JEE Journal of Educational Experts
Volume 7, No. 2, July 2024

ISSN 2614-3526 (print)
ISSN 2614-3518 (online)

DOI https://doi.org/10.30740/jee.v7i2.236

USE OF PROBLEM BASED LEARNING MODELS TO IMPROVE PRIMARY SCHOOL STUDENTS CRITICAL THINKING ABILITY

Muhamad Ridwan Satritama[1], Deden Herdiana Altaftazani[2], Faridillah Fahmi Nurfurqon[3]

[1] SDN Jelekong, Kabupaten Bandung, Jawa barat, Indonesia
[2.3] PGSD IKIP Siliwangi, Cimahi, Jawa Barat, Indonesia
[1] ridwansatritama17@gmail.com [2] deden@ikipsiliwangi.ac.id [3] faridillah@ikipsiliwangi.ac.id

Received: July 2024; Accepted: July 2024

Abstract

The background of this research is to improve the critical thinking skills of elementary school studentsby using the Problem Based Learning model. This research uses a mixed methods approach, with a sample of 5th-grade students and a population of 30, consisting of 14 female students and 16 male students. The data processing results show an average pretest score of 42.19, while the average posttest score is 86.28. Additionally, the normality test value for the pretest is 0.066, whereas for the posttest it is 0.50. Thus, in terms of significance, both values meet the normality test criteria of 0.05, meaning this research can be accepted. Qualitatively, this research is considered successful, with the note that there were difficulties or challenges faced, such as difficulties in understanding the learning material, and occasionally there are some students in a class whose understanding abilities are lacking. Therefore, the conclusion of this research is that there is an improvement with the implementation of the Problem Based Learning model.

Keywords: Critical Thinking, Problem Based Learning model, Elementary school.

Abstrak

Latar belakang penelitian ini adalah untuk meningkatkan kemampuan berpikir kritis siswa Sekolah Dasar, dengan mengggunakan model Problem Based Learning. Penelitian ini menggunakan metode mix methode, dengan sample siswa kelas V dan populasi berjumlah 30, yang terdiri dari 14 siswa perempuan dan 16 siswa laki-laki. Hasil pengolahan data penelitian menunjukkan perolehan rata-rata nilai pretest yaitu 42,19 sedangkan perolehan rata-rata nilai postest yaitu 86,28. Selain itu untuk nilai uji normalitas pretest yaitu 0,066 sedangkan postest yaitu 0,50 maka secara signifikansi kedua nilai tersebut telah memenuhi kriteria uji normalitas yaitu 0,05 artinya penelitian ini dapat diterima. Selajutnya secara kualitatif penelitian ini dikatakan berhasil dengan catatan terdapat kesulitan atau kendala yang dihadapai sulit untuk memahami materi pembelajaran, dalam suatu kelas terkadang terdapat beberapa siswa yang kemampuan pemahamannya kurang. Maka kesimpulan dari penelitian ini adalah terdapat peningkatan dengan diterapkannya model pembelajaran Problem Based Learning.

Kata Kunci: Kemampuan berpikir kritis, Model Problem Based Learning, Sekolah dasar

How to Cite: Satritama M S.-1. Altaftazani D H.-2, Nurfurqon F F.-3. (2024). Use Of Problem Based Learning Models to Improve Primary School Students Critical Thinking Ability. JEE, 7 (2), 103-110.

INTRODUCTION

Current education emphasizes the teaching and learning process on High Order Thinking Skills (HOTS) or better known as high-level thinking skills (Agnafia, 2019). Critical thinking ability is a form of careful and in-depth thinking process, involving consideration and evaluation of all available information to reach a conclusion that can provide a solution to a problem. Critical thinking is very important for students as Peter stated "Critical thinking is important, students who are able to think critically are able to solve problems", Peter stated that critical thinking is very important because students who have critical thinking skills can solve the problems they face (Kholili, Shoffa, & Soemantri, 2021). Critical thinking is one of the thinking skills that every human being must have, critical thinking skills must be instilled from elementary to middle school age. Critical thinking skills need to be developed from elementary school age because by having critical thinking skills humans can solve problems in a positive way. In addition, critical thinking skills can train students to analyze, examine and disseminate information before accepting or rejecting information. Learning in schools should provide learning that can develop abilities and skills in searching, processing and assessing various information critically (Susanti, Sutisnawati, & Nurasiah, 2019)

