ISLAMIKA
Jurnal Keislaman dan Ilmu Pendidikan

p-ISSN : 2656-5382
e-ISSN : 2656-0224

Terindeks: SINTA 3, Dimensions, Scilit, Crossref, Garuda, Google Scholar, Base, etc

https://doi.org/10.36088/islamika.v8i2.6059

The Influence of Discussion Methods and Students' Critical Thinking Skills in the Application of Deep Learning Approaches to Indonesian Learning Outcomes Argumentation Paragraph Material for Grade IV Students of SD Negeri Tambakaji 04 Semarang City

Tsabita Rahma Kamila & Akhmad Junaedi
Semarang State University, Indonesia
tsabitarahmakamila@students.unnes.ac.id; akhmadjunaedi143@gmail.unnes.ac.id

Abstract

Low learning outcomes in Indonesian language subjects, particularly in argumentative paragraph writing, remain a persistent challenge in elementary education, as many students struggle to construct logical arguments and express ideas critically, often due to teacher-centered instruction and limited discussion-based learning opportunities. This study examines the influence of discussion methods and students' critical thinking abilities within a deep learning approach on Indonesian language learning outcomes. Using a quantitative approach with a quasi-experimental one-group pretest-posttest design, the study involved 24 fourth-grade students at SD Negeri Tambakaji 04, Semarang City, selected through saturated sampling. Data were collected through Indonesian language learning outcome tests and critical thinking questionnaires and analyzed using paired-sample t-tests, simple linear regression, and multiple linear regression in SPSS version 23. The results showed a significant improvement in students' learning outcomes following the implementation of discussion-based deep learning, with the mean score increasing from 51.25 on the pretest to 86.88 on the posttest ($t = -15.370$, $p < 0.05$). Regression analysis further indicated that the discussion method had a positive and significant effect on learning outcomes ($\beta = 0.737$, $p < 0.05$), while students' critical thinking ability also exerted a positive and significant effect ($\beta = 0.807$, $p < 0.05$). Collectively, these variables

explained 85.6% of the variance in learning outcomes ($R^2 = 0.856$). The study concludes that integrating discussion methods and critical thinking development within a deep learning framework can effectively enhance Indonesian language learning outcomes, particularly in argumentative writing, and contributes empirical support for the design of more interactive and cognitively engaging learning environments in elementary Indonesian language instruction.

Keywords: Discussion Method; Critical Thinking; Deep Learning; Learning Outcomes; Argumentative Writing

INTRODUCTION

21st century learning encourages students to improve their ability to think critically, communicate, and cooperate in the process of learning cooperatively (Fitrah et al., 2025). Worldwide, deep learning-based education is seen as a transformation that can improve learning outcomes through deep understanding, student participation, and knowledge integration with real-world situations through three main pillars: mindful learning, meaningful learning, and joyful learning (Prihantoro et al., 2025). (Wang et al., 2021) study shows that the application of deep learning in learning planning is able to improve students' learning satisfaction and academic performance. However, the OECD's PISA 2022 results show that 27% of Indonesian students can only understand simple texts in a clear and concise way without the ability to analyze or make arguments. This shows that, according to (Nurlailah & Julkifli, 2025) and the Ministry of Education and Culture 2023, this condition is also seen in elementary Indonesian language learning, where students have difficulty composing logical argumentation paragraphs due to the lack of critical discussion practice.

In the national context, Indonesian language learning has a strategic position as mandated in Law Number 20 of 2003 concerning the National Education System which affirms that Indonesian language education has a strategic position in the national context (Fitrah et al., 2025). The law stipulates that Indonesian should be taught to students at the primary and secondary levels and the purpose of learning Indonesian is to improve students' ability to communicate clearly and simply in writing and orally, as well as to improve their ability to understand the ideas and feelings of others, and to develop their ability to (Fuad, 2020). However, this ideal situation has not always been realized in school learning practices. In the material argumentation paragraph, students are still required to clearly state their

results and provide relevant reasons to support their results. This is the result of a learning approach that still focuses on lectures and practice questions. As a result, students are not actively involved in discussions and critical thinking processes In the end, this has an impact on poor Indonesian learning outcomes because students are not very interested in debating and thinking critically (Simonovic et al., 2023).

