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The Relationship Between the Deep Learning Approach and the Learning Independence of Elementary School Students

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Abstract

This stage is the initial formal foundation for students to learn science, develop attitudes and skills. This study aims to analyze the relationship between the deep learning approach and the learning independence of elementary school students. The deep learning approach consisting of mindful learning, meaningful learning, and joyful learning is believed to be able to encourage students to be actively involved in the learning process and develop the ability to manage learning independently. The research uses a quantitative approach with a correlational design. The research population is elementary school students in grades IV, V, and VI at SD Negeri 2 Pedes, while the sample was determined using the proportional random sampling technique. Data collection was carried out through a deep learning approach questionnaire and a student learning independence questionnaire that has been tested for validity and reliability. The data was analyzed using descriptive statistics and Pearson Product Moment correlation. The results showed that there was a positive and significant relationship between the deep learning approach with a correlation coefficient of 0.712 ($p < 0.05$). The relationship is in the strong category, which means that the better the application of deep learning, the higher the level of student learning independence. The deep learning approach contributes 50.7% to student learning independence, while the rest is influenced by other factors such as motivation, self-efficacy, family support and student learning environment. Therefore, it is necessary to optimize the deep learning approach by teachers, especially strengthening the mindful learning aspect, so that students' awareness and learning independence increase.

Keywords Deep Learning, Joyful Learning, Independent Learning, Meaningful Learning, Mindful Learning

INTRODUCTION

The national education system requires Indonesian citizens to receive six years of basic education in school. This stage is the initial formal foundation for students to learn science, develop attitudes and skills. Especially in the development of attitudes through the formation of fundamental character values. As stated in Permendikbud Number 20 of 2018, this policy

requires the integration of character values in the implementation of the curriculum. The regulation shows an indication of the importance of a character value in the development of civilization and the progress of the nation.

The seeds of nationalism should grow in students from an early age, the insight of tolerance that teaches respect for differences in identities will form an understanding of the meaning of diversity. Social conflicts due to the issue of sara, radicalism, separatism, and public skepticism are real threats to the integrity of the nation's unity that is rampant today (Nugraha et al., 2025). Underlying in raising awareness of tolerance for diversity on the basis of inherent differences in individual identities (Ririanti et al., 2025). The assumption that the value of nationalism is true, some of these factors are strong reasons in influencing changes in public mindset. Deflecting a paradigm, the spirit of nationalism is converted into apathy and even the loss of national sentiment. These problems cannot be ignored just like that, there needs to be repressive measures to restore values that have faded through strengthening the education system. Multiculturalism education is considered very appropriate in the current conditions to be actualized at the basic education level as an effort to form the character of tolerance and nationalism. Especially in school education units that are in a plural environment (Husaini et al., 2025). In fact, the culture of respecting and respecting others has been taught by many parents in the family environment and is inherent in the daily lives of students. However, the teaching of the concept of multiculturalism is very necessary for teachers to develop the ability to tolerate in a wider scope so that it is expected to create a sense of pride in the cultural wealth of their nation.

Realizing the vision"to be a smart and good citizens" does not always refer to the educational process that is conceptual, but rather emphasizes the practice and development of insights directly in the community (Malika Kamilatul Maharani et al., 2025). Therefore, to apply the principles of multiculturalism in learning, it should be through the provision of interesting and realistic experiences. Learning objects or something that can be explored are related to multicultural themes, whether it is packaged in a display of the real dimension of events (phenomena) or objects that accompany the provision of interesting experiences. The content of the material contained in the teaching material module is generally in the form of reading materials accompanied by abstract images in it. While the information presented in the reading is often limited, it means that it is not general and meaningful is actually far from the material context that is close to the lives of students. References to conventional teaching materials are irrelevant to 21st century learning that demands precision in critical thinking. In addition, the effectiveness and efficiency of its use in increasing students' motivation and learning outcomes are relatively low (Tri, 2021). Interactive learning media feels worthy to start considering a learning system that accommodates the needs of students, especially in the inclusion of multicultural values. Related to the characteristics of interactive media, among them are that they can attract attention due to memorable visualizations and provide a new experience to identify objects in depth (Fatih Musoffa, 2025).

The design of contextual learning media is believed to be able to visualize abstract objects in an interesting way, of course it will direct students to a high focal point. Not only does it provide an interesting experience, but also students can explore the content by thoroughly exploring the material based on a high sense of curiosity. The design of the media in question is "Smart Box"This type of learning media is innovative and rarely known to teachers, because it is not so popular in its use. However, the review of the function of the media is one of the interactive media that is able to increase students' concentration in understanding the material (Pratiwi et al., 2024). In addition, the presentation Smart Box What is interesting will spark students' creativity in their cognitive and psychomotor abilities. Providing stimulus in thinking broadly and being inspired to create interesting creations after observing the media (Sitio et al., 2024). Specification Smart Box In detail, in the form of a small block-shaped box, the inside of which there are four sides of different components such as materials and cards flashcard Quiz (Sari et al., 2024).

