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The Influence of the PBL (Problem Based Learning) Model assisted by the Snakes and Ladders Game on the Critical Thinking Skills of Fifth Grade Civics Students at SDN Inpres Kambilo

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A B S T R A C T

This study aims to analyze the effect of applying the Problem Based Learning (PBL) model assisted by snakes and ladders game on improving students' critical thinking skills in Civic Education (Civics) subjects at SDN Inpres Kambilo. Critical thinking skills are one of the important competencies that students must have to face the challenges of the 21st century. However, initial observations show that students' critical thinking skills at SDN Inpres Kambilo still need to be improved. The PBL approach was chosen because it encourages students to actively solve real problems, while the snakes and ladders game was integrated to increase motivation and learning interaction. The research sample consisted of two groups, namely the experimental group taught with the PBL model assisted by snakes and ladders and the control group taught with conventional methods. Data on critical thinking skills were collected through a validated description test and analyzed using t-test. The results of the study before learning using snakes and ladders media, the average score obtained was 60 and after using snakes and ladders media, the average score was 80. Semplel t test results obtained a significance value of 0.000 ($p < 0.05$), it can be concluded that there is a significant difference in the application of snakes and ladders media.

1. Introduction

Education is a learning process planned to develop the potential of students to create a learning atmosphere and learning process so that students can develop their potential. Education has always been a place for students to develop their potential. This is in accordance with Permendikbut No. 22 of 2016 concerning the process standards for elementary and secondary education which are criteria regarding the implementation of learning in elementary education and elementary and secondary education to achieve graduate competencies (Hidayat & Kosasih, 2019). Learning is a process of acquiring knowledge and experience in the form of changes in behavior and the ability to react that are relatively permanent or permanent due to

the interaction of individuals with their environment (Festiawan, 2020). According to Setiawan et al., (2022), learning objectives are aspects that need to be considered in a learning plan.

One of the subjects in elementary schools (SD) that needs to be improved is Civics Education (PKN), because PKN is very important to be taught to students starting from an early age, one of which is the elementary school level, so that it is easier for children to apply it in everyday life and is likely to influence the consistency carried out by students throughout their lives (Fitriani et al., 2021). Civics Education (PKN) is one of the subjects that must be included in the curriculum at all levels of education, from elementary school (SD) to tertiary level (Lisnawati et al., 2022).The learning process in elementary schools has many ways or methods that can be used to implement PKN learning in elementary schools, however, there are still schools that use conventional methods (lecturing) which cause learning to be less accepted by students. Even though the main goal of learning is to be accepted by students well and enjoyably, according to Wahid et al., (2019), in teaching and learning activities contain interactive activities between teachers and students and reciprocal communication that takes place in educational situations to achieve learning goals.

Based on initial observations and interviews conducted with teachers on November 11, 2024 at SDN Inpres Kambilo, it turns out that there are several problems, among others: The low level of critical thinking skills in students, the Civics learning process is still dominated by theory and does not involve critical thinking activities so that students may feel uninterested or less motivated to learn, this can affect their academic achievement, students also feel bored quickly in receiving learning delivered by the teacher, lack of collaboration skills in students by involving group work, students also lack communication to the teacher learners also lack communication with the teacher about things that are not yet known in the learning process, and the Civics learning process rarely uses learning media.

Students' low critical thinking skills can be seen from their answers; some students only wrote down what was known or asked in the questions. This indicates that some students were unable to explain their understanding of a topic in more depth, thus affecting students in determining the solution to be used in answering questions. This is in line with the opinion of Puspita & Dewi, (2021), who stated that critical thinking is the ability to reason systematically. Critical thinking skills need to be instilled in students because they enable them to analyze their thoughts critically when making decisions and drawing intelligent conclusions (Wulandari & Warmi, 2022). Critical thinking skills have three stages of achievement in the learning process: problem identification, information gathering, and decision-making (Budiono & Utomo 2020). Critical thinking is thinking to systematically investigate the thinking process itself, meaning not only thinking deliberately, but also examining how we and others use evidence, assumptions and logic (Rahmayanti, 2017)

Teachers have an important role in creating a learning environment that stimulates the development of students' critical thinking skills. Choosing the right learning

model can help activate students' full potential, which in turn will improve their critical thinking skills. One effective learning model is the problem-based learning (PBL) model. The PBL (Problem Based Learning) model is one indicator that students have critical thinking skills when they are able to provide opinions and discuss well to solve the problems presented, and can provide diverse answers but have the same meaning (Ariandi, 2017). PBL students gain experience in dealing with realistic problems, and emphasizes the use of communication, collaboration, and existing resources to formulate ideas and develop reasoning skills (Yulianti & Gunawan, 2019).

