

THE INFLUENCE OF THE PROBLEM SOLVING MODEL ON SCIENCE SUBJECTS ECOSYSTEM MATERIAL ON THE LEARNING OUTCOMES OF GRADE V STUDENTS OF SDN 1 KAWO YEAR 2022/2023

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Abstract

The purpose of this study was to determine the effect of the application of the Problem Solving method on the learning outcomes of Natural Sciences in class V SDN 1 Kawo. The type of research used by researchers in this study is the type of Quasi Experimental Design. The research method used is experimental research. In this study, there were two class groups, namely the experimental class and the control class. The experimental class is a class that is given treatment in the form of Problem Solving methods while the control class is a class that uses conventional methods. Based on the results of data analysis and discussion entitled the influence of problem solving models on science lessons, ecosystem material on the learning outcomes of grade V students of SDN 1 Kawo, there are t test results and it is known that the average pre-test is 18.21 after a post-test of 21.00 so that the increase is 2.79. Furthermore, based on the t test, a calculated value of 15.694 was obtained. The t value of the table with df 32 at a significant level of 5% is 2.037. Therefore $t_{count} > t_{table}$ or $(15.694 > 2.037)$ and the significance value is smaller than 0.05 ($0.00 < 0.05$) so that it can be stated that there is a significant increase in the learning outcomes score of experimental group students or those given learning with the Problem Solving model.

INTRODUCTION

Education is the most important activity in human progress. In the world of education, new problems will always arise along with the demands of the times because basically the national education system is always developed in accordance with the needs and developments both at the local and national levels.

Education for mankind is an absolute need that must be fulfilled throughout Anwar's life, M. (2015). Without education it is absolutely impossible for a group of people to live in line with the aspirations (ideals) to progress, prosper, and be happy. One of the human instincts formed in his soul individually is a basic ability that psychologists

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call the instinct to live in groups or live in society. According to Suriyansyah, A. (2011), the concept of education contains understanding as reasoning, because life is

Inner growth without being limited by age. The growth process is the process of adjusting to each phase and increasing skills in one's development. The understanding expressed emphasizes that activity is essentially a process of experience but this experience must lead students to inner growth, so that with this inner growth they can exist in the midst of their environment with various challenges and problems that faced without always having to depend on others.

Based on the definition of education above, it can be concluded that education is a long-term process that has become an inseparable part of world life, because only through a good educational process, humans will be able to know everything they know. Learning is the process of interaction between students and teachers and learning resources in a learning environment. A good learning environment is one that triggers and opposes learners' learning. Learning objectives are basically the abilities possessed by students after obtaining learning experience. Mastery of these abilities is nothing but the desired learning outcome. One of the education provided at SDN 1 Kawo, Pujut District, Central Lombok Regency is Natural Sciences.

Natural Sciences is one field of study that can be said to cover almost all levels of education from elementary school to college. Natural Sciences has an important role in developing all aspects of the level of student ability in the learning process, this is because Natural Science is part of the subjects developed based on the achievement of three aspects, namely knowledge, attitudes, and skills, so that with the development process to these three aspects Natural Science has a very important role, especially in developing abilities, students' scientific attitudes and skills. Learning outcomes are abilities obtained by students after going through learning activities. As stated by UNESCO there are four pillars of learning outcomes that educators are expected to achieve, namely learning to know, learning to be, learning to life together, and learning to do (MDKP Development Team). The word result in Indonesian means obtaining from an effort that has been done before. Student learning outcomes can be stated with grades or report cards in accordance with the opinion that states that, report cards are the last formulation from the teacher regarding the progress or learning outcomes of students in a certain period. Based on the results of a survey that researchers conducted on September 12, 2022 on grade V teachers at SDN 1 Kawo, teachers still use the lecture learning model with the TCL (Teacher Centered Learning) approach. In learning activities, teachers become the center of teaching and learning activities, so that one-way communication occurs. In learning activities, most students only listen to material from the teacher quickly. According to the class teacher, this results in students' understanding of the learning material is weak, so that student learning outcomes are not optimal, as evidenced by student learning outcomes at the time of observation.

Based on the science learning outcomes of grade V students at SDN 1 Kawo, the average score of students is 76.4. However, for 10 students who still do not meet the kkm, which is 40%, while those who have met the kkm 60% are as many as 15 students. From

the data above, it can be explained that out of 25 students, there are still 10 students who are said to have not met the KKM standard, which is 75. From the observations, teachers in learning have not used innovative learning models, so learning becomes less memorable for students. Students have not all been seen to be active in the learning process. Learning is still glued to textbooks and less related to students' daily lives. Low learning outcomes of Natural Sciences. As for science learning, teachers only deliver learning by using lectures in explaining the material so that students are less active in learning activities.

