The Effect of *Problem-Based Learning* Model Toward the Fifth Grade Students' Learning Outcome on Theme Clean Air for Health in The Covid-19 Pandemic at SDN 006 North Bontang, East Kalimantan

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Abstract: This study was conducted in the 5th grades in the elementary school of North Bontang, East Kalimantan. The purpose of the research was to find out the effect of problem-based learning model on the fifth grade students learning outcome on theme clean air for health. This research is an experimental research with a quasi-experimental design using the nonequivalent group design pattern. The participants in this study were fifth grade students, consisting of 5th A and 5th B classes in SDN 006 North Bontang, East Kalimantan. Data collection method used online interview, documentation, and test. The result of the study showed that the t_{count} is 1.052 and the t_{table} is 0.263 at the 5% significance level. In accordance with these provisions, then $t_{count} >$ is t_{table} 1.052 > 0.263 so that the null hypothesis (H0) is rejected and the working hypothesis or alternative hypothesis (Hα) is accepted. In addition to the t-test (test) and relative effectiveness (ER) that have been carried out, it can be concluded that there is a significant effect of the problem-based learning model on learning outcomes of 5th grade students on the theme of clean air for health, the sub-theme of maintaining the health of human respiratory organs 2 in the covid-19 era SDN 006 North Bontang, East Kalimantan

Keywords: Problem-Based Learning Model, Learning Outcomes

1. INTRODUCTION

Indonesia is currently implementing a 2013 curriculum based on thematic learning. Thematic learning is integrated learning that uses themes to connect multiple subject, so as to provide a meaningful learning experience for students.

The result of learning is that students are able in cognitive, affective, and psychomotor fields to know if students have changes in learning outcomes or have not changed (Sudjana, 2009:3). Permendikbud No. 23 Year 2016 Article 1 states that the learning outcome is "The result of learning is the ability obtained by the child after going through learning activities. The standard of education assessment is the criteria for fulfilling the scope, objectives, benefits, principles, mechanisms, procedures and instruments of assessment of student learning outcomes that are used as the basis for the assessment of student's learning outcomes in primary and secondary education".

To achieve the objectives in curriculum learning 2013 using innovative learning where in one learning concept can provide participation to students in building and developing knowledge that leads to more effective change. Based on Regulation of the Minister of Education and Culture No. 22 of 2016 on process standards, the preferred learning model in the implementation of the 2013 curriculum is the model of *inquiry-based learning*, *discovery learning*, *project-based learning*, and *problem-based learning*.

The PBL learning model has several advantages (Shoimin in Milyana, 2019:27), namely: (1) students are encouraged to have problem solving skills in real situations; (2) students have the ability to build their own knowledge through learning activities; (3) the learning focuses on the problem, so that the material that has nothing to do does not need to be studied by the student; (4) scientific learning activities occur in students through group work; (5) students are accustomed to using resource-Sumer knowledge, both from libraries, the internet, interviews, and observation; (6) students have the ability to assess their own learning progress; (7) students have the ability to conduct scientific communication in discussions or presentations of their work; and (8) students' learning difficulties individually can be overcome through group work of *peer teaching*.

Research by taking the theme of clean air for health integrates Learning Bahasa, Science, and cultural arts and crafts. In this theme, students are expected to conduct activities to find information on how to maintain respiratory organs, care for respiratory organs, know the understanding of story images, tools and materials is story images, steps in more story images, and writing news text during the covid-19 pandemic. The subject matter is certainly suitable when applied with the PBL model that raises problems in the real world as a context for learning.

Based on the background description that has been described, it is necessary to conduct research with the title The Effect of *Problem Based Learning* Model toward the Fifth Grade Students' Learning Outcome on Theme Clean Air for Health in the Covid-19 Pandemic at SDN 006 North Bontang, East Kalimantan"

RESEARCH METHODS

Based on the grouping of research objectives, this type of research is included in the experimental research. According to Masyhud (2016:138), experimental research is a study conducted to find out whether or not the influence of a particular treatment on the change of a particular condition or condition.

The research design used is pseudo experiments (*quasi experimental*). *Quasi experimental* design is *several patterns or* design of pseudo experimental research that allow for education and learning research (Masyhud, 201:164). *Quasi experimental* research can provide an opportunity to examine treatments in society that are not placed intentionally but occur naturally. *Quasi experimental* design from used in this research is *nonequivalent group design pattern*.

RESEARCH AND DISCUSSION RESULTS

An instrument is said to be valid if it can reveal what it wants to know or measure (Masyhud, 2016:293). Tis validity test is carried out before carrying out the research. This scoring is done by giving objective questions by giving a score of 1 to the correct answer, and a score of 0 to the wrong answer. The analysis data is managed using *Pearson's product moment formula*, then the correlation result is consulted with *r-table* at a significant level of 0.05. If the result of the correlation value is equal to or higher than *r-table*, then it is declared valid, and vice versa if the result of the correlation value is lower than *r-table*, then the item is declared invalid.

Masyhud (2016:301), the instrument is declared reliable if the instrument has consistency, both internally and externally. The reliability of the instrument can be done in both external and internal ways. This research will use instrument reliability test using *Cornbrash's Alpha* item analysis with SPSS *software* version 26. An instrument is said to be reliable if *the value on Cornbrash's Alpha* is less than 0.60 then the instrument can be said to be not reliable.

