



## The Influence of Brainstorming Method Through “Good Collaboration” Stories to Improve the Critical Thinking Dimension of Elementary School Students

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### ABSTRACT

Indonesian Language Learning is a learning that has an important role in developing students' critical thinking skills. In fact, the critical thinking ability of students in class IV of SD Negeri 80 Palembang in learning Indonesian is still low. This "low" category is based on the results of preliminary observations and diagnostic tests, where 68% of students obtain scores below the school's Minimum Completion Criteria (KKM), which is 70, and show difficulties in understanding stories, expressing opinions, and composing sentences with logical arguments. The purpose of this research is to find out the influence of the brainstorming method through the story "Good Cooperation" in improving the critical thinking dimension of students in learning Indonesian Language Class IV of SD Negeri 80 Palembang. The research method used is a pre-experimental design experimental method with a one group pretest-posttest design. The population in this study is all students of class IV of SD Negeri 80 Palembang as many as 49 students. The sample used is class IV A with 25 students. The data analysis technique used is the paired sample t-test. Based on the calculation results, it was obtained that there was an increase in the average pretest and posttest results of 22.92, with a significant value (2-tailed) of  $0.000 < 0.05$ , then  $H_0$  was rejected and  $H_a$  was accepted. So it can be concluded that the brainstorming method through the story "Good Cooperation" has an effect in increasing the critical thinking dimension of students in the Indonesian language subject of class IV of SD Negeri 80 Palembang.

### 1. Introduction

Education is an effort that is carried out in eradicating ignorance in fighting the nation's life, improving the standard of living and building the dignity of the nation and country (Pristiwanti, Badariah, & Hidayat, 2022:7911). In the implementation of education in Indonesia, the curriculum is used as a reference in learning activities and is always experiencing development. Currently, learning in Indonesia is starting to switch from the 2013 curriculum to an independent curriculum.

The main goal of the Merdeka Curriculum is to present a more relevant, innovative, and inclusive learning process so that students are ready to face the challenges of the 21st century. In addition, the Merdeka Curriculum also focuses on the development of competencies and skills by embedding Pancasila student profiles in students to suit the needs of the modern era (Nasution, 2022:135)

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Critical thinking is one of the skills that students must have in order to be able to face various personal and social problems in their lives. Critical thinking skills can be obtained by students through the learning process. According to Puspita & Dewi (2021:87) critical thinking is a cognitive activity related to the mind. According to Nurfijriah, Yuniarti, & Dwinata (2023:67) critical thinking ability is an individual's ability to analyze and solve a problem. With this it can be interpreted that the ability to think critically is the ability of reasoned understanding in making decisions to solve a problem that is being faced.

Based on the results of field observations and interviews with the homeroom of class IV of SD Negeri 80 Palembang, it was found that the student's critical thinking ability in learning Indonesian is still classified as low. This can be seen when the learning process takes place, where students still have difficulty working on story questions and arranging words into complete sentences. In addition, students also have difficulty in stringing statement sentences from the words that have been explained by the teacher. Based on the daily review results, out of 25 students in class IV of SD Negeri 80 Palembang, as many as 15 students have not been able to interpret, analyze, and infer stories and essay questions, while only 10 students have shown sufficient ability in this aspect. One of the main factors that contributes to the low critical thinking ability of students is the learning process which is still dominated by the lecture method or teacher-centered learning. This monotonous learning pattern makes students less actively involved, not given space to explore their own ideas, and tend to be passive recipients of information. As a result, the material is not stored optimally in long-term memory and students get bored quickly.

As an effort to overcome these problems, a learning method is needed that is able to create an active, interactive learning atmosphere, and arouse students' curiosity. One of the relevant methods is the brainstorming method. This method directly overcomes monotonous learning problems by actively involving students in the open discussion process. Students are invited to convey their ideas, ideas, or knowledge without fear of being wrong or criticized. This activity creates a dynamic learning environment, arouses self-confidence, and stimulates students' intellectual involvement, so that the learning process becomes more lively and collaborative.

The brainstorming method is very consistent with the main principles of the Merdeka Curriculum, which emphasizes relevant, innovative, and inclusive learning. This curriculum encourages the development of high-level thinking competencies (HOTS), communication skills, and collaboration, all of which can be facilitated through brainstorming activities. By giving students space to develop ideas independently and together, this method fosters a lifelong learner character and helps students develop critical, creative, and reflective thinking skills that are much needed in facing the challenges of the 21st century.

Therefore, researchers are interested in further studying the influence of brainstorming methods in improving students' critical thinking skills in Indonesian subjects through a study entitled "The Influence of Brainstorming Methods Through 'Good Cooperation' Stories to Improve the Critical Thinking Dimension of Elementary School Students."

## **2. Methodology**

This research uses quantitative methods with experimental design, precisely Pre-Experimental design (Pre-Experimental Design) type of one-group pretest-posttest design. In this design, there is only one group without a control group. One class is given an initial test (pretest) before being given treatment in the form of applying the brainstorming method through the story "Good Cooperation", then continued with the final test (posttest) after the treatment is given.

