



Problem Based Learning Models Helped by Student Worksheets Improve Higher Order Thinking Skills

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ABSTRAK

Penggunaan media pembelajaran yang menarik jarang dilakukan menyebabkan siswa kesulitan dalam belajar. Selain itu guru mempunyai kesulitan untuk mengkreasikan proses pembelajaran menggunakan model pembelajaran yang bervariasi sehingga peserta didik merasa bosan untuk belajar. Tujuan penelitian ini yaitu untuk menganalisis Model Problem Based Learning Berbantuan LKPD dalam meningkatkan keterampilan berpikir tingkat tinggi pada siswa Kelas V sekolah dasar. Jenis penelitian ini yaitu penelitian kuantitatif. Penelitian ini dikategorikan penelitian eksperimen semu (quasi experiment). Rancangan penelitian yang digunakan adalah the one-group pretest-posttest design. Populasi dalam penelitian ini adalah seluruh siswa kelas V Sekolah Dasar yang terdiri dari 2 kelas. Teknik penarikan sampel yaitu purposive sampling. Dalam penelitian ini teknik pengumpulan data yang digunakan adalah tes. Instrumen yang digunakan untuk mengukur keterampilan berpikir tingkat tinggi adalah tes objektif pilihan ganda. Teknik analisis data yang digunakan yaitu statistika parametrik yaitu uji-t. Hasil analisis yaitu terdapat perbedaan tingkat keterampilan berpikir kritis siswa kelas V sebelum menggunakan model Problem Based Learning berbantuan LKPD dan tingkat keterampilan berpikir kritis siswa kelas V setelah menggunakan model Problem Based Learning berbantuan LKPD. Disimpulkan bahwa model Problem Based Learning berbantuan LKPD dapat meningkatkan keterampilan berpikir kritis siswa kelas V.

ABSTRACT

Using interesting learning media is rarely done, causing students difficulties in learning. In addition, teachers have difficulty creating learning processes using various learning models, so students feel bored learning. This study aimed to analyze the LKPD Assisted Problem Based Learning Model in improving higher-order thinking skills in Grade V elementary school students. This type of research is quantitative research. This research is categorized as quasi-experimental research. The research design used was the one-group pretest-posttest design. The population in this study were all fifth-grade elementary school students consisting of 2 classes. The sampling technique is purposive sampling. In this study, the data collection technique used was a test. The instrument used to measure higher-order thinking skills is a multiple-choice objective test. The data analysis technique used is parametric statistics, namely the t-test. The analysis results show differences in the level of critical thinking skills of fifth-grade students before using the LKPD-assisted Problem-Based Learning model and the fifth-grade students' critical thinking skills after using the LKPD-assisted Problem-Based Learning model. It was concluded that the Problem-Based Learning model assisted by LKPD could improve the critical thinking skills of fifth-grade students.

1. INTRODUCTION

Education is a very basic need for every human being. Education is a process to humanize humans, mature humans and change human behaviour for the better (Atikah et al., 2020; Cheeseman & Wright, 2019; Ediyanto et al., 2020; Wilt et al., 2021). Education is a comprehensive activity involving various components closely related to one another (Diningrat et al., 2020; Oh & Park, 2017). Education can achieve its goals well if there is a good learning process. Learning starts with organizing and organizing the environment around students to grow and encourage students to carry out a learning activity (Astiti et al., 2017; Cheeseman & Wright, 2019; Sihaloho et al., 2020). Learning is a process of changing a person's behaviour that takes place actively and integratively and occurs continuously according to the psychological development of that person (Hujjatusnaini et al., 2022; Margunayasa et al., 2019).

Good learning is learning that involves students actively in it and makes students motivated and feel interested in learning about something new so that students can build their knowledge and make learning meaningful (Anugraheni, 2018; Arisantiani et al., 2017; Suwono et al., 2021). To make learning activities more understandable to students, we need learning media that helps them in the learning process.

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These learning media should be made to be attractive and make students actively involved in their use so that students can build their knowledge (Nugraheni, 2017; Rohmawati & Kristanto, 2018; Wibowo & Dg Matona, 2019; Zaini & Dewi, 2017). However, in practice in the field, the use of learning media that is interesting and makes students actively involved in its use is rarely done (Damayanti et al., 2021; Maula & Fatmawati, 2020; Sentarik & Kusmaryatni, 2020).

Based on the observations made at SD Negeri 2 Dalung, the homeroom teacher for class V stated that the teacher had difficulty creating the learning process using various learning models, so students felt bored learning. Apart from that, in the content of material on social issues, teachers also need help teaching this material because the scope of material on social issues is very broad. In practice, it is combined with thematic learning to improve the time to learn about material on social issues. Even though the material content of social problems needs to be taught to students so that students can understand the problems that exist in their environment. In addition, the teacher also has problems developing media that is suitable for use in social problem material, considering that the scope of the material is quite broad, so learning media is needed that can streamline time in explaining the content of social problem material. In implementing teacher learning, LKPD is assisted in helping students understand the material. However, the LKPD, often used in schools, only contains some material and lots of questions, so it cannot motivate students to solve problems or build their concepts.