Educational games or games are play activities designed to stimulate aspects of children's development and enhance students' creativity (Solekhah et al., 2020). One of the most effective learning media for attracting students' interest and developing their critical thinking skills is games. The choice of learning media must be appropriate to the material being taught and the students' conditions, encouraging them to actively participate in learning activities (Sabila et al., 2021). Snakes and Ladders is a children's game played by two or more people. The board is divided into small squares, with ladders and snakes connecting the squares in some areas (Zuhriyah, 2020). The purpose of the snakes and ladders game is to create a learning atmosphere that is not boring and attracts students' interest in learning. According to Munsika (2025), the PBL model assisted by the snakes and ladders game creates a learning atmosphere that is not boring.

Based on this background, this study aims to determine the effect of the PBL (Problem Based Learning) model assisted by the snakes and ladders game on critical thinking skills in the Civics subject of fifth grade at SDN Inpres Kambilo. This study used a questionnaire-experimental design with a pretest and posttest approach.

2. Methodology

This study uses a quantitative approach with a quasi-experimental design. Quantitative research methods are scientific steps taken by a researcher using a quantitative approach to obtain quantified and analyzed data to answer/solve a problem (Sutrisno et al., 2023). Quasi-experiments are defined as experiments that have treatments, impact measurements, experimental units but do not use random assignment to create comparisons in order to conclude changes caused by the treatment (Abraham & Supriyati, 2022). Population is a generalization area consisting of objects or subjects that have certain qualities and characteristics determined by the researcher to be studied and then conclusions drawn. The population in this study were all fifth-grade students at SDN Inpres Kambilo. With a total of 20 students. Consisting of 9 male students and 11 female students. In this study, the population was 20 people, so all members of the population were used as research samples and divided into 2 classes, namely the experimental class of 10 students and the control class of 10 students. In this study, the independent variable was the PBL Model assisted by the snakes and ladders game. The dependent variable was critical thinking skills.

The sample in this study required two classes for the sample, namely the experimental class and the control class. According to Febriyanti (2023), a sample is a part of the population that is the source of data in research, where the population is part of the number of characteristics possessed by the population. The sampling technique according to Rachman et al (2024), is a sampling technique, to determine the sample to be used. The sampling determination technique when all members of the population are used as samples. In this study the population number is 20 people, so all members of the population are used as research samples and divided into 2 classes, namely the experimental class of 10 students and the control class of 10 students.

The instrument used to measure students' critical thinking skills is a test in the form of pre-test and post-test questions. The tests given were 10 multiple choice questions. 1 question is worth 10 and 1 wrong question is worth 2. Questions designed to measure critical thinking indicators, such as: interpreting, analyzing, evaluating, identifying. The test questions will be validated by experts and tested to determine validity and reliability.The data analysis technique used in this research is quantitative data analysis technique obtained from field tests conducted by researchers. The quantitative data is analyzed by researchers using statistics. The requirements in testing are:

a. Normality Test
   Normal here in the sense of having a normal data distribution using the One Sample Kolmogorov Smirnov Test test with the provisions if Asymp. Sig> 0.05 then the data is normally distributed.
b. Homogeneity Test
   The homogeneity test was conducted using IBMS SPSS Statistic 22 with the significance of the data must be > 0.05 and choose homogeneous variants.
c. T test
   After knowing the normality and homogeneity of the data that has been collected during the study, the next hypothesis testing with the help of IBM SPSS Statistic 22 is to test the Paired Sample t test.

The basis for decision making in the paired sample t test, namely:

a. If the significance value (2-tailed)< 0.05, then Ha, rejected and Ho accepted
b. If the significance value (2-tailed)> 0.05, then Ho is accepted and Ha is rejected.