Critical thinking skills are really needed in learning, this makes it easier for students to find information and find out sources to solve a problem. Basically, people who have critical thinking skills are people who cannot take information for granted, people who have critical thinking skills tend to analyze and pay close attention to information before they receive the information. (Saputra, Joyoatmojo, Wardani, & Sangka, 2019) revealed that "students' critical thinking is still low, as can be seen from the symptoms of problems that dominate observations during the learning process in the classroom". (Hadi, Susantini, & Agustini , 2018) stated that critical thinking is reasonable and reflective thinking that focuses on deciding what to believe or do. So critical thinking skills are skills in applying high-level thinking processes that involve analysis, synthesis, understanding problems, problem solving, drawing conclusions, and evaluating. Critical thinking skills can train students to analyze, examine and evaluate information before accepting or rejecting information. Learning in schools should provide learning that can develop abilities and skills in searching, processing and assessing various information critically (Susanti, Sutisnawati, & Nurasiah, 2019)

The Problem Based Learning Model or what is known as the problem-based model, is one of the approaches implemented in the 2013 curriculum. This model invites students to learn and work together in groups to find solutions to real world problems. Problem Based Learning (PBL) is described as a learning method where material is delivered through the presentation of a problem, questions, investigations and dialogue (Hagi & Mawardi, 2021). Problem Based Learning is a learning approach used to overcome problems faced in life by focusing on students. This model aims to help students find solutions, develop critical and analytical thinking skills.

Problem Based Learning not only aims to convey a large amount of knowledge to students but rather develops critical thinking abilities and problem solving skills. Apart from that, this model aims to develop students' abilities to actively build their own knowledge. The Problem Based Learning model is learning that actively involves students in solving real problems. In Problem Based Learning students are expected to integrate new information into their cognitive structures, creating meaning for themselves. This approach encourages the development of problem solving skills through group learning activities or discussions. (Masrinah, Aripin, &

Gaffar, 2019) The Problem Based Learning model is very suitable for improving students' critical thinking skills, this is proven by research conducted by Chyatun Nuchus and Ganes Gunansyah which proves that the use of the Problem model Based Learning on students' critical thinking is quite effective compared to using conventional models.

METHOD

The method used in this research is Mix Method, according to Cresswell and Clark mixed methods research is a research approach that focuses on collecting, analyzing and combining quantitative and qualitative forms which will produce a more adequate understanding of research problems than if only using only one method (Pane Ismail & dkk, 2021). The research design used is the explanatory sequential design. This design is a method of collecting data that begins with quantitative data collection and then continues with qualitative data collection to help analyze the data obtained quantitatively, so that the results of research with this design are explanatory of a general picture (generalization) (Novitasari, Pujiastuti, & Sudiana, 2022). The research was carried out by giving a pretest first to measure critical thinking skills before carrying out research actions.

In this research, the sample of students was class V students and a population of 30, consisting of 14 female students and 16 male students, this research was conducted at SDN Jelekong which is located in Bandung district, Baleendah subdistrict in March 2024. Data collection techniques in this research, namely the value of students' knowledge and critical thinking skills as well as student and teacher activities regarding the Problem Based Learning learning model, which can be detailed in the following table:

Table 1. Data Collection Technique

No	Data Type	Data Source	Data Collection Technique
1	Learning activities / processes	Teachers & Students	Observation sheet
2	Response to learning activities		Questionnaire Sheet
3	Interview		Interview Sheet and Test (PG questions and descriptions)
4	Knowledge Assessment		

Data analysis is an effort to systematically search for and organize the results of observations, interviews and other results to increase the researcher's understanding of the problems being researched and present them in findings for others (Nurdewi, 2022). The data analysis used in this research is qualitative and quantitative analysis. Quantitative data includes pretest and posttest data on students' critical thinking abilities.