Content planning details inserted on Smart Box In the form of civic education materials, specifically the cultural diversity of the archipelago from all corners of the region. The cultural structure of the archipelago has basic elements in it, including insight into houses of worship which are the plural identity of Indonesian society. The variety of national identity ornaments adorning the media will be neatly and attractively packaged and present detailed information about multicultural insights. Questioning the practice of developing multicultural insights, teachers can use flashcards to conduct a quiz "Guess Culture" with the help of the learning video media that is broadcast. The next task of students is to guess and demonstrate regional cultures, so that students understand the essence of appreciating the value of diversity. Based on previous research conducted by Sumiyati et al., (2025) Application of learning media Smart Box in elementary schools is able to significantly improve student learning outcomes. This is proven based on the results of the pretest with an average gain (64.5) while after being given treatment Especially the posttest results reached (83.0). The improvement is not only seen in numbers, of course, in terms of observation, the quality of learning is also better. Media Smart Box encourage students to be more active in learning activities and be able to think creatively to develop new ideas. Media development Smart Box It is allegedly able to support learning that is oriented towards the value of multiculturalism with all innovative creations of media elements and materials in it. The study of several learning concepts has been steadily compiled into an actual media design that is unique from the development of existing media.

METHODS

This study uses a quantitative approach with a correlational design that aims to analyze the relationship between approaches Deep Learning as an independent variable (X) and learning independence as a bound variable (Y). This research was conducted at SD Negeri 2 Pedes with a population of all students in grades III, IV, and V. Samples were taken using random sampling techniques, so that students at each grade level had the same opportunity to become

respondents. Data collection was carried out using a closed questionnaire with a 4-level Likert scale adapted from previous research instruments (Creswell, 2014; Sugiyono, 2019).

Data analysis was carried out in stages which included descriptive statistics to describe the level of deep learning approach and student learning independence, analysis prerequisite tests in the form of normality tests and linearity tests, and hypothesis tests using Pearson product moment correlation to determine the relationship between the two variables. The magnitude of the contribution of the Deep Learning approach to learning independence was analyzed using a determination coefficient (R2). All data analysis was carried out using SPSS Statistic, at a significance level of 5% ($\alpha = 0.05$).

FINDINGS AND DISCUSSION

Findings

The descriptive analysis of the variable deep learning approach aims to provide an overview of the level of deep learning application experienced by elementary school students. The descriptive analysis is presented through average scores, minimum scores, maximum scores, standard deviations, and frequency distribution based on low, medium, and high categories. The results of this analysis provide information about the trend in the level of deep learning implementation before further statistical analysis is carried out.

Table 1. Descriptive Analysis of the Deep Learning Approach

Statistics	Value
Number of Respondents (N)	120
Score Minimum	58
Score Maximum	96
Red	78,45
Median	79,00
Standard Deviation	8,72

Based on table 1, the average score of the students' Deep Laerning approach is 78.45 with a standard deviation of 8.72. This shows that in general, students in grades 3, 4 and 5 of SD Negeri 2 Pedes have experienced deep learning-based learning in the medium category. The distribution of deep learning approach categories can be seen in the following table:

Table 2. Distribution of deep learning approach categories

Category	Score Interval	Frequency	Percentage
Height	≥ 84	40	33,3%
Medium	71–83	60	50,0%
Low	≤ 70	20	16,7%
Total		120	100%

These results show that the deep learning approach has been implemented quite well, although there are still some students who have not experienced learning optimally.

Descriptive analysis was also carried out on the learning independence variable. This was done to determine the level of student learning independence based on the results of the

questionnaire score that had been filled in by the respondents. The results can be seen in the following table:

Table 3. Descriptive Statistical Analysis of Learning Independence

Statistics	Value
Number of Respondents (N)	120
Score Minimum	55
Score Maximum	95
Mean	77,30
Median	78,00
Standard Deviation	7,84

Table 4. Distribution of Learning Independence Categories

Category	Score Interval	Frequency	Percentage
Height	≥ 83	36	30,0%
Medium	70–82	66	55,0%
Low	≤ 69	18	15,0%
Total		**120**	**100%**

Based on the table above, students' learning independence obtained an average of 77.30 and was in the medium category. Based on the distribution table of the learning independence category, it shows that students' abilities in planning, implementing, monitoring, and evaluating the learning process are quite good, but still need to be improved.

Table 5. Normality Test Results

Variabel	Statistics K-S	Say.	Remarks
Deep Learning Approach	0,076	0,200	Normal
Learning Independence	0,081	0,176	Normal

Based on the table above, the significance value of the deep learning approach is 0.200 and learning independence is 0.176. Both values are greater than 0.05 (sig.>0.05), so it can be concluded that the data of the two variables are normally distributed.