Based on the description above, it is necessary to conduct research using an innovative learning model for science learning which is felt to affect the learning outcomes of grade V students at SDN 1 Kawo, namely by using the Problem Solving learning model as an alternative learning model that can be used for grade V science learning at SDN 1 Kawo on the Ecosystem Component material. Problem Solving is a learning model that can help students think in solving a problem through a systematic group work process. The use of the Problem Solving method is expected to provide new experiences for students in learning activities, so that it will affect student learning outcomes. The advantages of applying the Problem Solving method are: a) Students will be accustomed to facing problems and are challenged to solve problems not only related to classroom learning but also facing problems that exist in everyday life (real world). b) Cultivate social solidarity by habitually discussing with friends. c) Familiarize teachers with students. d) Familiarize students with experiments.

Thus, the researcher conducted a study with the title "The Effect of Problem Solving Methods on Student Learning Outcomes in Natural Science Subjects, Ecosystem Component Materials for Class V Students at SDN 1 Kawo.

The purpose of this study was to determine the effect of the application of the Problem Solving method on the learning outcomes of Natural Sciences in class V SDN 1 Kawo.

METHOD

The research method used is experimental research. In this study, there were two class groups, namely the experimental class and the control class. The experimental class is a class that is given treatment in the form of Problem Solving methods while the control class is a class that uses conventional methods. At the end of learning, the two classes will be measured using measuring instruments in the form of tests. This is intended to see the learning outcomes in both classes. Experimental Method is a research method used to look for the effect of certain treatments on others under controlled conditions. Based on the type of problem discussed in this study, the type of research used by researchers in this study is the type of Quasi Experimental Design, this type is a development of true experimental design, which is difficult to implement, Sugiyono (2011, p.72). This study design had a control group, but it could not function fully to control for outside variables that influenced the experiment. The type used in this study is Non Equivalent Control Group Design, this type is almost the same as pretest-posttest control group design, it's just that in this design the experimental group and control group were not randomly selected, Sugiyono (2012, p.77). The treatment

in this study was by providing the Problem Solving method in one experimental group, and the control group was given conventional learning.

The research site was carried out at SDN 1 Kawo, Pujut District, Central Lombok. The study will be conducted in April the first week. At the first observation in November 2022, the number of teachers and employees was 18. The total number of students from class I to VI is 336. The total number of classes at SDN 1 Kawo is 12 classes, classes I to grade VI there are five classes. Researchers chose SDN 1 Kawo, Pujut District, Central Lombok Regency as the research site because teachers have never applied innovative learning to science subjects, especially the *Problem Solving model*. Research at SDN 1 Kawo will be carried out in the even semester of the 2022/2023 academic year.

RESULTS AND DISCUSSION

Science Learning for Class V Students Using Problem Solving Models

Based on the results of the t test, it is known that the average pre-test is 18.21 after the post-test is 21.00 so that the increase is 2.79. Furthermore, based on the t test, a calculated value of 15.694 was obtained. The t value of the table with df 32 at a significant level of 5% is 2.037. Therefore $t_{count} > t_{table}$ Or ($15.694 > 2.037$) and the significance value is smaller than 0.05 ($0.00 < 0.05$) so that it can be stated that there is a significant increase in the learning outcomes score of experimental group students or given the Problem Solving model.

The Problem Solving model is an active learning model that can be applied in the classroom. The learning process uses the Problem Solving model in this study using guided problem solving. Where the teacher has a role to guide students who are still beginners. This guided Problem Solving model is not all student learning materials that formulate the problem.

At the first meeting, students are given a post-test, then the teacher conditions the students to be ready to carry out learning, and the teacher stimulates students to answer questions about examples of social relationships that students usually do. Next, the teacher divides the class into 6 groups. Between groups 1 and 3, groups 2 and 5, groups 4 and 6 had the same case.

Each group is given an example then students are asked to find the cause of the problem, how to solve it and finally students can give conclusions from the example. As long as students carry out discussion activities with their groups, the teacher goes around the classroom to see the activities carried out by students walking directly or not.

If students experience difficulties, the teacher will help guide students. After the discussion activity was over, each representative from each group came to the front of the class to make a presentation in the plenary session. Group 1 presented the results of the discussion then group 3 responded, then other groups were also given the opportunity to ask if there was something that did not understand. The same goes for other groups. The last step is that the teacher responds to the results of the student's discussion and then together with the student teacher makes a conclusion.

At the second meeting, the teacher recalled the material that had been taught at the next meeting. After that students divided themselves into 6 groups, where each 2 groups

was given the same case. The teacher supervises the course of discussion conducted by each group and checks whether the experiments carried out are true or false. After that, each group member sends one representative to present the results of their discussion in the class plenary session. Each group that has the same case can provide a refutation if it has different results and for other groups can ask if there are those who do not understand.