To solve this problem, teachers must create a learning plan that allows students to participate in learning activities and grow their critical thinking skills (Novandi et al., 2025). One of the most important strategies for dealing with this issue is the discussion method that gives students the opportunity to express their opinions, talk about the opinions of others, and use logic to support their arguments. In line with (Gao et al., 2022), the collaborative discussion method with argumentative scaffolding improves students' argumentative skills, although it requires a balance between individual and group performance. Thus, the researchers found that the application of the discussion method in classroom activities can improve students' ability in critical thinking through their participation in groups (Azevedo & Dever, 2021). Thus, they have many opportunities to discuss topics related to the material being taught in class. This shows that there is a difference in learning outcomes between the discussion method and the conventional method (Widiastuti & Kania, 2022)

Various previous studies have shown that discussion methods have a positive effect on the learning outcomes of elementary school students through increasing active involvement and argumentation. (Pratiwi & Maknun, 2024) published in MICJO shows that the discussion method in teaching elementary Indonesian significantly improves students' ability to think critically through interaction with groups. In addition, the study (Prihantoro et al., 2025), proves that deep learning-based discussions in elementary school improve critical thinking skills through problem solving and reflection, with a significant increase in scores. Critical thinking skills have also been shown to be strongly correlated with the achievement of writing Indonesian arguments at the elementary level. (Dewi, A. C, Fitri, S., Satriani & Herdiani, 2024), shows that the integration of deep learning in Indonesian writing teaching strengthens students' reflective and argumentative thinking through collaborative discussions, with literacy results increasing by 25-30%. Research on deep learning specifically confirms that this approach is optimal for Indonesian learning because it emphasizes the connection of concepts to real contexts. The regression results showed that critical thinking skills had a significant effect on learning outcomes ($\beta = 1{,}402$, $p = 0.000$), in line with (Bhuttah et al., 2024) who reported a strong positive relationship between critical thinking

and learning outcomes through innovative pedagogical approaches. (Enjang Warman et al., 2025), proves that deep learning in elementary literacy produces continuous understanding and high-level thinking skills. The general results of the 2021-2025 research consistently show a 20-45% increase in learning outcomes when discussion methods are combined with elements of deep learning and critical thinking (Hafeez, 2021).

However, these studies still have limitations. Most of the studies examined discussion methods and critical thinking skills separately, and have not comprehensively integrated the two variables in the deep learning approach so that they have not been able to uncover the interaction between these variables on learning outcomes. As explained by (Kreijkes & Greatorex, 2024), the fragmented model is a traditional curriculum design in which disciplines are separated separately. This research fills this gap by developing an integrated model that combines discussion methods and critical thinking skills within the framework of deep learning, which is believed to be more effective in meeting the needs of students and promoting deep learning. Another limitation lies in the focus of learning materials which generally target narrative or description texts in science and social studies subjects, not Indonesian argumentation paragraphs that require logical analysis skills and more complex evidence preparation (Enjang Warman et al., 2025). Deep learning research also tends to be applied to general literacy or elementary numeracy, not specifically to Indonesian argumentative skills in grade IV (Hatima, 2025). Thus, there are research gaps that need to be filled through comprehensive empirical testing that combines the three elements of discussion methods, critical thinking, and deep learning to strengthen findings in the field of elementary school argumentation paragraph learning.

The novelty of this research lies in the integration of discussion methods and students' critical thinking skills within the framework of the application of the deep learning approach to Indonesian learning in elementary schools, especially in the material of argumentative paragraphs. Unlike previous research which generally examined discussion methods or critical thinking skills separately, this study analyzed the influence of both simultaneously on student learning outcomes. The integration provides a new perspective in understanding how social interaction through discussion can strengthen students' critical thinking processes so as to produce more meaningful learning. Theoretically, this research is based on the theory of social constructivism which asserts that knowledge is built through interaction, dialogue, and collaboration between learners (Li & Sun, 2022). Practically, this study contributes in the form of empirical evidence on the effectiveness of discussion

methods that are integrated with the development of critical thinking skills in improving Indonesian learning outcomes. The findings of this research are expected to be a reference for elementary school teachers in designing Indonesian learning that is more active, contextual, and in line with the demands of 21st century learning (Azevedo & Dever, 2021).

Based on various learning problems that have been described previously, especially related to the low argumentation skills and Indonesian learning outcomes of elementary school students due to the lack of discussion activities and the development of critical thinking, this study is focused on studying the influence of discussion methods and students' critical thinking skills in the application of deep learning approaches to Indonesian learning outcomes. The focus of the research is specifically directed at the relationship and influence of discussion method variables as the first independent variable and students' critical thinking ability as the second independent variable on Indonesian learning outcomes as a bound variable. This research was carried out on grade IV students of SD Negeri Tambakaji 04 Semarang City with argumentative paragraph learning material, which requires students' ability to express opinions logically and supported by relevant reasons. Through this study, the researcher aims to determine the influence of discussion methods on Indonesian learning outcomes, determine the influence of students' critical thinking skills on Indonesian learning outcomes, and determine the influence of discussion methods and students' critical thinking abilities simultaneously in the application of deep learning approaches to Indonesian learning outcomes in the argumentation paragraph material of fourth grade students of SD Negeri Tambakaji 04 Semarang City.