This pre-experimental design has limitations in establishing a strong causal relationship, due to the absence of a control group that makes it possible to compare the results with the untreated group. This makes it difficult for researchers to completely rule out the influence of external factors such as the effect of time,

informal learning, or natural student motivation on the improvement of learning outcomes. Therefore, the results of this study are indicative and need to be followed up with a stronger experimental design for broader generalization.

The population in this study is all 49 students in class IV of SD Negeri 80 Palembang. The sampling technique is carried out by random sampling, which is random sampling without considering certain strata in the population. In its practical implementation, the researchers used simple randomization by writing the names of all class IV students on a small paper, then randomly drawn to choose 25 students as research samples. This is done to ensure that the selection process is completely random and free from subjective bias.

The data collection techniques used are tests (pretest and posttest) to measure students' critical thinking ability, as well as documentation to support the quantitative data obtained. The collected data is analyzed through three stages, namely the normality test to determine the data distribution, the homogeneity test to measure the similarity of variance, and the hypothesis test using the paired sample t-test.

The paired sample t-test was chosen because the design of this research involves one group that is tested twice, namely before and after treatment. This test is very suitable to find out whether there is a significant difference between two conditions in the same group, so it is appropriate to answer research questions about the effectiveness of brainstorming methods in improving students' critical thinking skills. By comparing the average pretest and posttest scores in the same group, this test is able to measure the direct impact of the intervention given.

### 3. Results

The test given to students is in the form of 10 story questions. The test was carried out twice, namely the initial test (pretest) to find out the student's critical thinking ability in learning Indonesian and the final test (posttest) to find out whether there is an effect of the brainstorming method through the story "Good Cooperation" in improving the student's critical dimension in learning Indonesian. Before being given the posttest, the students are first given treatment (treatment) with the application of the brainstorming method. The following is the data of the pretest and posttest results of the experimental class.

**Table 1** Description of Critical Thinking Data

	Descriptive Statistics				
	N	Minimum	Maximum	Mean	Std. Deviation
<i>Pretest</i>	25	30	88	59.60	14.944
<i>Posttest</i>	25	61	100	82.52	11.826
Valid N (listwise)	25				

Table 1 shows that the mean value or average of the pretest result of 59.60 increased in the posttest result to 82.52. Thus, it can be concluded that there was a significant increase in students' critical thinking scores after the application of the brainstorming method through the "Good Cooperation" story. This improvement is not only seen quantitatively, but can also be reviewed qualitatively based on the aspects of critical thinking measured in the test.

Qualitatively, aspects of interpretation and evaluation show the most prominent improvement. In the initial test, most students have difficulty in understanding the implied meaning in the story and associating the information conveyed in the form of text with a broader context (interpretation aspect). After the treatment is given, students begin to show better abilities in identifying the meaning of the text, understanding the relationship between sentences, and explaining the information given logically.

Likewise in the evaluation aspect, there is an increase in the student's ability to assess the accuracy, relevance, and validity of arguments in essay questions. If previously students tend to receive information passively without doing a critical assessment, after treatment students are able to express their opinions logically, give reasons, and assess alternative solutions more objectively.

### 3.1 Normality Test

Test the normality in this study to find out whether the data obtained is normally distributed or not. The data that is tested for normality is the critical thinking dimension data of each student which is a research sample. The data whose normality is tested must be adjusted to the hypothesis testing carried out. Data testing in this study uses a normality test using the Saphiro-Wilk technique with the help of SPSS for windows version 26 with criteria, if the Saphiro-Wilk test results show P-value > 0.05 then the data has a normal distribution, while if the Saphiro-Wilk test results show a P-value < 0.05 then the data has an abnormal distribution. The results of the normality test calculation can be seen in the following table.

**Table 2** Normality Test Results

Shapiro-Wilk			
	Statistic	df	Sig.
Pretest	.945	25	.194
Posttest	.930	25	.086

a. Lilliefors Significance Correction

Table 2 shows that a significant (normally distributed) pretest value of 0.194 and a significant (normally distributed) posttest value of 0.086 obtained. So that it can be concluded that the calculation data of pretest and posttest results is normally distributed.

### 3.2 Homogeneity Test

The homogeneity test aims to find out whether the research has the same variation. The variance homogeneity test by applying the statistics of the levene test of homogeneity of variances, is said to meet the assumption that the variance is homogeneous with the following provisions; If the P-value > 0.05 then the data is distributed homogeneously, while if the P-value is < 0.05 then the data is not homogeneous. The results of the hymogeneity test calculation can be seen in the following table.

**Table 3** Homogeneity Test Results

Test of Homogeneity of Variance					
		Levene Statistic	df1	df2	Sig.
Dimensi Berpikir Kritis	Based on Mean	2.494	1	48	0.121
	Based on Median	.982	1	48	0.327
	Based on Median and with adjusted df	.982	1	42.14 4	0.327
	Based on trimmed mean	2.546	1	48	.117

Table 3 shows that the results of the homogeneity test for students' critical thinking dimensions obtained a significant value of 0.121 > 0.05. Thus it can be concluded that pretest and posttest data based on criteria are homogeneous, which means pretest and posttest data have almost the same diversity or not much different.