Decision-making criteria: if the significance value (Sig.) <0.05, then H0 is rejected and Ha is accepted, which means there is a significant effect.

3. Results and Discussion

Control Class: This class serves as a comparison. The control class has 10 students, with 4 male students and 6 female students. In this class, learning takes place conventionally, without the intervention of the PBL model assisted by the snakes and ladders game. This aims to see how much impact is given to the experimental

class. In the implementation of conventional methods, pre-tests and post-tests are carried out. The pre-test questions aim to measure students' initial knowledge. In the control class, prepare a lesson plan with conventional methods (lectures or regular discussions). After all treatments are completed, give a post-test, the post-test questions must be the same as the pre-test. The results of this post-test will be used to see changes or improvements that occur in each class

Experimental Class: This class is where the treatment is given. In the experimental class, 10 students are used, with 4 male students and 6 female students. In this class, the learning process uses the PBL model assisted by the snakes and ladders game. In the implementation of the PBL model, pre-tests and post-tests are carried out. The pre-test questions aim to measure students' initial knowledge. The topic used is the meaning of the Pancasila principles. The Experimental Class RPP uses the PBL model syntax integrated with the snakes and ladders game. After all treatments are completed, give a post-test, the post-test questions must be the same as the pre-test. The results of this post-test will be used to see changes or improvements that occur in each class. The following are the steps to implement the PBL model assisted by the snakes and ladders game:(1) Make a snake and ladder game board (Design a large snake and ladder board), (2) Each box is given a problem-based question, (3) The pieces are played according to the number that comes out of the dice roll, (4) Each student starts from the dice that is thrown. For example, if a student throws the dice and shows the number 3, that is the place that the student is placed on, (5) Each student has 1 time to throw the dice, if they get the number 6, the student can throw 1 more time, (6) Each student is required to take and answer questions from the student's dice roll, (7) If the student gets the opportunity under the ladder, the student will go up to the top of the ladder, if they get the tail, the student will go down to the bottom of the snake, (8) The student who reaches the finish line first is the winner. The following is a picture of the learning process using the PBL model assisted by the snakes and ladders game, in full in picture number 1:

Figure 1. PBL Model Learning Assisted by The Snakes And Ladders Game

This research process uses data collection techniques in the form of pre-test and post-test questions. The pre-test question was carried out before the introduction of learning material through snakes and ladders media. While the post-test question is carried out the introduction of learning material through snakes and ladders media. There are 10 questions in the form of multiple choice. The purpose of this pre-test

and post-test question is to measure changes in student knowledge or skills before and after a learning process. The following is a table of pre-test and post-test scores as seen in table 1 and table 2 below:

Table 1. Pretest Results

NO	Value range	Frequency	Criteria
1	90-100	0	A (Very good)
2	80-89	0	B (Good)
3	70-79	6	C (Fair)
4	<70	14	D (need guidance)
Total	20		
Total score	1.255		
Highest score	75		
Lowest score	50		
Average score	62,75		

Table 2. Postest Results

NO	Score range	Frequency	Criteria
1	90-100	4	A (Very good)
2	80-89	12	B (Good)
3	70-79	4	C (Fair)
4	<70	0	D (need guidance)
Total	20		
Total score	1.630		
Highest score	95		
Lowest score	70		
Average score	81,5		

Normality Test

Normality test to determine whether the data is normally distributed or not. The complete results of the normality test for pretest and posttest scores are presented in table 3 below:

Table 3. Tests of Normality

	Kolmogorov-Smirnov [a]			Shapiro-Wilk		
	Statistic	df	Itself.	Statistic	df	Itself.
pretest result	.170	20	.132	.926	20	.128
posttest result	.180	20	.090	.931	20	.159

Source: Researcher's Processed Results (2025)

Based on the results of the normality test, it is known that the data from the pre- test and post-test results are normally distributed using the Shapiro-Wilk test with a sample of 20 students or with a significance of≥ 0.05.

Homogeneity Test

The homogeneity test is carried out to determine whether the variance between two groups of data is the same or not (homogeneous). The following are the results of the homogeneity test presented in table 4 below:

Table 4.Test of Homogeneity of Variances

Levene Statistic	df1	df2	Itself.
	.457	1	38 .503

Source: Researcher's Processed Results (2025)

Based on the results of the homogeneity test, it is known that the pre-test and post-test results are homogeneously distributed with a Sig> 0.05 value.