METHODS

This study uses a quantitative approach because it aims to objectively test the influence of variables through numerical data analysis and statistical hypothesis testing. The quantitative approach emphasizes numerical measurement and hypothesis testing through statistics as the main analytical tools, thus allowing researchers to draw conclusions that are objective and measurable (Varghese et al., 2025). This approach was chosen because it allows the measurement of causal relationships between variables in a structured, systematic, and generalizable manner, especially in evaluating the effectiveness of learning methods in the field of education (Priatna et al., 2025). In addition, the quantitative approach is considered to be very in line with the research objectives that focus on the influence of discussion

methods and students' critical thinking skills on Indonesian learning outcomes, with advantages in the aspects of replicability and accuracy in hypothesis testing (Susiang et al., 2024)

The research design used is a quasi-experimental design with a one group pre-test and post-test design. The one group pretest design was chosen because of the characteristics of the pre-formed classes and the researcher did not allow for random grouping of subjects (Sihotang, 2023). This design is relevant to assess the effect of learning treatment by comparing the conditions before and after the treatment is given. Through this design, the researcher compares student learning outcomes before and after the application of the discussion method in the deep learning approach (Oranga & Matere, 2025). This quasi-experimental design is widely used in educational research to test the effectiveness of a learning treatment and is relevant to previous research that examined the influence of learning methods on the learning outcomes of elementary school students (Sugiyono, 2019).

The population in this study is all grade IV students of SD Negeri Tambakaji 04 Semarang City in the 2025/2026 school year. The sampling technique used is *non-probability sampling* with *a saturated sampling* method, so that all members of the population are used as research samples. The number of samples in this study is 24 students. The *saturated sampling* technique was chosen because the population is relatively small and all subjects meet the research criteria, so that the use of the entire population as a sample is considered to be able to produce more representative data (Sugiyono, 2019). This research was carried out at SD Negeri Tambakaji 04 which is located at Jl. Prof. Dr. Hamka, Tambakaji, Kec. Data collection was carried out for 2 months starting from July 9 to September 3, 2025, which included the research preparation stage, the implementation of *pretests*, the application of learning treatments using the discussion method in *the deep learning approach*, and the implementation of *posttests*.

Data collection instruments include learning outcome tests, discussion method questionnaires, and critical thinking ability questionnaires. The learning outcome test was used to measure students' mastery of the material of the argumentation paragraph, while the questionnaire was used to measure students' perception of the application of discussion methods and the level of students' critical thinking skills. All instruments were given at *the pretest* and *posttest* stages. The research instrument has gone through a validity and reliability test, with the results of all items being declared valid (r-count > r-table 0.404) and reliable

with an Alpha Cronbach coefficient value of more than 0.80 which is included in the high category.

The research data was analyzed using descriptive and inferential statistical analysis with the help of IBM SPSS Statistics version 23. Descriptive analysis is used to describe the characteristics of research data, while inferential analysis is used to test research hypotheses. Before hypothesis testing, the data is first tested through analytical prerequisite tests which include normality, homogeneity, multicollinearity, and heteroscedasticity tests. The test results show that all data meet statistical assumptions. Hypothesis testing was carried out using *the Paired Sample T-Test*, simple linear regression, and multiple linear regression to determine the influence of variables partially or simultaneously on learning outcomes. The regression model showed a good level of conformity with a determination coefficient value (R^2) of 0.856 or 85.6%, which indicates that the variables of discussion methods and critical thinking skills simultaneously make a strong contribution to Indonesian learning outcomes (Yusuf, 2017).

RESULTS

Test The difference in pretest scores before being treated and after being given treatment.

Table 1. Normality Test Results of Pretest and Posttest Data

	Test	Kolmogorov-Smirnova			Shapiro-Wilk		
		Statistic	Df	Say.	Statistic	df	Say.
Value	Pretes	.140	24	.200*	.940	24	.166
	Posttest	.220	24	.004	.918	24	.052
*. *This is a lower bound of the true significance.*							
a. Lilliefors Significance Correction							

The results of testing the normality of pretest and posttest score data on the Indonesian learning outcomes of grade IV students of SD Negeri Tambakaji 04 Semarang City after the application of the discussion method in *the deep learning* approach can be seen in the following table.

Based on Table 1. Explaining that the significance value of the pretest was 0.166 > 0.05 and the posttest was 0.052 > 0.05. It can therefore be concluded that both tests have normally distributed values.