### 3.3 Hypothesis Test

Hypothesis test is used to find out if there is a significant difference between grades before and after treatment, in this case to test the influence of brainstorming learning methods on the improvement of the critical thinking dimension of grade IV students of SD Negeri 80 Palembang. The hypothetical test used in this study is a paired sample t-test with the help of SPSS for Windows version 26 software. This test is used because the research design involves the same group that is measured twice, namely on pretest and posttest.

Before conducting the t test, the researcher first conducts a normality test and a homogeneity test as a prerequisite for parametric analysis. Normality test results show that pretest and posttest data are normally distributed, characterized by a significance value of  $> 0.05$ . Similarly, the results of the homogeneity test show that the variance between two data sets is homogeneous. This finding is important because the paired sample t-test requires that the score difference between two measurements (pretest and posttest) comes from a population that is normally distributed and has homogeneous variance. With the fulfillment of these assumptions, the use of paired sample t tests is considered valid and appropriate to test the hypothesis in this study.

**Table 4** Hypothesis Test Results

		<b>Paired Samples Test</b>					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Pretest - Posttest	-22.920	8.020	1.604	-26.231	-19.609	-14.289	24	.000

Table 4, obtained significance value (2-tailed) of 0.000. Because  $< 0.05$ , it can be concluded that  $H_0$  is rejected and  $H_a$  is accepted, which means that there is a significant difference between pretest and posttest results. Thus, it can be concluded that the use of brainstorming methods through the "Good Cooperation" story has a significant effect in increasing the dimension of critical thinking of students in class IV of SD Negeri 80 Palembang.

After being given treatment in the form of applying the brainstorming method through the "Good Cooperation" story and doing a posttest, the results were obtained that students showed mastery of the three main indicators of critical thinking, namely interpretation, evaluation, and inference.

First, in the aspect of interpretation, students are able to understand, explain, and interpret the main idea and supporting information from the story. Most students can mention that the main conflict is the lack of cooperation between the characters in completing group tasks. One of the students even replied, "The stacters do not help each other, so the task is not completed on time. That means cooperation is important." This shows that students are able to capture the implied meaning and the core of the story well.

Second, in the evaluation aspect, students begin to be able to compile ideas and solutions to the problems faced by the characters in the story. On the question, "If you were one of the characters in the story, what would you do?" A student replied, "I will invite my friend to discuss and divide the task, so that everyone can work and no one is lazy." The response shows that students are able to evaluate the situation and provide alternative solutions based on the values they learn from the story.

Third, in the inference aspect, students are able to draw conclusions from story elements such as characters, settings, and plots. When asked to conclude the moral message from the story, the student replied, "If we work together, all work can be completed faster and no one feels burdened." In addition, students also show the ability to retell the contents of the story in sequence and use their

own sentences, which reflects the ability to draw conclusions based on the information that has been understood.

Through the brainstorming method, students are more actively involved in the thinking process and expressing opinions, which directly supports the development of critical thinking skills. Open discussion that is free of criticism during brainstorming provides a safe space for students to express their understanding logically and deeply.

The results of this study show that the brainstorming method has an effect in improving the critical thinking dimension of students in Indonesian language subjects in class IV of SD Negeri 80 Palembang. The results of this study are reinforced by research conducted by Wahyunisa, Mufidah, & Akina, (2023) which shows that the brainstorming method can improve the critical thinking skills of elementary school students. Furthermore, the influence of the brainstorming method on the critical thinking dimension of students in this study, is reinforced by research conducted by Ersa, et al (2023). The results show that the brainstorming method affects the critical thinking ability of students.

Based on the results of the research that the researcher has carried out and reinforced with the previous research conducted by Wahyunisa, Mufidah, & Akina, (2023) and Ersa, et al (2023), as well as the explanation of the data above, it has answered the previously determined problem formulation, which is proven that "The brainstorming method through the story "Good Cooperation" has an effect on improving the critical thinking dimension of students in Indonesian language subjects in class IV of SD Negeri 80 Palembang".

#### **4. Conclusion**

Based on the results of data analysis and discussion, it can be concluded that the brainstorming method through the story "Good Cooperation" can improve the dimension of critical thinking of students in Indonesian language subjects in class IV of SD Negeri 80 Palembang. This influence can be seen from the pretest results obtained an average score of 59.60, and in the posttest results an average score of 82.52. It can be seen that there is an increase of 22.92 from the pretest and posttest results after being treated using the brainstorming method. This statement is also supported by the results of the hypothesis test by using the paired sample t test (paired sample t test). In the results of the paired sample t test calculation obtained a significant value (2-tailed) of  $0.000 < 0.05$  then  $H_0$  is rejected and  $H_a$  is accepted. So it can be concluded that the brainstorming method through the story "Good Cooperation" has an effect in improving the critical dimension of students in Indonesian Language subjects Class IV of SD Negeri 80 Palembang.

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