The purpose of the pretest is to see whether the initial abilities of the two classes are the same or different. Meanwhile, the posttest was carried out to see the abilities of the two classes after being given treatment. This data processing was carried out with the help of IBM SPSS Statistics for Windows software, namely by using the t test. Before carrying out a t test on the data, a normality and homogeneity test of the data is first carried out.

RESULTS AND DISCUSSION

Results

This section describes the description of research data and statistical tests of research hypotheses, including to find out (1) increasing students' critical thinking skills using the

Problem Based Learning learning model in social studies learning Theme 7 "Events in Life" Subtheme 1; (2) teacher and student responses to learning using the Problem Based Learning learning model in improving students' critical thinking skills; (3) obstacles for teachers and students in learning using the Problem Based Learning learning model in improving students' critical thinking skills. The sample in this research is class V students who receive learning using the Problem Based Learning learning model. The following are the results of the pretest and posttest of students' collaboration skills:

Table 2. Comparison of Collaboration Skills Measurement Results

Measurement	Measurement results			
	Ideal Value	Minimum	Maksimum	Average
Pretest	100	45	85	60
Postest	100	75	95	80

From the results of the analysis in table 2, it is known that the pretest scores for students' critical thinking skills with a minimum of 45 and a maximum of 85 are still categorized as requiring improvement. However, after receiving treatment, the students' grades increased relatively significantly. After receiving treatment with the Jigsaw cooperative learning model, the minimum student pretest score was 75 and the maximum was 95. The average student pretest score was 60. After receiving treatment, the student's posttest score increased to 80 and was categorized as good. So it can be seen that students' initial abilities before and after being given treatment using the Problem Based Learning learning model experienced differences in the average increase from the pretest scores that had previously been given.
Then the results of the subsequent research data were carried out, namely the normality test, homogeneity test and independent t-test as test requirements.

Table 3. Pretest and Posttest Normality Test

Class	Sig.	Significance	Information
Pretest	0,050	0,050> 0,05	Normal
Posttest	0,060	0,060 > 0,05	Normal

Based on table 3, it is known that the pretest normality test value, namely 0.050, meets the significance, namely 0.05, and the posttest value, namely 0.060, exceeds the significance, namely 0.05. Based on this data, Ha is rejected and Ho is accepted because the data is normally distributed. From the data above, it can be seen that the pretest and posttest results obtained with the Problem Based Learning learning model are significant because they are more than > 0.05. So it is concluded that the Problem Based Learning learning model has a normal distribution.

Table 4. Pretest and Posttest Homogeneity Test

Data	Sig	Significance	Information
Pretest / *Posttest*	0,965	0,965> 0,05	Homogen

Based on table 4, the sig value is obtained. in pretest and posttest data it was 0.965. Because both data are greater than 0.05, Ha is rejected and Ho is accepted, and both data are declared homogeneous. The next stage carried out was to carry out a T test analysis using the independent sample T test. The T test aims to determine whether there is a difference in effectiveness between each independent variable, namely the two pretest and posttest groups, on the dependent variable, namely the critical thinking abilities of fifth grade elementary school students. The results of the T test analysis are presented in the following table:

Table 5. Results of Independent Sample T-Test Analysis of pretest data

Sig. (2-tailed)	Significance	Information	It means
0,210	0,210 > 0,05	Ho diterima	Tidak ada perbedaan

Based on table 5, it is known that the sig. (2 tailed) is 0.210 greater than 0.05. Based on these data, Ho was rejected and Ho was accepted, it can be concluded that there is no difference in students' critical thinking abilities.

Table 6. Results of Independent Sample T-Test Analysis of posttest data

Sig. (2-tailed)	Significance	Information	It means
0,000	0,000 < 0,05	Ha ditolak	Terdapat perbedaan

Based on table 6, it is known that the sig. (2-tailed) of 0.000 is smaller than 0.05. Based on these data, Ho is rejected and Ha is accepted, so it can be concluded that there are differences in students' critical thinking abilities.