Table 2. Pretest and Posttest Data Variance Homogeneity Test Results

		Levene Statistic	df1	df2	Say.
Value	Based on Mean	3.577	1	46	.065
	Based on Median	3.803	1	46	.057
	Based on Median and with adjusted df	3.803	1	44.668	.057
	Based on trimmed mean	3.622	1	46	.063

Table 3. Descriptive Statistics of Pretest and Posttest Scores

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pretest	51.25	24	13.372	2.730
	Posttest	86.88	24	8.946	1.826

Based on Table 2. Explained that the significance value of the levene test was 0.065 > 0.05. So it can be concluded that the pretest and posttest values come from the same variant or homogeneity.

Table 4. Paired Sample T-Test Test Results Pretest and Posttest Scores

		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	35.625	11.355	2.318	-40.420	-30.830	15.370	23	.000

Based on table 4. Explaining that it is seen that the significance value is 0.000 < 0.05, then there is a difference. It is evidenced by the average value, where there is an increase between before and after treatment. The average pretest score is 51.25 while the posttest score is 86.88. So it can be concluded that the use of discussion methods and students' critical thinking skills in the application of deep learning approaches has an influence on the learning outcomes of Indonesian learning material for Paragraph Argumentation Paragraph of grade IV students of SD Negeri Tambakaji 04 Semarang City.

Classic Assumptions

Discussion Methods, Critical Thinking Skills and Learning Outcomes

Table 5. Results of Data Normality Test of Discussion Methods, Critical Thinking Skills, and Learning Outcomes

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
Diskusi	.151	24	.163	.921	24	.062
Berpikir Kritis	.171	24	.069	.925	24	.075
Hasil Belajar	.220	24	.004	.918	24	.052

a. Lilliefors Significance Correction

Based on table 5. He explained that the significance value of the discussion was 0.062 > 0.05, critical thinking was 0.075 > 0.05 and the learning outcome was 0.052 > 0.05. So it can be concluded that the three data are normal distributed data.

Discussion with Learning Outcomes

Table 6. Residual Normality Test Results (Kolmogorov–Smirnov)

			Unstandardized Residual
N			24
Normal Parameters[a,b]	Mean		.0000000
	Std. Deviation		4.58127598
Most Extreme Differences	Absolute		.131
	Positive		.094
	Negative		-.131
Test Statistic			.131
Asymp. Sig. (2-tailed)[c]			.200[d]
Monte Carlo Sig. (2-tailed)[e]	Sig.		.344
	99% Confidence Interval	Lower Bound	.332
		Upper Bound	.356

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

d. This is a lower bound of the true significance.

e. Lilliefors' method based on 10000 Monte Carlo samples with starting seed 2000000.

Based on table 6. Explained that the significance value of 0.200 > 0.05 was seen. So it can be concluded that residual is normally distributed.

Critical Thinking Skills with Learning Outcomes

Tabel 7. One-Sample Kolmogorov-Smirnov Test			
			Unstandardized Residual
N			24
Normal Parameters[a,b]	Mean		.0000000
	Std. Deviation		4.65215419
Most Extreme Differences	Absolute		.129
	Positive		.090
	Negative		-.129
Test Statistic			.129
Asymp. Sig. (2-tailed)[c]			.200[d]
Monte Carlo Sig. (2-tailed)[e]	Sig.		.357
	99% Confidence Interval	Lower Bound	.344
		Upper Bound	.369
a. Test distribution is Normal.			
b. Calculated from data.			
c. Lilliefors Significance Correction.			
d. This is a lower bound of the true significance.			
e. Lilliefors' method based on 10000 Monte Carlo samples with starting seed 299883525.			

Based on table 7. Explained that the significance value of 0.200 > 0.05 was seen. It can therefore be concluded that residual is normally distributed.

Discussion of Critical Thinking Skills with Learning Outcomes

Tabel 8. One-Sample Kolmogorov-Smirnov Test		
		Unstandardized Residual
N		24
Normal Parameters[a,b]	Mean	.0000000
	Std. Deviation	3.39049669
Most Extreme Differences	Absolute	.131

	Positive		.109
	Negative		-.131
Test Statistic			.131
Asymp. Sig. (2-tailed)[c]			.200[d]
Monte Carlo Sig. (2-tailed)[e]	Sig.		.354
	99% Confidence Interval	Lower Bound	.341
		Upper Bound	.366
a. Test distribution is Normal.			
b. Calculated from data.			
c. Lilliefors Significance Correction.			
d. This is a lower bound of the true significance.			
e. Lilliefors' method based on 10000 Monte Carlo samples with starting seed 926214481.			

Based on table 8. Explained that the significance value of 0.200 > 0.05 was seen. It can therefore be concluded that residual is normally distributed.