This linearity test was carried out to find out whether the relationship between the Deep learning approach and learning independence is linear. The relationship can be stated to be linear if the significance value is greater than 0.05 (sig.>0.05)

Table 6. Results of the Linearity Test

Variable Relationships	F	Sig. Deviation from Linearity	Remarks
***Deep Learning* – Learning Independence**	1,183	0,284	Linear

Based on the results of the linearity test in Table 6, a sigification value of 0.284 was obtained, this value is greater than 0.05. These results show that the relationship between the deep learning approach and learning independence is linear.

Table 7. Pearson Product Moment Correlation Test Results

Variabel	r	Sig. (2-tailed)	Coefficient of Determination (R^2)	Remarks
Deep Learning ↔ Approach to Learning Independence	0,712	0,000	0,507 (50,7%)	Strong positive relationships

Based on the results of the analysis, the Pearson correlation coefficient value was 0.712 with a significance value of 0.000 ($p<0.05$). These results show that there is a positive and significant relationship between the Deep learning approach and the learning independence of SD Negeri 2 Pedes students. The coefficient value is in the strong category, which means that the better the application of the deep learning approach, the higher the level of student learning independence.

In addition, the determination coefficient value (R2) of 0.507 showed that the Deep Learning approach contributed 50.7% to the variation in student learning independence. Thus, the research hypothesis (H1) which states that there is a positive and significant relationship between the Deep Learning approach and the learning independence of elementary school students is accepted.

Discussion

The results of the study show that the Deep Learning approach in elementary school students is in the medium category. These findings show that the learning process has led to the implementation of deep learning, although it has not been optimally applied to all students. Learning that applies the principles of mindful, meaningful and joyful learning provides opportunities for students to learn consciously, understand the relationship of materials with daily life, and participate in learning in a fun atmosphere. These three principles are the main foundation in building a quality and student-centered learning experience (Rahmawati et al., 2025)

Student learning independence is also in the medium category, which shows that most students have the ability to plan, implement, monitor, and evaluate their learning process even though it is not optimal. Learning independence in elementary school students is still at a developmental stage that requires habituation and guidance from teachers. These findings are in line with the theory of self-regulated learning put forward by Zimmerman (1989) which states that learning independence develops through continuous practice in determining goals, choosing learning strategies, monitoring progress and reflecting on learning outcomes.

Based on the results of the correlation analysis, it shows that there is a positive and significant relationship between the deep learning approach and the learning independence of elementary school students with values of $r = 0.712$ and $p<0.05$. This value is in the strong category, which means that the better the application of deep learning, the higher the level of student learning independence. The deep learning approach makes a considerable contribution to student learning independence, this can be seen in the value of the determination coefficient of 50.7%. While the rest is influenced by other factors such as motivation, self-efficacy, family support and the student learning environment. This

relationship can be explained through the three dimensions of deep learning. Mindful learning encourages students to learn consciously and reflectively so that students are able to plan and evaluate their learning. Meaningful learning increases students' understanding of the material learned so that it can increase their intrinsic motivation and learning responsibility. Joyful learning creates a fun, safe learning atmosphere and makes students more motivated so that students will be more active, confident and have initiative in learning.

The results of this study are in line with several previous studies that show that deep learning is able to increase student involvement, critical thinking skills and learning responsibility through meaningful learning experiences so that it can strengthen students' learning independence (Hidayat & Haryati, 2025; Kusuma, 2025) In contrast to most previous studies that focused on the influence of deep learning on learning outcomes, critical thinking, or activeness, this study specifically examines the relationship between the deep learning approach based on the Ministry of Education's deep learning policy and the learning independence of elementary school students. This study provides empirical evidence regarding the relationship between the implementation of deep learning and the development of student learning independence at the elementary education level.

The results of this study imply that elementary school teachers need to optimize the application of deep learning approaches in the learning process. Teachers not only play the role of material providers, but also facilitators who facilitate students in planning learning, asking questions, discussing, reflecting, and connecting materials with real life. The consistency of the application of mindful, meaningful and joyful learning is expected to be able to increase students' learning independence, form lifelong learners' character, and support the achievement of 21st century competencies in accordance with the direction of education transformation launched by the government.

CONCLUSION

Based on the results of the study on the relationship between the deep learning approach and the learning independence of elementary school students, it can be concluded that there is a positive and significant relationship between the deep learning approach with a correlation coefficient of 0.712 ($p < 0.05$). The relationship is in the strong category, which means that the better the application of deep learning, the higher the level of student learning independence. The deep learning approach contributes 50.7% to student learning independence, while the rest is influenced by other factors outside the study.

The implementation of the deep learning approach needs to be continuously optimized by teachers, especially through strengthening the mindful learning aspect, so that students' awareness and learning independence increase. Schools are expected to provide support for the implementation of deep learning by creating programs and learning cultures that encourage students to learn actively and independently. Further research is expected to develop a deep learning-based learning model or examine its influence on other variables, so that it can enrich the study of the implementation of deep learning in elementary schools.

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