This research was started first by analyzing the results of daily tests of students as a reference to determine tests. The instrument used for the homogeneity tests is the student's daily replay value. Homogeneity tests are carried out to determine whether or not the same variants will be studied. Homogeneity test is done using SPSS 26. The data analyzed for this homogeneity test was obtained from the student's daily replay value.

Based on homogeneity test result, the result is obtained in the form of significance value of 0.387. The result is then contributed by some conditions that have been mentioned at the level of significance of 0.05. The above result shows that the significance value is > 0.05 (0.387 > 0.05). In conclusion, the VA and VB classes are homogeneous or there are on variance differences between the two groups that have been sampled in this study.

The method in collecting this data is through tests. This test is used to determine student's learning outcomes after using *problem-based learning* (PBL) models. This test is done twice, namely at the *time of pretest* and *posttest*. The test instruments used have been tested for validity and eligibility. *Pretest* are carried out before the implementation of the learning process to find out the students' initial abilities. *Posttest* is done after the learning process is done to find out the students' abilities. The result obtained from the *pretest* will be used as a comparison of the posttest results.

Based on the data obtained, it can be known that the *average difference* between *pretest* and *posttest* value ($X_2 - X_1$) in the experiment class is 75.63 – 72.23 = 3.4. In the control class the average *pretest* score was 69.73, while the average *posttest* score in the control class was 70.98. Based on the table description above the results obtained, it can be known that the difference in the average value of *pretest* and *posttest* ($X_2 - X_1$) in the control class is 70.98 – 69.73 = 1.25. The difference between the average value of *pretest* and *posttest* of experimental class and control class is (difference between *pretest* and *posttest* experiment – difference of *pretest* and *posttest* control), 3.4 – 1.25 = 2.25.

The next step after obtaining the result obtained at the time of conducting the research is *conducted independent samples t-test* or *t-test* using data on the difference or *pretest* value and *posttest* between the experimental class (X) with the difference in *pretest* value and *posttest* control class (Y). The results of the *t-test* can then be a benchmark on the influence of the PBL model on student learning outcomes.

Based on the analysis of the data that has been done, the value of $t_{count} = 1.052$. Price t_{table} with db 54 at the signification level of 5% or 0.05 is 0.263. The results of the analysis showed that $t_{count} > t_{table}$ is 1.052 > 0.263, so it can be concluded that there is a significant influence on the PBL model on the learning outcomes of grade V students on the theme of clean air for health during the covid-19 pandemic at SDN 006 North Bontang, East Kalimantan. To find out how much influence the application of *problem-based learning* models to learning outcomes on the theme of clean air for health in grade V students at SDN 006 North Bontang, East Kalimantan, can be calculated using a relative level of effectiveness (ER).

The calculation of relative effectiveness is used to determine the effectiveness of the application of *problem-based learning* models by using the average value of *pretest* and *posttest* in both classes, namely experimental classes and control classes. Based on the result of the calculation of relative effectiveness test (ER) obtained a value of 92.4%. The results of effectiveness are then consulted on the table of relative effectiveness test criteria and are in the category of very high effectiveness.

Based on the above discussion, it can be concluded that there is a significant influence of *problem-based learning* model on the theme of clean air for health in grade V students at SDN 006 North Bontang, East Kalimantan. This is in accordance with previous relevant research which states that by applying *problem-based learning* models have a significant effect on student learning outcomes, so that students' learning outcomes can be better than before.

Conclusion

Based on the results of the hypothesis test obtained $t_{count} > t_{table}$ is 1.052 > 0.263, so it can be concluded that there is a significant influence between the grades of students using the PBL model compared to the scores of students who use conventional learning. Based on this, the score shows Hα (hypothesis accepted) which states that

there is a significant influence in the use of PBL model on the learning outcomes of grade V students on theme of clean air for the health of the subthema maintaining the health of the human respiratory organs of the 2nd learning at SDN 006 North Bontang, East Kalimantan. Judging from the application of this PBL model, students give a good response during *online learning activities* by using *what Sapp group* media classes, students are also more active and enthusiastic in conducting learning activities. The learning process using the PBL model is more meaningful because students can find the problems themselves, so that students can solve the problem provided by the teacher.

In addition, it can also be seen in the calculation of hypothesis test using t (*test*) in both classes, namely experimental classes and control classes. Based on the results of the calculation of the test-t (*test*) that has been done obtained the results that $t_{count} = 1.052$ and $t_{table} = 0.263$ at a significance of 5%. In accordance with these provisions, the $t_{count} > t_{table}$ is $1.052 > 0.263$, so the hypothesis is nil (Ho) rejected and the working hypothesis or alternative hypothesis (Ha) accepted. In addition to the t (*test*) test and relative effectiveness (ER) that has been done it can be concluded that there is a significant influence of the PBL model on the learning outcomes of grade V students on the theme of clean air for health during the covid-19 pandemic at SDN 006 North Bontang, East Kalimantan.

Advice

Based on the discussion and conclusions that have been obtained, there are several objectives as follows.
a. For the principal, the learning process using the PBL model can create active learning and have a positive impact on students' learning outcomes. It is expected that teachers can apply the PBL model during the covid-19 pandemic as well in the face-to face period.
b. For teachers, the PBL model in the learning process requires teacher readiness and student readiness in the continud learning. Therefore, teachers can improve the concept and understanding in learning so that students' learning outcomes can improve better.
c. For researchers, research can be used with themes, subtheme, and other learning.
d. For other researcher, research with PBL model is more effective in the cognitive sphere, so that in the next study the influence of PBL model on affective and psychomotor aspects can be used as aspects of research studies.

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