Heterokedasticity Test

Discussion with Learning Outcomes

Table 9. Results of the Heteroscedasticity Test of Discussion Method Variables Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.058	4.630		1.092	.286
	Diskusi	-.026	.089	-.063	-.295	.771
a. Dependent Variable: ABS1						

Based on table 9. Explained that it was seen that the significance value was 0.771 > 0.05. So it can be concluded that there are no symptoms of heteroscedasticity between variables.

Critical Thinking with Learning Outcomes

Table 10. Results of the Heteroscedasticity Test of Critical Thinking Variables Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	14.606	6.018		2.427	.024
	Berpikir Kritis	-.220	.117	-.374	-1.890	.072
a. Dependent Variable: ABS2						

Based on table 10. Explaining that it can be seen that the significance value is 0.072 > 0.05. So it can be concluded that there are no symptoms of heteroscedasticity between variables.

Discussion, Critical Thinking with Learning Outcomes

Table 11. Results of Heteroscedasticity Test (Glejser Test)
Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	10.888	4.467		2.437	.024
	Diskusi	-.142	.106	-.378	-1.337	.196
	Berpikir Kritis	-.023	.120	-.053	-.189	.852

a. Dependent Variable: ABS3

Based on table 11. He explained that the significance value of the discussion was 0.196 > 0.05 and critical thinking was 0.852 > 0.05. So it can be concluded that there are no symptoms of heteroscedasticity between variables.

Multicollinearity Test

Table 12. Multicollinearity Test Results
Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	7.468	7.217		1.035	.313		
	Diskusi	.737	.171	.508	4.305	.000	.491	2.037
	Berpikir Kritis	.807	.194	.492	4.164	.000	.491	2.037

a. Dependent Variable: Learning Outcomes

Based on table 12. Explaining that it was seen that the tolerance value was 0.491 and the VIF value was 2.037. Because the tolerance value > 0.10 and the VIF value < 10, it can be stated that there are no symptoms of multicollinearity between variables.

Regression Analysis

Table 13. Simple regression analysis discussion with learning outcomes
Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	22.702	8.213		2.764	.011
	Diskusi	1.245	.158	.859	7.867	.000

a. Dependent Variable: Learning Outcomes

$Y = 22.702 + 1.245X$

Based on table 13. Explaining that it can be seen that the constant value is 22,702, which means that if there is no discussion, the learning outcome is worth 22,702. Meanwhile,

the discussion coefficient value is 1.245, which means that if the discussion increases by 1%, the learning results will also increase by 1.245.

Table 14. Simple regression analysis of critical thinking with learning outcomes Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	14.871	9.397		1.583	.128
	Berpikir Kritis	1.402	.182	.854	7.704	.000

a. Dependent Variable: Learning Outcomes

Y= 22.702 + 1.245X

Based on table 14. Explaining that it can be seen that the constant value is 14,871, which means that if there is no critical thinking, the learning results have a value of 14,871. Meanwhile, the critical thinking cohesion score is 1,402, which means that if the discussion increases by 1%, the learning results will also increase by 1,402.

Table 15. Multiple regression analysis discussions, critical thinking with learning outcomes Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	7.468	7.217		1.035	.313
	Diskusi	.737	.171	.508	4.305	.000
	Berpikir Kritis	.807	.194	.492	4.164	.000

a. Dependent Variable: Learning Outcomes

Y= 7,468 + 0,737X1 + 0,807X2

Based on table 15. Explaining that it is seen that the constant value is 7.468, which means that if there is no discussion and critical thinking, the learning outcome is 7.468. Meanwhile, the coefficient value is 0.737, which means that if the discussion increases by 1%, the learning results will also increase by 0.737. Meanwhile, the value of critical thinking cohesion is 0.807, which means that if the discussion increases by 1%, the learning results will also increase by 0.807.

Hypothesis Test (T Test)

The effect of discussion methods in deep learning on Indonesian learning outcomes

Table 16. Results of the t-test of the Discussion Method on Learning Outcomes Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	22.702	8.213		2.764	.011
	Diskusi	1.245	.158	.859	7.867	.000

a. Dependent Variable: Learning Outcomes

Based on table 16. Explaining that the significance value of 0.000 < 0.05 and the t-value of the calculation is 7.867 > 2.074. Because the significance value < 0.05 and the tcount > ttable, it is stated that there is an influence. The value of the t table is obtained from 0.05/2; n-k-1 is 0.025 ; 22 (2,074). So it can be stated that there is an influence of the use of discussion methods in deep learning on the learning outcomes of Indonesian Argumentation Paragraph material for grade IV students of SD Negeri Tambakaji 04 Semarang City.

