Problem Based Learning (Pbl) By Scaffolding and Reading Guide Model Strategies Toward the Quality of Learning

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Article Info

Abstract

The level of student success in the learning process depends on the attention and interest of students. Application of appropriate learning models is expected to increase student interest in learning. The purpose of this study was to determine the effect of implementing the Problem Based Learning (PBL) model of the scaffolding strategy and reading guide on student learning activities and outcomes. This type of research is quantitative in the form of a quasi-experimental. The samples used were SDN Wonosari 02, SDN Wonosari 03, and SDN Tambakaji 02 Semarang. The sampling technique used non-probability sampling in the form of purposive sampling. The average activity value of the experimental class 1 is 76.44, the experimental class 2 is 73.87. The average post-test score for the experimental class 1 is 76.44, the experimental class 2 is 73.87. This shows that the activity and post-test scores of the experimental class I that apply the PBL scaffolding strategy model are better than those of the experimental class 2 who apply the PBL model of the reading guide strategy. The application of the scaffolding strategy in the form of giving cues, keywords and giving learning assignments that are tiered according to the level of student development makes students more independent in solving their own problems through teacher guidance. This study implies that the PBL scaffolding strategy model can be applied in the learning process.

INTRODUCTION

A person's character and mindset will develop according to their social environment. The family is the main foundation of a person in an effort to adapt to his social environment. Based on this development process, it should be addressed by improving existing human resources. To improve the quality of human resources, it can be done by improving the quality of Indonesian education.

The low interest in reading and student motivation to learn makes the quality of education in Indonesia low. Data from UNESCO shows that the percentage of reading interest in Indonesians is 0.001%. The quality of Educators and Education Personnel is also still low. It was proven by the results of the teacher competency test average score of only 44.5 from the target set by the government, which is 70. From these problems the government was tried to improve the quality of education in Indonesia with the nawacita program, one of which was through the Smart Indonesia Program.

The problem that often arises is that the teacher's lack of attention in the learning process affects learning motivation and student learning outcomes. To help solve these problems, an alternative problem solving was needed in the form of the use of the Problem Based Learning (PBL) model of the scaffolding strategy and the reading guide.

The role of the teacher in the PBL model according to Rusman (2017) was to prepare students' thinking devices, emphasize cooperative learning, facilitate small group learning in the PBL model, implement PBL. In the learning process, various learning resources can be used by prioritizing student independence. In discussion activities students were given the opportunity to express their opinions.

Learning with the PBL model with Ethnomatematic nuances with traditional games can improve students' problem solving abilities (Setiyadi, 2018). Problem-based learning combined with traditional games has an effect on students in solving problems. Through the PBL model students can determine learning concepts and are related to applications that exist in real life (Sari, 2018). The PBL model with comic science book media can improve students' ability to criticize (Kurnia, 2020). The same thing was explained by Fatchurrohmah, (2017) that there were differences in students' verbal abilities after using the PBL model through discussion. Problem Based Learning model learning with effective class discussion learning strategies to improve students' critical thinking (Hallatu, 2017). With the combination of the PBL model with discussion learning strategies, it makes students more flexible in expressing their opinions and can make students more critical in responding to problems. Dwi, (2018) explained that the problem-solving abilities of students can increase to a higher level of analysis. students' problem solving abilities influence a person to adapt to their social environment. Problem-based learning modules for students can improve students' problem-solving abilities to be more feasible (Sulistiyanti, 2021). In teaching and learning activities students need cooperation with their friends. The application of the PBL model affects students' critical thinking skills (Afadil, 2016). The application of the PBL model with cube media affects students' literacy skills in higher-order thinking (Marlina, 2019). Learning tools with the PBL model developed were valid for use in learning activities (Khikmatun, 2020). The application of PBL with Chemo Eduitainment worksheets can improve critical thinking skills and student activities (Lutfianasari, 2018). Critical thinking is needed by students to understand the subject matter. PBL-based learning media were valid for use in learning (Hardiyanti, 2020). Problem solving abilities determine the level of student learning success. Dirmanto (2021) states that the problem-based learning model provides excellent results and is quite effective compared to conventional methods. In addition to the learning model, learning strategies are also needed to achieve optimal learning objectives, including scaffolding strategies and reading guides. The application of learning with the

PMRI approach assisted by scaffolding on fraction material effectively improves students' systematic communication skills (Haqiqi, 2017). Scaffolding learning provides skills that are important for solving problems independently such as discussing with students, direct practice and providing reinforcement.

