c. Hypothesis Test

This test uses the Independent Sample T Test with the aim of knowing how significant the effect is on science learning achievement using the Two Stay Two Stray (TSTS) Learning Model.

Based on the Independent Samples Test that the value of Sig. (2-tailed) < 0.05 means that there is an effect on the learning achievement of the experimental class using the Two Stay Two Stray (TSTS) Learning Model, then from the results of the data it is concluded that Ha is accepted and Ho is rejected because sig (2-tailed) < 0.05, namely 0.000 < 0.05 that student learning achievement in the experimental class using the Two Stay Two Stray (TSTS) Learning Model is different from student learning achievement in the control class with conventional learning. It can be concluded that the use of the Two Stay Two Stray (TSTS) Learning Model can have an effect on the Learning Achievement of Class IV SDN 2 Sukamulya's light properties material. hypothesis testing was carried out and there was an influence. To find out the terms of the difference seen from the test of the average pottest value using the Independent Sample T Test. The following are the average results of the Independent Sample T Test

Table 4. Average Score Independent Test Sample T

	N	**Mean**		**Std.Deviation**
	Statistic	Statistic	Std.Error	Statistic
Pretest Eksperiment	20	68,00	2,865	12,814

	N	Mean	Std.Deviation	
	Statistic	Statistic	Std.Error	Statistic
Pretest Control	20	56,75	2,092	9,358
Posttest Eksperiment	20	81,25	2,562	11,456
Posttest Control	20	66,25	1,983	8,867
Valid N (listwise)	20			

The average value of the pretest and posttest for both experimental and control classes, the average value of the experimental class pretest was obtained 68.00 and the average value of the control class pretest was obtained 56.75 while the average value of the experimental class posttest was 81.25 and the average value of the control class posttest was obtained 66.25. then there is a difference from the average value, so there is an Effect of the Two Stay Two Stray (TSTS) Learning Model on Learning Achievement on the Properties of Light Class IV SDN 2 Sukamulya.

DISCUSSION

This research was conducted at SDN 2 Sukamulya located on Cikaret Hamlet Road, Sukamulya Village, Cihaurbeuti District, Ciamis Regency. The subjects of this study were all class IV A and class IV B, totaling 40 students. The implementation of science learning in Class IV SDN 2 Sukamulya has been carried out in accordance with the demands of the 2013 curriculum and in accordance with the RPP (Learning Implementation Plan). This research was conducted on April 9, 2019 to April 16, 2019.

a) Data on pretest results

Research results obtained from data before treatment (pretest) and after treatment (posttest) in class IV SDN 2 Sukamulya. Based on the results of the calculation of the pretest of the experimental class and control class with SPSS for windows with the frequency distribution data of the experimental and control class pretests expressed in tabular form as follows:

Table 5. Distribution Data Frequency Pretest Class Experiment

Value	Frequency	Frequency %
40	1	5%
50	1	5%
55	2	10%
60	3	15%
65	2	10%
70	3	15%
75	6	30%
80	1	5%
85	1	5%
Total	20	100%

Based on the results of the frequency distribution of experimental class pretest data, there are various dilai including students who get a score of 40 there is one student, a score of 50 there is one student, a score of 55 there are two students, a score of 60 there are three students, a score of 65 there are two students, a score of 70 there are three students, a score of 75 there are six students, a score of 80 there is one student and a score of 85 there is one student. While the frequency distribution data of the control class pretest data is as follows

Table 6. Distribution Frequency Data Pretest Control Class

Value	Frequency	Frequency%
40	2	10%
45	2	10%
50	3	15%
55	3	15%
70	3	15%
75	6	30%
80	1	5%
Total	20	100%

Based on the results of the frequency distribution of control class pretest data, there are various values including students who get a score of 40 obtained by one student, a score

of 45 obtained by two students, a score of 50 obtained by three students, a score of 55 obtained by three students, a score of 70 obtained by three students, a score of 75 obtained by six students, a score of 80 obtained by one student.

b) Data on posttest results

Experimental class posttest frequency distribution data is expressed in tabular form as follows:

Table 7. Distribution Frequency Data Posttest Class

Value	Frequency	Frequency%
70	3	15%
75	1	5%
80	4	20%
85	6	30%
90	4	20%
95	1	5%
100	1	5%
Total	20	100%

Based on the results of the experimental class posttest data frequency distribution table, it can be seen that students who get frequencies with various values include students who get a score of 70 in three students, a score of 75 there is one student, a score of 80 there are four students, a score of 85 there are six students, a score of 90 there are four students, a score of 95 there is one student and a score of 100 there is one student. While in the control class the frequency distribution of the posttest is in the table as follows