Table 7. N-Gain results pretest and posttest data

N-Gain Persen	Sig	Information
Pretest	0,614	Efektif
Posttest		

Based on table 7, it is known that the sig in the pretest class and posttest class is 0.614, so the increase in collaboration skills is classified as Medium. Then for the N-gain percent, the result was 61.405 in the effective category.

Discussion

Furthermore, the data from the questionnaire in this research was conducted to determine the responses of teachers and students to learning using the Problem Based Learning model in improving students' critical thinking skills. Next, the average value of the total student questionnaire scores was calculated, so the average student questionnaire score was 83, which

was in the "Good" category. Meanwhile, the teacher's response was obtained from the questionnaire results with a score of 86.6 which was in the "Very Good" category.

It can be concluded that many students enjoy studying social studies in groups because it makes it easier for students to understand quite a lot of material, speeds up the work on assignments, then students become braver to express opinions and help other friends to explain material they don't understand. This is in line with the opinion according to (Umami & Musyarofah, 2020) Social studies learning itself has an important role in developing social skills. According to Bloom, the aspects of skills that must be taught through social studies learning are thinking skills, academic skills, social skills and research skills. Meanwhile, according to (Suhelayanti, et al., 2023) "Giving science subjects to elementary/MI students is prioritized so that they can have social skills, because it is through these social skills that students will be able to work together well and communicate well." Regarding social skills, social studies subjects can make students able to interact and collaborate with their friends in the environment so that they are able to complete tasks together, because through these social skills students will be able to work together well and communicate well.

The difficulty for teachers in applying this model is when explaining problems, because students have different understandings, so teachers have to have a variety of different ways of explaining so that all students can understand. Apart from being difficult to explain, teachers also find it difficult to condition students during the discussion process. This is in line with the opinion according to (Handayani, 2020) Creating a conducive and democratic learning atmosphere can be created through a learning process approach that must be conditioned from the beginning of learning to the end of learning. Disorganized classroom management will have a negative impact on the teaching and learning process, so that teachers will find it difficult to control students so that expectations of achieving learning objectives are very low (Khasanah, Utami, & Hartati, 2021). So it can be concluded that a conducive learning atmosphere will be created if it is supported by a comfortable and peaceful atmosphere around the class or school.

Based on the results of statistical tests and treatment using the Problem Based Learning learning model to improve students' critical thinking skills in class V elementary school students, it can be concluded that learning is going well. Students are very enthusiastic about the interactive power point learning media used so that students follow every process. on the application of the learning methods implemented.

Student achievement in the pretest results shows the interpretation that there is a need for improvement. Students were still not able to apply cooperation skills during learning well. After being given treatment for 3 meetings with the application of the Problem Based Learning learning model, students were quite enthusiastic and seemed enthusiastic about carrying out learning so that there was an improvement during the posttest. The results show that there is always an increase in each indicator in achieving critical thinking skills. In this way, the application of the Problem Based Learning model can improve critical thinking skills.

CONCLUSION

In implementing the Problem Based Learning model, there are things that must be considered starting from the student's sitting position, apperception that is appropriate to the student's learning stage, giving instructions from the teacher, the media used, to a learning environment that is enjoyable for all students so that the suggestions in Problem Based Learning will be can

be achieved well, motivation in the form of giving confidence to students that they are able to apply collaboration skills well based on their own experiences. The learning process using the Jigsaw cooperative model is carried out in accordance with the steps, which can be seen directly from the process step by step. In implementing the Problem Based Learning model, there has been a big leap or improvement in critical thinking abilities. This can be proven by having a pretest on students' collaboration skills based on their own experience. Apart from that, there are results from obtaining questionnaires given to teachers and students after conducting research and treatment using the Problem Based Learning learning model, with very good grades obtained.