T test

This T test is to determine whether there is a significant difference, this test is conducted between students' pretest and posttest scores. The following is a table of paired sample test results as presented in table 5 below:

Table 5. Paired Sample Test

Uraian	Std Dev	t	Sig	Information
Pre-test and *post-test*	8,717	-10.902	.000	*H0* is rejected

Source: Researcher's Processed Results (2025)

Based on the results of the t test, it is known that there is an influence that can be seen based on the results of the pre-test and post-test with a Sig value. (2-tailed) 0.0 (p-value <0.05).

The following is a comparison table of pre-test and post-test scores as presented in Figure 2 below:

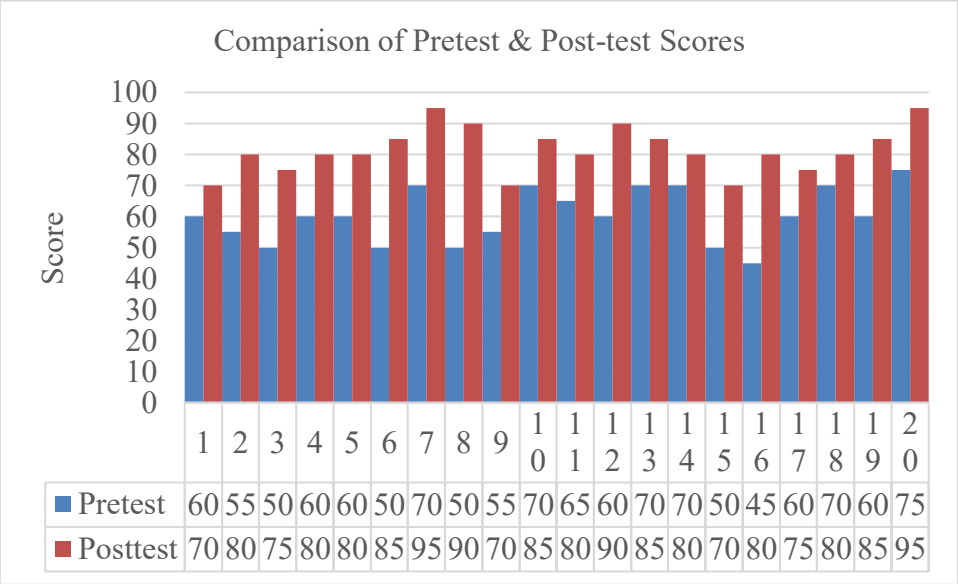

Figure 2. Comparison of Pre-Test and Post-Test Scores

The figure above shows a comparison of the pretest and posttest scores of 20 fifth grade students of SDN Inpres Kambilo on Civics subjects after the application of

snakes and ladders media. The graph shows a significant increase in the average post-test score compared to the pretest, which shows the effectiveness of using snakes and ladders media on students' critical thinking skills.

Pretest Score: the total pretest score of 1,255 points reflects the initial level of students' critical thinking skills before the snakes and ladders media was used in the learning process. This shows that most students are still at a basic level of understanding in analyzing and drawing conclusions in Civics learning materials. Posttest Score: After the application of snakes and ladders game-assisted learning, the posttest score increased significantly to 1,630 points. This result shows a significant increase in students' critical thinking skills after using snakes and ladders media.

4. Conclusion

The results of the study indicate that the PBL model integrated with the Snakes and Ladders game had a positive and significant impact on improving the critical thinking skills of fifth-grade students at SDN Inpres Kambilo. Based on a quantitative approach using validated pre-test and post-test instruments, there was a significant impact on critical thinking skills in Civics learning. Before implementing this model, most students demonstrated a level of critical thinking skills that still needed to be developed. However, after the intervention with the PBL model and the Snakes and Ladders game, there was a clear improvement in critical thinking indicators, such as the ability to analyze problems, evaluate information, and make decisions. The Snakes and Ladders game has proven effective in creating an interactive and enjoyable learning environment, thereby encouraging students' active participation in the problem-solving process. This indirectly facilitates the development of their critical thinking skills through discussion, reflection, and interaction between students.

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