Table 8. Distribution Frequency Data Posttest Control Class

Value	Frequency	Frequency%
40	4	20%
45	1	5%
50	4	20%
55	3	15%
60	1	5%
65	1	5%
75	5	25%
80	1	5%
Total	20	100%

Based on the table above, the frequency distribution of posttest data for the control class of students who obtained a score of 40 was obtained by four students, a score of 45 was obtained by one student, a score of 50 was obtained by four students, a score of 55 was obtained by three students, a score of 60 was obtained by one student, a score of 65 was obtained by one student, a score of 75 was obtained by five students, and a score of 80 was obtained by one student.

c) Graphs of Pretest and Posttest of Experimental Classes and Control Classes

To see the difference in scores from the control class using conventional learning and the experimental class using the Two Stay Two Stray (TSTS) learning model can be seen in the graph as follows:

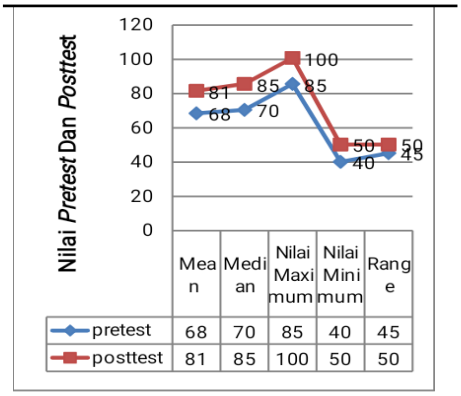

Figure 1. Graphs Pretest And Posttest

In the graph above the experimental class in knowing the initial ability of the pretest obtained a mean value of 68, median 70, maximum value 85 and minimum value 40 and range 45. Meanwhile, to find out the final score of students in the experimental class obtained a mean of 81, median 85, maximum value 100, minimum value 50 and range 50. So it can be concluded from the graph that the experimental class experienced an increase in value so that the learning process using the Two Stay Two Stray (TSTS) model could affect student learning achievement. While the

results of the control class pretest and posttest can be seen in the graph below:

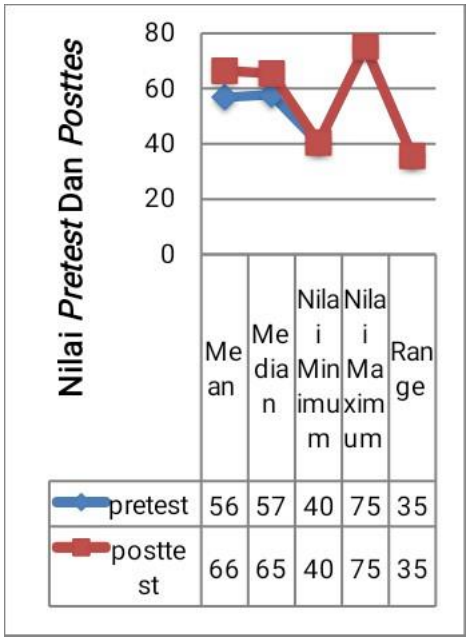

Figure 2. Graphs Pretest And Posttest Control Classes

In the control class using conventional learning, the pretest and posttest values were obtained. the mean value on the pretest was 56, median 57, minimum value 40, maximum value 75 and range 35. While the posttest on the mean 66, median 65, minimum value 40, maximum value and range 35. The control class learning process is equivalent because it only uses lecture, question and answer, and assignment methods. After the research data is obtained, the data is analyzed. conduct analysis Before the normality, homogeneity and hypothesis tests are carried out first to find out whether the data obtained is normally distributed or not and whether the data is homogeneous or not as well as the data there is a difference or influence on the learning process.

CONCLUSION

Based on research on the effect of the Two Stay Two Stray (TSTS) learning model on student learning achievement on the properties of light in class IV SDN 2 Sukamulya. With this type of experimental research conducted in class IV SDN 2 Sukamulya Cikaret Street, Sukamulya Village, Cihaurbeuti District, Ciamis Regency 2019/2020 academic year. This can be seen in the posttest results in the control class having an average value of 66.25 while the experimental class has an average value of 81.25 so that it can affect students in the learning process. The learning process with the Two Stay Two Stray (TSTS) learning model students can learn in groups and also conduct experiments (experiments) and solve a problem so that they can work together with their group partners by providing information to other groups and being able to convey the results of the discussion in front of the class. With this model, students are able to master the material on the properties of light well so that student learning achievement

In the learning process of the Two Stay Two Stray (TSTS) Learning Model, there is an effect on student learning achievement to increase this is evidenced by the Independent Samples Test formula from the results of the data which concluded that Ha was accepted and Ho was rejected because sig <0.05, namely 0, 000 <0.05, meaning that the Two Stay Two Stray (TSTS) Learning Model can have an effect on the Learning Achievement of Class IV SDN 2 Sukamulya's light properties material.

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