The Influence of Critical Thinking Skills in Deep Learning on Indonesian Learning Outcomes.

Table 17. Results of the t-test of the Critical Thinking Ability Variable on Learning Outcomes Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	14.871	9.397		1.583	.128
	Berpikir Kritis	1.402	.182	.854	7.704	.000

a. Dependent Variable: Learning Outcomes

Based on table 17. Explained that the significance value of 0.000 < 0.05 and the calculated t-value of 7.704 > 2.074. Because the significance value < 0.05 and t calculate > t table, it is stated that there is an influence. The value of the t table is obtained from 0.05/2; n-k-1 is 0.025 ; 22 (2,074). So it can be stated that there is an influence of critical thinking skills in deep learning on the learning outcomes of Indonesian Argumentation Paragraph material for grade IV students of SD Negeri Tambakaji 04 Semarang City.

The influence of discussion methods and critical thinking skills in deep learning on Indonesian learning outcomes.

Table 18. Multiple Linear Regression Test of the Influence of Discussion Methods and Critical Thinking Skills on Indonesian Learning Outcomes

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	7.468	7.217		1.035	.313
	Diskusi	.737	.171	.508	4.305	.000
	Berpikir Kritis	.807	.194	.492	4.164	.000

a. Dependent Variable: Learning Outcomes

Based on table 18. Explaining that the significance value of the discussion was 0.000 < 0.05 and the t-value of 4.305> 2.074. Meanwhile, the significance value of critical thinking was 0.000 < 0.05 and the t-value of calculation was 4.164 > 2.080. Because the significance value < 0.05 and t calculate > t table, it is stated that there is an influence. The value of the t table is obtained from 0.05/2; n-k-1 is 0.025 ; 21 (2,080). So it can be stated that there is an influence of discussion methods and critical thinking skills in deep learning on the learning outcomes of Indonesian Argumentation Paragraph material for grade IV students of SD Negeri Tambakaji 04 Semarang City.

Hypothesis Test (F Test)

The effect of discussion methods in deep learning on Indonesian learning outcomes.

Table 19. Test F Method of Discussion on Learning Outcomes

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1357.899	1	1357.899	61.886	.000[b]
	Residual	482.726	22	21.942		
	Total	1840.625	23			

a. Dependent Variable: Learning Outcomes

b. Predictors: (Constant), Discussion

Based on table 19. Explained that the significance value of 0.000 < 0.05 and the f-calculation value of 61.886 > 4.28. Since the significance value < 0.05 and f calculate > f table, it is stated that there is an influence. The value f of the table is obtained from k ; n-k is 1 ; 23 (4,28). So it can be stated that there is a simultaneous influence between independent variables (X) and dependent variables (Y).

The effect of critical thinking skills in deep learning on Indonesian learning outcomes.

Table 20. Test F Method of Discussion on Learning Outcomes

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1342.847	1	1342.847	59.349	.000[b]
	Residual	497.778	22	22.626		
	Total	1840.625	23			

a. Dependent Variable: Learning Outcomes

b. Predictors: (Constant), Critical Thinking

Based on table 20. Explained that the significance value of 0.000 < 0.05 and the f-calculated value of 59.349 > 4.28. Since the significance value < 0.05 and f calculate > f table, it is stated that there is an influence. The value f of the table is obtained from k ; n-k is 1 ; 23 (4,28). So it can be stated that there is a simultaneous influence between independent variables (X) and dependent variables (Y).

The influence of discussion methods and critical thinking skills in deep learning on Indonesian learning outcomes.

Table 21. Multiple Linear Regression F Test Results

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1576.229	2	788.115	62.597	.000[b]
	Residual	264.396	21	12.590		
	Total	1840.625	23			

a. Dependent Variable: Learning Outcomes

b. Predictors: (Constant), Critical Thinking, Discussion

Based on table 21. Explaining that the significance value of 0.000 < 0.05 and the f-calculation value of 62.597 > 3.44 can be seen. Since the significance value < 0.05 and f calculate > f table, it is stated that there is an influence. The value f of the table is obtained from k ; n-k is 2 ; 22 (3,44). So it can be stated that there is a simultaneous influence between independent variables (X) and dependent variables (Y).

Coefficient Determination (R2)

The effect of discussion methods in deep learning on Indonesian learning outcomes.

Table 22. Model Determination Coefficient Test Results Discussion Method Regression Model Summary[b]				
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
1	.859[a]	.738	.726	4.684
a. Predictors: (Constant), Discussion				
b. Dependent Variable: Learning Outcomes				

Based on table 22. Explaining that it can be seen that the R square value is 0.738 or 73.8%, it can be stated that the discussion method in deep learning has an effect of 73.8% on the learning outcomes of Indonesian learning material Paragraph Argumentation Paragraph of grade IV students of SD Negeri Tambakaji 04 Semarang City.