The solution to overcome these problems is to apply a learning model that can help improve students' higher-order thinking skills. One of the learning models that can be used is the LKPD Assisted Problem Based Learning Model. Problem-Based Learning is an innovative learning model that can provide active learning conditions to students in that delivery is carried out by presenting a problem, asking questions, facilitating investigations, and opening dialogue (Anugraheni, 2018; Datreni, 2022; Kamid et al., 2021; Sutrisno, 2022; Suwono et al., 2021). The problems studied are conceptual problems encountered by students in everyday life (Amin et al., 2021; Janah et al., 2019; Zhou & Li, 2021). Problems must be solved by applying several concepts and principles that are simultaneously studied and included in the subject curriculum. Learning activities using the Problem-Based Learning model begin with a problem, and then students deepen their knowledge of what is already known and what needs to be known to solve the problem (Adiansha & Sani, 2021; Pertiwi & Dibia, 2018; Serevina et al., 2018). Problems that are used as the focus of Learning can be solved by students through group work so that they can provide learning experiences for students such as collaboration and interaction in groups (Istiningrum, 2017; Serevina et al., 2018; Suwono et al., 2021). Problem-Based Learning can increase students' understanding of what is learned so that students can apply it in real conditions in everyday life. LKPD Assisted Problem Based Learning Model can help students in Learning.

LKPD is a tool to help and facilitate learning activities so that effective interactions are formed between educators and students, which is expected to increase student activity in improving learning achievement (Mustika & Sarasasih, 2020; Pentury et al., 2019; Widiyani & Pramudiani, 2021). The learning process carried out with the help of LKPD requires the support of learning models so that the implementation of learning can run effectively. LKPD is a printed teaching material that contains a summary of learning material accompanied by instructions for completing tasks that must be done based on basic competencies that must be achieved by students (Effendi et al., 2021; Rochman JK, 2021; Suryaningsih & Nurlita, 2021). LKPD is usually in the form of hardcopy assignment sheets and is presented as instructions regarding the learning steps. LKPD is one of the learning resources that the teacher can develop as a facilitator in a learning activity. The goal is to make it easier for a teacher to carry out the learning process (Augustha et al., 2021; Diella & Ardiansyah, 2019; Puspita & Dewi, 2021; Sapitri et al., 2022). In addition to students being able to study independently, LKPD can improve their critical thinking skills, thereby increasing higher-order thinking skills.

The current learning process uses the 2013 curriculum guideline, which has adopted Bloom's taxonomy and revised it by Anderson. This taxonomy is divided into six thinking skill levels: knowing, understanding, applying, analyzing, evaluating, and creating. It has led to the demands of higher-order thinking skills (HOTS). HOTS is a thinking skill that does not only require memory skills but requires other higher skills, such as creative and critical thinking skills (Afriyanti et al., 2021; Masitoh & Aedi, 2020; Musliha et al., 2021; Narayanan & Adithan, 2015). Higher-order thinking skills require students to think more than just remembering; higher-order thinking involves mental skills to manipulate information and generate new ideas or solutions (Saraswati & Agustika, 2020; Suratmi et al., 2020).

Previous research findings also reveal that the problem-based learning model can improve problem-solving skills in students (Datreni, 2022; Husnah, 2017; Janah et al., 2019; Nugraha et al., 2017; Nurbaya, 2021). Other findings also reveal that LKPD is a learning resource teachers can develop as facilitators in a learning activity (Arisa, 2022; Diani & Nurhayati, 2019; Pentury et al., 2019). The purpose of using LKPS is to make it easier for a teacher to carry out the learning process. In addition to students

being able to study independently, LKPD can also improve their critical thinking skills. It is what causes the need for innovation in the implementation of learning by using the problem-based learning model assisted by worksheets to make the learning process more meaningful, active, and creative. There has yet to be a study on the LKPD Assisted Problem Based Learning Model to improve students' higher-order thinking skills. Based on this background, this study aimed to analyze the LKPD Assisted Problem Based Learning Model in improving higher-order thinking skills in Class V elementary school students.