The purpose of this study was to determine the effect of the PBL model on the scaffolding strategy and reading guide on students' motivation and learning outcomes. This research was expected to be useful for teachers, students in particular, and society in general. For teachers, it can add to the alternative application of learning models and student learning completeness, for students it can increase motivation in learning, and for the community, it can increase quality human resources through the results of academic assessments in schools.

METHOD

The method used in this research was a quantitative model in the form of a quasy experimental design. The assessment begins with field observations to obtain initial data. The samples in this study were 37 students in grade 4 from SDN Wonosari 02, SDN Wonosari 03 was 37 students, and SDN Tambakaji 02 was 36 students so that the total population was 110 students. The sampling technique used in this study was a type of nonprobability sampling in the form of purposive sampling. The consideration of used purposive sampling was because the control class and the experimental class have a balanced number of students and have relatively the same initial ability. After that, the pretest and post test tests were carried out on the experimental class group. The measuring instrument used was a multiple choice test with the subject matter of utilizing natural resources. The variables to be measured were student learning outcomes and student activities in

learning. The statistical model used was the parametric statistic, the data analysis technique used is the Prerequisite Test, the final analysis test, and the t-test.

RESULTS AND DISCUSSION

Based on the results of the study, the average value of activity for experimental class 1 and experimental class 2 is obtained in Figure 1.
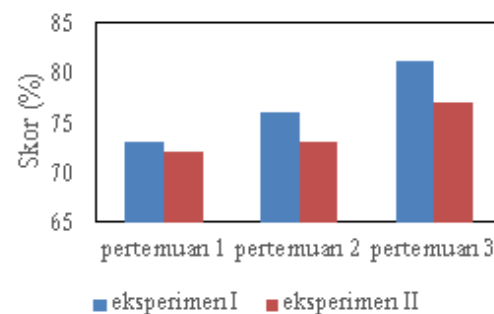

Figure 1. Student's Activities Development

In the experimental class 1 the average value at the first meeting was 72.50%, at meeting 2 it increased to 75.81%, and at meeting 3 it increased to 81.01%. The same thing happened in the experimental class 2. The average value at the first meeting was 71.62%, at the second meeting it increased to 72.84%, and at the third meeting it increased to 77.16%. The average score of students' learning activities in the experimental class 1 was 30.58 or 76.44% in very good criteria. Meanwhile, the average value of activity in the experimental class 2 is 29.55 or 73.87% is included in the good criteria.

Based on the calculation of the data in Figure 1, it is found that the experimental class 1 that applies the PBL model with the Scaffolding strategy has a better average activity value than the experimental class 2 who applies the PBL model with the Reading Guide strategy.

The post test value of student learning outcomes is as stated in Table 1.

Table 1. The Result of Students' Learning Post test

Group Statistics					
	Class	N	Mean	Std. Deviation	Std. Error Mean
Result of Science's Learning	Class A	37	74.27	6.703	1.102
	Class B	37	71.32	5.568	.915

Based on the calculations, it can be seen that the average experimental class 1 is 74.27, while the average experimental class 2 is 71.32. The next step is to carry out the t-test which can be seen in Table 2 to find out whether there is a difference between the experimental class 1 and the experimental class 2.

The Sig. (2-tailed) value obtained from t-test for Equality of Mean calculation is 0.043 <0.05. Therefore, there are differences between PBL by Scaffolding and Reading Guide in post-test learning outcomes. This means that there are differences in post test learning outcomes after applying the learning model. To find out which one is better, a further test is carried out, namely the One-Right Average Difference Test by reading the output of the t_{value} compared to the t table. From the calculation table SPSS t_{count} = 2.056> 1.666 means that Ho is rejected and Ha is accepted. This means that the average posttest score of the experimental class 1 is more effective than the experimental class 2.