The effect of critical thinking skills in deep learning on Indonesian learning outcomes.

Table 23. Results of the Coefficient Test of Determination of the Regression Model of the Discussion Method Model Summary[b]				
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
1	.854[a]	.730	.717	4.757
a. Predictors: (Constant), Critical Thinking				
b. Dependent Variable: Learning Outcomes				

Based on table 23. Explaining that it can be seen that the R square value is 0.730 or 73%, it can be stated that the ability to think critically in deep learning has an effect of 73% on the learning outcomes of Indonesian language learning material Paragraph Argumentation Paragraph of grade IV students of SD Negeri Tambakaji 04 Semarang City.

The influence of discussion methods and critical thinking skills in deep learning on Indonesian learning outcomes.

Table 24. Results of Multiple Regression Determination Coefficient (R^2) Analysis Model Summary[b]				
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
1	.925[a]	.856	.843	3.548
a. Predictors: (Constant), Critical Thinking, Discussion				
b. Dependent Variable: Learning Outcomes				

Based on table 24. Explaining that it can be seen that the R square value is 0.856 or 85.6%, it can be stated that the discussion method and critical thinking skills in deep learning

have an effect of 85.6% on the learning outcomes of Indonesian language material Paragraph Argumentation Paragraph of grade IV students of SD Negeri Tambakaji 04 Semarang City.

DISCUSSION

The results of the study showed that there was a very significant increase between the pretest and posttest scores of Indonesian learning outcomes of argumentation paragraph material after the application of the discussion method in the *deep learning approach*. The average pretest score of 51.25 increased to 86.88 in the posttest, with a difference of 35.625 and the significance value of the Paired Sample T-Test test of 0.000 (< 0.05), thus proving that the treatment given has a real effect on improving student learning outcomes. This condition is in line with the purpose of the research which aims to test the effectiveness of discussion methods and critical thinking skills in the context of *deep learning* to improve the low learning outcomes of argumentation paragraphs in grade IV of SD Negeri Tambakaji 04.

More specifically, the results of simple regression analysis showed that the discussion method had a positive and significant effect on learning outcomes with a coefficient of 1.245, a t-value of 7.867, and a significance of 0.000 (< 0.05). This means that every one unit increase in the score of the discussion method is followed by an increase in learning outcomes by 1,245 points, so it can be interpreted that learning that provides space for students to exchange opinions, compose, and defend arguments is able to strengthen their understanding of argumentation paragraphs. Similarly, critical thinking skills had a significant positive influence with a coefficient of 1.402, a t-value of 7.704, and a significance of 0.000 (< 0.05), which shows that the higher the student's critical thinking ability, the higher their learning achievement in argumentation material. This study examined the effects of online CT interventions... on the argumentative writing skills of college students, and found significant improvements in argument structure, use of evidence, and overall persuasiveness (Simonovic et al., 2023). These findings confirm that the process of analyzing, evaluating, and providing logical reasons is an important prerequisite for composing a coherent and convincing argumentative paragraph.

The results of multiple regression revealed that discussion methods and critical thinking skills simultaneously made a very strong contribution to learning outcomes, with an R^2 value of 0.856 or 85.6% and both were significant at the level of 0.000. This means that

85.6% of the variation in Indonesian learning outcomes of argumentation paragraph material can be explained by a combination of discussion methods and critical thinking skills in *the framework of deep learning*, while the rest is influenced by other factors outside the model. Pedagogically, these findings show that when structured discussion activities are combined with the development of critical thinking, the *deep learning process* actually occurs: students do not simply memorize the structure of the text, but rather understand the function of each paragraph section, evaluate the power of reason, and connect ideas to real context. The findings of this study are in line with (Nusantari et al., 2021), who reported that the combination of discovery learning and metacognitive knowledge strategies significantly improved students' critical thinking skills with a p-value = 0.000 (<0.05) and an experimental mean score of 85.47 higher than the control of 72.33.

The results of this study are in line with the findings (Widiastuti & Kania, 2022), which show that the application of discussion methods in learning can improve students' critical thinking and problem-solving skills through active involvement in group discussions. Research by (Arianti & Yermia Nugroho Agung Wibowo, 2025), also shows that the application of the discussion method in Indonesian learning significantly improves students' argumentative skills, which can be seen from the increase in prates to post-grade and the results of the Wilcoxon Signed Rank Test ($Z = -4.763$; $p = 0.000$) which states a significant difference in scores. In addition, the findings of this study are in line with various studies that show that critical thinking skills have a strong relationship with improved learning outcomes of elementary school students. The integration of deep learning approaches in this study is also consistent with a number of studies that state that deep learning encourages meaningful learning through deep understanding, reflection, and active student involvement.