2. METHOD

This type of research is quantitative research (Wardani, 2015). Not all variables (symptoms that appear) and experimental conditions can be strictly regulated and controlled, so this research is categorized as quasi-experimental. The research design used was the one-group pretest-posttest design. Before being given treatment by learning using the problem-based learning model assisted by LKPD, each student is given a pretest to measure student skills related to social problems in social studies. After being given a pretest, students are given learning using the problem-based learning model assisted by LKPD to study social problem material in Social Sciences. After that, they are given a posttest to measure students' skills related to social problem topics in Social Sciences. The location of this research was carried out in class V SD Negeri 2 Dalung, North Kuta. The population in this study were all fifth-grade elementary school students at SD Negeri 2 Dalung, which consisted of 2 classes. The sampling technique is purposive sampling. Purposive sampling is a technique that takes subjects with a specific purpose (Agung, 2017). The variables in this study consisted of 2 variables. One dependent variable, namely higher-order thinking skills, and 1 independent variable, namely the problem base learning model assisted by worksheets. In this study, the data collection technique used was a test. The test is a way of collecting data in the form of a task that a person or group of people must do, and the test results produce a score (Agung, 2017). Before the test is used as a data collection tool, the test is tested for validity and reliability. Testing the validity of the test using biserial point correlation and reliability is calculated using the KR-20 coefficient.

The instrument used to measure higher-order thinking skills is a multiple-choice objective test. Multiple-choice test questions can measure more complex learning outcomes related to remembering, understanding, applying, analyzing, evaluating and creating (Agung, 2017). Each question answered incorrectly gets a score of zero and gets a score of one if the answer is correct. To determine the feasibility of the instrument used, test the validity of the test and the constancy of the test. The data analysis technique used is parametric statistics, namely the t-test. To test the hypothesis with the t-test, a prerequisite analysis test is first carried out, namely the normality test. The data normality test uses the Kolmogorov-Smirnov technique. Test the hypothesis using the t-test with the paired sample t-test formula.

3. RESULT AND DISCUSSION

Result

This research is a pre-experimental study that aims to determine the effect of the Problem-Based Learning model assisted by worksheets on the content of social problems in Social Sciences on the high-level thinking skills of fifth-grade students in elementary school. Before treatment, students' social studies knowledge was measured first to determine the critical thinking skills they had previously related to the material content of social issues in elementary schools. The instrument used to measure critical thinking skills is a test with multiple choice questions of 25 items. The results of the data analysis showed that 5 students scored below 75, and most students scored above 75. The lowest data for the pretest score was 56, while the highest score was 100. The score most students obtained was 76.00. Table 4.1 shows that the data is centred around a score of 81.78 with a standard deviation of 10.07, which means that the data is spread around the value of 81.78.

After being given treatment, students' social studies knowledge was again measured to determine their critical thinking skills related to the material content of social issues in elementary schools. The instrument used to measure critical thinking skills is the same test as the pretest before treatment. The results of the data analysis showed that all students scored above 75, most students scored above 80 and 4 students scored 100. The lowest data for the post-test score was 76, while the highest score was 100. The highest score obtained by students was 92.00. Based on Table 4.2, it is also known that the data is centred around a score of 90.37 with a standard deviation of 6.86, which means that the data is spread around the value of 90.37.

Prerequisite analysis tests need to be carried out to ensure that the results of tests using parametric statistics are acceptable. The prerequisite test that needs to be done so that the data can be analyzed with the paired data t-test is the normality test. The data normality test was conducted to determine whether the

data were normally distributed. The normality test was carried out in this study using the Kolmogorov Smirnov. The results of the Kolmogorov-Smirnov test are presented in [Table 1](#).

Table 1. Kolmogorov Smirnov Test Results

		Gain Skor
N		27
Normal Parameters ^{a,b}	Mean	0.50622
	Std. Deviation	0.241288
Most Extreme Differences	Absolute	0.214
	Positive	0.214
	Negative	-0.091
Test Statistic		0.214
Asymp. Sig. (2-tailed)		0.003 ^c

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

Based on the Kolmogorov-Smirnov test results, the significance is known to be 0.003. Because the significance obtained is greater than the alpha taken by 5% or 0.05, the conclusion is that the score gain data follows a normal distribution. After being declared to have met the prerequisites for the analysis test, the next step is to test the hypothesis using the t-test. The t-test results are presented in [Table 2](#).

Table 2. Results of t-test analysis

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Pretest - Posttest	-8.593	4.925	0.948	-10.541	-6.645	-9.067	26	0.000

Based on the analysis results with paired data t-test, it is known that the significance value with 2 sides is 0.000. Because the significance value obtained is less than alpha 0.05, H₀ is rejected, and H_a is accepted. It can be concluded that there are differences in the level of critical thinking skills of fifth-grade students before using the LKPD-assisted Problem-Based Learning model and the level of fifth-grade students' critical thinking skills after using the LKPD-assisted Problem-Based Learning model. Because the calculated t value is positive, it can be concluded that the average posttest value is greater than the average pretest value.