After all groups finished presenting the results of the discussion, the students returned to their seats. Students are asked to identify, then students together with the teacher make conclusions.

Science learning for grade V students of SDN 1 Kawo using the lecture method

Based on the results of the t test, it is known that the average pre-test of 18.31 at the time of post-test increased to 19.12, so the increase was 0.81. Furthermore, based on the t test, a t count of 5.131 was obtained with a significance of 0.00. The table t value at db 31 with a significance level of 5% is 2.040. So the value of t is calculated $t > t_{table}$ ($5.131 > 2.040$) and the significance value is less than 0.05 ($p = 0.000 < 0.05$). From the data above, it can be concluded that an increase of 0.81 is significant or there is a significant increase in the learning outcomes score of the control group students.

The lecture method is one of the methods commonly used by teachers in learning. In this study, the lecture method was used as a control class. Research in the control class was carried out twice. The first meeting the teacher opens the lesson then gives an apperception of the lesson to be delivered. Furthermore, students are given pre-test questions to find out the student's initial ability.

After giving the pre-test the teacher guides the students, the next stage is for the teacher to give the opportunity to the students to ask if there is material that has not been understood. There were several students who submitted statements to the teacher and the teacher gave responses. To find out how deep the knowledge that students have gained. The teacher asks the students to close the entire textbook, then the teacher asks questions that must be answered by the students. The last stage of the student together with the teacher makes a conclusion and the teacher closes the lesson with a greeting. While explaining, the teacher asks questions related to the subject matter according to the student's experience. Teachers provide opportunities for students if students do not understand the material that has been delivered. Then the student together with the teacher makes conclusions about the material that has been learned and the student is given a post-test.

Differences in Science Learning for Class V Students of State School 1 Kawo Who Use Problem Solving Models with Lectures.

Based on the post-test t test, it is known that the average learning outcomes of the experimental class are 21.00 and the average learning outcomes of the control class are 19.18, so it can be concluded that the average learning outcomes of the experimental class are 1.88 greater than the control class. From the table, it is known that t count is 5.043 with a significance of 0.000. The table t obtained from db 63 at the 5% significance level

is 1.998. So the value of t is calculated $t > t_{table}$ ($5.043 > 1.998$) and the significance value is less than 0.05 ($p = 0.000 < 0.05$). It can be concluded that there are significant differences in student learning outcomes scores in the experimental class and the control class.

Test the hypothesis with the calculation of independent sample t -test is known to increase the average increase in the experimental group by 2.79 while the increase in the control class is 0.81 so that it is known that the increase in the learning outcome score of the experimental class is greater than 1.98 compared to the control class.

It is also known that the value of t is calculated as 8.270 with a significance of 0.000. The table t value of df 63 is 1.998. So it can be concluded that $t > t_{table}$ ($8.270 > 1.998$) and the significance value is less than 0.05 ($p = 0.000 < 0.05$), so it can be stated that there is a significant difference in the increase in learning outcome scores significantly in the experimental group and the control group.

Based on the analysis above, it has been proven that there are significant differences between the problem solving model and the lecture method in improving student learning outcomes in science learning grade V SDN 1 Kawo. This causes the Problem Solving model to have a higher average and increase compared to the lecture method because the Problem Solving model brings more active students in learning. Although given the same material at the same time, in the Problem Solving model students are given case examples, where students are trained to search and find existing problems. While in the lecture method, students are only fixated on the teacher's explanation and students are less active in learning.

CONCLUSION

Based on the results of data analysis and discussion entitled the influence of problem solving models on science lessons, ecosystem material on the learning outcomes of grade V students of SDN 1 Kawo, there are t test results and it is known that the average pre-test is 18.21 after a post-test of 21.00 so that the increase is 2.79. Furthermore, based on the t test, a calculated value of 15.694 was obtained. The t value of the table with df 32 at a significant level of 5% is 2.037. Therefore $t_{count} > t_{table}$ ($15.694 > 2.037$) and the significance value is smaller than 0.05 ($0.00 < 0.05$) so that it can be stated that there is a significant increase in the learning outcomes score of experimental group students or those given learning with the Problem Solving model. It has been proven that there has been a significant improvement in improving student learning outcomes in science learning grade V SDN 1 Kawo. This causes the Problem Solving model to have a higher average and increase because the Problem Solving model brings more students to be active in learning. Although given the same material at the same time, in the Problem Solving model students are given case examples, where students are trained to search and find existing problems. While in the lecture method, students are only fixated on the teacher's explanation and students are less active in learning.

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