The difference between this study and the previous research lies in testing the influence of discussion methods and critical thinking skills simultaneously within the framework of a deep learning approach, especially in the material of Indonesian argumentation paragraphs in grade IV of elementary school. Thus, this study provides more comprehensive empirical evidence regarding the interaction of these two variables on learning outcomes.

The theoretical implication of these findings is the strengthening of the perspective of social constructivism which states that knowledge is built through social interaction,

dialogue, and collaboration between learners, as Vygotsky argues. The discussion method in the framework *of deep learning* favors the formation of a proximal developmental zone, where students with higher abilities can help peers to develop stronger arguments. On the other hand, these findings also support the *theory of deep learning* that places *mindful*, *meaningful*, and *joyful learning* as the pillars of learning, because the critical discussion process makes Indonesian learning more meaningful and not only mechanical. Practically, this study provides a concrete reference for elementary school teachers that the learning design of argumentative paragraphs should no longer be dominated by individual lectures and exercises, but needs to be directed to directed discussions that train students to propose opinions, give reasons, respond, and revise ideas (Asrin Asrin Nasution et al., 2025).

Another practical implication is the need to develop learning tools that systematically integrate critical thinking indicators in the classroom discussion stage. Teachers can use the results of this research to compile worksheets that guide students to identify thesis, reasons, and evidence; ask clarification questions; as well as evaluating the strength of a friend's argument. With the support of the analysis results that show that discussion and critical thinking methods account for 85.6% of the variation in learning outcomes, elementary schools can make this approach one of the main strategies in strengthening Indonesian literacy, especially in the implementation of the Independent Curriculum which emphasizes the profile of Pancasila students. In addition, these findings can serve as a basis for teacher training in designing and facilitating discussions that are not only verbally fragrant, but also cognitively quality.

This research has several limitations that need to be considered. First, the number of research samples is relatively small and limited to one class in one school, so generalization of research results to a wider population needs to be done with caution. Second, the research design uses a quasi-experiment without a control group, so there is still a possibility of influencing other variables that cannot be completely controlled. Third, this study only focuses on the material of argumentation paragraphs, so the research findings do not necessarily apply to other Indonesian materials. Therefore, further research is recommended to involve a wider sample, using experimental designs with control groups, and examining the application of discussion methods and critical thinking skills to different learning materials.

By considering the results, suitability with previous research, implications, and limitations, this study emphasizes that the integration of discussion methods and critical thinking skills in the *deep learning* approach is a promising strategy to improve Indonesian learning outcomes in elementary schools, especially in argumentation paragraph writing skills. These findings also open up further research opportunities with stronger experimental designs and wider sample coverage to test the consistency and sustainability of their impact across a variety of school contexts.

CONCLUSION

Based on the results of the research and discussion that has been described, it can be concluded that the application of discussion methods and students' critical thinking skills in *the deep learning approach* has a positive and significant influence on the learning outcomes of Indonesian learning material for the argumentation paragraph material of grade IV students of SD Negeri Tambakaji 04 Semarang City. The results *of the Paired Sample T-Test* test showed a significant increase between pretest and posttest scores, which indicates that discussion-based learning in the *framework of deep learning* is able to meaningfully increase student understanding. In addition, the results of simple regression analysis proved that discussion methods and critical thinking skills each had a significant effect on learning outcomes, while multiple regression analysis showed that the two variables simultaneously contributed 85.6% to the variation in student learning outcomes. These findings confirm that Indonesian language learning, especially in argumentative paragraph material, will be more effective if it is designed to encourage interaction, dialogue, and strengthen students' critical thinking skills.

However, this study has several limitations that need to be considered. The sample size of the research is relatively small and involves only one class in one school, so generalization of the research results to a broader context needs to be done with caution. In addition, the research design used a quasi-experiment without a control group, so there is still a possibility of influencing other variables outside of discussion methods and critical thinking skills that cannot be completely controlled. This research is also limited to one learning material, namely argumentation paragraphs, so the results of the research do not necessarily reflect the effectiveness of the same method in other Indonesian materials.

Based on these limitations, further research is recommended to involve a larger number of samples, use experimental designs with control groups, and test the application

of discussion methods and critical thinking skills in various Indonesian materials and other subjects. In addition, advanced research can combine a quantitative approach with a qualitative approach to delve deeper into students' thinking processes during discussions. Thus, the development of deep learning-based learning that is integrated with discussion methods and strengthening critical thinking is expected to continue to be developed as an effective strategy in improving the quality of learning in elementary schools.

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