Discussion

Based on the results of data analysis, it was found that there were significant differences in social studies knowledge competencies before being taught using the LKPD-assisted Problem-Based Learning model and social studies knowledge competencies after being taught using the LKPD-assisted Problem-Based Learning model. It is caused by several factors, namely, as follows. First, the Problem-Based Learning model assisted by LKPD can improve students' knowledge competence. Based on the test results, student learning outcomes after using the Problem-Based Learning model assisted by worksheets experienced a significant increase. It means that applying the Problem-Based Learning model can make students focus on learning ([Anugraheni, 2018](#); [Rahmadani & Anugraheni, 2017](#); [Suwono et al., 2021](#)). Students who focus on learning lead to an effective learning process, and the information they want to convey can be well received by students ([Datreni, 2022](#); [Farias et al., 2022](#); [Kamid et al., 2021](#)). It is because applying the LKPD-assisted Problem-Based Learning model has a major effect on the process and Learning outcomes and can also increase learning motivation. Problem-Based Learning is a learning model that is oriented towards solving problems that are integrated with real life so that students can form their knowledge so can train students thinking skills ([Amin et al., 2021](#); [Janah et al., 2019](#); [Serevina et al., 2018](#); [Sutrisno, 2022](#)). Previous findings also state that Problem-Based Learning can increase students' understanding of what is learned so that

students can apply it in real conditions in everyday life (Adiansha & Sani, 2021; Hadi et al., 2022; Pertiwi & Dibia, 2018).

Second, the LKPD-assisted Problem-Based Learning model improves students' higher-order thinking skills. The Problem-Based Learning model assisted by LKPD requires students to think more than just remembering; higher-order thinking involves mental skills to manipulate information and generate new ideas or solutions. It causes students' higher-order thinking skills to increase (Destiniar et al., 2020; Jaenudin et al., 2020; Musliha et al., 2021). HOTS requires complex thinking processes, which include critical thinking, creative thinking and problem-solving (Eliyasni et al., 2019; Ichsan et al., 2019; Masitoh & Aedi, 2020; Widyawati et al., 2021). Previous research findings also reveal that HOTS includes critical and creative skills needed to solve problems (Afriyanti et al., 2021; Hikmah & Wibowo, 2020; Suratmi et al., 2020). Four conditions trigger higher-order thinking skills. First, a particular learning situation requires specific learning strategies and is not used when used in other learning situations (Ilmi et al., 2020; Masitoh & Aedi, 2020). Second, intelligence is no longer seen as a skill that cannot be changed but rather as a body of knowledge that is influenced by various factors consisting of the learning environment, strategies and awareness in learning (Afriyanti et al., 2021; Widyawati et al., 2021). Third, understanding views that have shifted from unidimensional, linear, hierarchical or spiral towards understanding multidimensional and interactive views. Fourth, more specific higher-order thinking skills such as reasoning, analytical skills, problem-solving, and critical and creative thinking skills (Saraswati & Agustika, 2020; Suratmi et al., 2020).

Third, the Problem-Based Learning model assisted by LKPD increases the enthusiasm for learning. This LKPD contains material on social studies questions to facilitate students in the online learning process. One of the benefits of LKPD, which is applied in the learning process using the Problem-Based Learning model, is that it can help teachers to get students actively involved in learning, especially in the process of solving problems encountered by students and can change learning that was originally teacher-centred to student-centred. The use of the Problem-Based Learning model assisted by LKPD is very well applied in the learning process, especially in the material content of social problems in social studies in elementary schools (Qomariyah, 2019; Wahyuni et al., 2018). From the results of observations, students who were taught using the Problem-Based Learning model assisted by LKPD seemed to be more focused on learning, and students looked active in the learning process. In addition, applying the Problem-Based Learning model can help teachers direct students to find their own concepts through independent activities and group activities (Amin et al., 2021; Janah et al., 2019; Zhou & Li, 2021). LKPD is a learning resource that teachers can use as facilitators in a learning activity (Effendi et al., 2021; Rochman JK, 2021; Suryaningsih & Nurlita, 2021). LKPD that can support communication with students is LKPD which is arranged, with sentences that are not too long, not complicated, with simple words that are easy to understand with positive sentences and includes pictures of instructions that can be used to increase motivation students (Augustha et al., 2021; Diella & Ardiansyah, 2019; Puspita & Dewi, 2021; Sapitri et al., 2022). Students can work with existing guides so that students can find something new for them and have a good impression of the material presented. Based on this, the Problem-Based Learning model assisted by LKPD increases the enthusiasm for learning.

4. CONCLUSION

The data analysis results showed differences in the level of critical thinking skills of fifth-grade students before using the LKPD-assisted Problem-Based Learning model and the level of fifth-grade students' critical thinking skills after using the LKPD-assisted Problem-Based Learning model. The average posttest score is greater than the average pretest score. It was concluded that the Problem-Based Learning model assisted by LKPD could improve students' higher-order thinking skills. In addition, applying the Problem-Based Learning model assisted by LKPD can increase student motivation and enthusiasm for learning.

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