Based on Figure 1, the data for the calculation of student activity shows that the activity of the experimental class I that applies the PBL model of the scaffolding strategy is higher than that of the experimental class II who applies the PBL model of the reading guide strategy. Likewise in student learning outcomes, based on Table 1, it was obtained data that the experimental class I who applied the PBL model with scaffolding strategy was better than the experimental class II who applied the PBL model with the reading guide strategy.

In this study, it was found that the experimental class I who applied the PBL scaffolding strategy model obtained a better average learning result than the experimental class II who applied the PBL reading guide strategy. Another study conducted by Pratama (2019) concluded that the communication skills of students who applied PBL achieved high completeness criteria. Suryawati (2020) states that the implementation of PBL learning in junior high schools was effective in increasing students' sensitivity to the environment. The same thing was conveyed by Nuswowati (2017) that the application of green-minded problem-based learning can increase the creativity of students' thinking skills and creative action. In another study conducted by Akhdinirwanto (2020) stated that the Problem Based Learning (PBL) learning model is the choice of the right learning model to improve students' critical thinking skills. The same thing was conveyed by Asri (2018). She states that the application of scaffolding can overcome students' thinking obstacles in solving problems. In the implementation of experimental class I learning that applies the PBL model of the scaffolding strategy, it can be seen that students were very enthusiastic in participating in the lesson. There are because during the learning process the teacher provides assistance based on the level of student ability. Students who have low abilities are guided and accompanied to be able to take part in learning. Likewise, students who have a high level of ability are given the opportunity to help students who do not understand the material described by the teacher. This students who have a high level of ability can further develop their potential through group discussion activities. In the implementation of teaching and learning activities in the experimental class II which applied the PBL model, the reading guide strategy also had an increased value. However, it was not like the experimental class I which has a higher average value. In the experimental class II students were less enthusiastic about participating in learning. This was because students are less able to understand the reading given by the teacher. The implementation of the

PBL reading guide strategy requires good reading habits and a good level of reading comprehension.

The students' activities in the experimental class I who applied the PBL model with the scaffolding strategy had a better average activity score than the experimental class II that applied the PBL reading guide strategy. The same research was also conducted by Puspitaningsih (2018) which stated that the application of PBL with Scaffolding had an effect on students' higher order thinking skills. The same opinion was also conveyed by Zamahsari (2019) who stated that the application of scaffolding can improve students' vocabulary and proficiency. Student activity in the experimental class I looked very communicative. This can be seen when the learning process takes place. Students are communicative in responding to the delivery of learning topics from the teacher. In formulating and analyzing problems, it was also seen that they are more concentrated in solving problems. The same thing was seen during the group discussion. Student participation in the discussion looks communicative, especially when responding to the opinions of each group member. In making conclusions, there are some students who look active compared to some of the other students. The findings in this study are the need for teachers to improvise and innovate in the learning process in developing learning models as an effort to achieve student learning completeness.

The students' activities in the experimental class II who applied the PBL reading guide strategy model seemed enthusiastic in participating in the lesson. The readiness of students to take part in learning looks good. The student's attention to the teacher at the time of delivering the material also looks good. This also continued during the group discussion. students respond to each other's expressions of opinion from each group member in compiling reports, groups of students work together to get good results. The last process when making learning conclusions is that students are less able to find main ideas about what material they are learning. Students cannot understand in detail the problems they were facing.

CONCLUSION

The PBL model of the scaffolding strategy and reading guide has an effect on student activity and learning outcomes. There were differences in activities and students' learning outcomes in implementing the 2 learning strategies. The experimental class 1 that applies the PBL model with the scaffolding strategy is better than the experimental class 2 that applies the PBL model for the reading guide strategy. Thus, the PBL model of scaffolding strategy is feasible to be applied in the learning process.

ACKNOWLEDGMENT

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