The application of the Problem Based Learning learning model can be used as an alternative learning in elementary schools to improve critical thinking skills, because students become more enthusiastic when studying because during normal learning students are usually sleepy and quickly get bored. Students also become braver in asking questions and expressing opinions, there is no longer any fear or embarrassment about asking questions and expressing opinions after having a study group. Students become more enthusiastic and diligent in learning, usually when in a group there are students who are active and full of enthusiasm for learning, it will have a good impact on the rest of their group, so that it will make other group members also enthusiastic and active when learning takes place. Apart from that, usually during normal learning, students who are at the back of the class do not pay attention to the explanations given by the teacher, because they are busy chatting and feel that studying is not fun compared to playing and chatting with friends. The Problem Based Learning learning model can be applied by teachers by adjusting the stages of the existing model, in order to motivate students to participate in learning.

REFERENCES

Agnafia, N. D. (2019). Analisis Kemampuan Berpikir Kritis Siswa Dalam Pembelajaran Biologi. *Jurnal Unipma*, 45-53.

Febiyanti, D., Wibawa, I. C., & Arini, N. W. (2020). Model Pembelajaran Kooperatif Tipe Jigsaw Berbantuan Mind Mapping Berpengaruh terhadap Keterampilan Berbicara. *Jurnal Mimbar Ilmu*, 286.

Hadi, S. A., Susantini, E., & Agustini , R. (2018). Training of students' critical thinking skills through the implementation of a modified free inquiry model. *n Journal of Physics: Conference Series*.

kholili, N. A., & Mawardi. (2021). Model Problem Based Learning untuk Meningkatkan Keterampilan Berpikir Kreatif Siswa Sekolah Dasar. *Jurnal Ilmu Pendidikan*, 463-471.

Handayani, U. F. (2020). Analisis Hambatan Penerapan Model Pembelajaran Kooperatif Pada Pelajaran Matematika. *Jurnal Pusaka* , 31.

Khasanah, F., Utami, R. D., & Hartati, S. (2021). Penerapan Pembelajaran Tematik Berbasis Problem-Based Learning untuk Meningkatkan Hasil Belajar dan Sikap Percaya Diri Siswa. *Jurnal Of Integrated Elementary Education*, 98-107.

Kholili, A., Shoffa, S., & Soemantri, S. (2021). Pembelajaran Matematika Model Discovery Learning Terhadap Kemampuan Berpikir Kreatif Siswa : Kajian Meta Analisis. *Jurnal Pembelajaran Matematika Inovatif*, 1441-1452.

Masrinah, E. N., Aripin, I., & Gaffar, A. A. (2019). Problem Based Learning (PBL) Untuk Meningkatkan Keterampilan Berpikir Kritis. *Seminar Nasional Pendidikan*, 924-932.

Novitasari, J., Pujiastuti, H., & Sudiana, R. (2022, September). Analisis Kemampuan Pemecahan Masalah Siswa Menurut Teori Polya Dalam Menyelesaikan Soal Cerita Matematika. *Jurnal Inovasi dan Riset Pendidikan Matematika*, 233.

Nurdewi. (2022). Implementasi Personal Branding Smart ASN Perwujudan Bangga Melayani Di Provinsi Maluku Utara. *Jurnal Riset Ilmiah*, 297-303.

Saputra, M. D., Joyoatmojo, S., Wardani, D. K., & Sangka, K. B. (2019). Developing Critical-Thinking Skills through the Collaboration of Jigsaw Model with Problem-Based Learning Model. *International Journal of Instruction*, 1078-1094.

Suhelayanti, Z, S., Rahmawati, I., Tantu, Y. R., Kunusa, W. R., Suleman, N., & Nasbey, H. (2023). *Pembelajaran Ilmu Alam dan Sosial (IPAS).* Aceh: Yayasan Kita Menulis.

Susanti, E., Sutisnawati, A., & Nurasiah, I. (2019). Penerapan Model Group Investigation untuk Meningkatkan Kemampuan Berpikir Kritis Siswa di Kelas Tinggi. *Jurnal Utile*, 123-133.

Umami , I., & Musyarofah. (2020, Juni). Upaya Guru IPS dalam Mengembangkan Keterampilan Slsial Siswa di MTS Rogojampi Banyuwangi. *Jurnal Of Social Studies*, 75.