

Improving Critical Thinking Skills Through the CORE Learning Model with Bingo and Kahoot! Media in Pancasila Education Learning

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Abstract

The low critical thinking skills in Pancasila Education learning is the main problem faced at SMP Negeri 1 Lamongan. However, this process is a challenge for teachers to innovate using learning methods and teaching media that can stimulate students' critical thinking skills. This study (1) Analyzes the effect of implementing the CORE learning model with Bingo media on students' critical thinking skills in Pancasila Education learning for Class VII C. (2) Analyzes the effect of implementing the CORE learning model with Kahoot! media on students' critical thinking skills in Pancasila Education learning for Class VII D. (3) Analyzes the differences in the effect of implementing Bingo and Kahoot! media on students' critical thinking skills in Pancasila Education learning for Class VII at SMPN Negeri 1 Lamongan. This study aims to analyze the effect of implementing the CORE (Connecting, Organizing, Reflecting, Extending) learning model integrated with Bingo and Kahoot! media on students' critical thinking skills. The method used is a quasi-experimental with a pretest-posttest design, using descriptive analysis, Paired Sample T-test, Linear Regression Test and Independent Sample T-Test involving two classes as experimental groups. The results of the study showed a significant increase in critical thinking skills, with the average value of the experimental class I using Bingo media from the multiple-choice descriptive analysis test increasing from 53.78% to 76.73% and for the questionnaire increasing from 58.56% to 74.43% in the experimental class 1 CORE model with Bingo media contributed to an increase in critical thinking skills by 65.9% in the multiple-choice test and 58.5% in the questionnaire test, while the experimental class II using Kahoot! in the descriptive analysis test results increased from 56.62% to 82.51% for multiple choice and on the questionnaire which was originally 58.57% to 79.43% in the experimental class 2 CORE model with Kahoot! media. contributed to an increase in critical thinking skills by 71.4% for multiple-choice tests and 62.9% for questionnaire tests. Kahoot! Media showed higher effectiveness than Bingo, as shown by the independent sample t-test of the average Ngain of the Kahoot! group which was higher (0.5914) compared to the Bingo group (0.4811). Furthermore, the test results on the critical thinking skills questionnaire data also showed consistent results. The group using Kahoot! media again showed a higher average Ngain (0.4968) compared to the Bingo group (0.3724), which indicates that the use of interactive digital media such as Kahoot! is more capable of facilitating critical thinking skills, both cognitively and affectively. This learning method and learning media have a positive impact on the development of students' critical thinking skills and improving the quality of learning in the field of Pancasila Education, as well as providing recommendations for Pancasila Education teachers in facilitating interesting learning.

Keywords: CORE Learning Model, Bingo Media, Kahoot! Media, and Critical Thinking Skills

Introduction

Pancasila education plays a strategic role in shaping intelligent, skilled, and character-driven citizens in accordance with the values of Pancasila, the foundation of the state and the nation's philosophy of life. As

Kaelan (2016) emphasized, Pancasila education aims not only to transmit knowledge of Pancasila but also to develop intellectual skills, one of which is the ability to think critically in implementing Pancasila values. In this context, Latif (2018) emphasized that critical thinking skills in

Pancasila education are essential competencies that enable students to analyze various issues in national and state life, make decisions aligned with Pancasila values, and actively participate in realizing national ideals.

The urgency of developing critical thinking skills in Pancasila education is increasingly relevant in this challenging global era. Johnson (2014) emphasized that critical thinking enables citizens to objectively analyze contemporary issues within the framework of Pancasila values. In line with this, Budimansyah (2018) stated that modern Civic Education must move beyond conventional approaches that emphasize memorization, toward learning that develops a deep understanding of Pancasila and the ability to apply it in everyday life, with critical thinking skills being the primary foundation.

However, the reality on the ground shows a significant gap between expectations and the actual state of Pancasila Education learning. Research by Murdiono et al. (2020) revealed that the majority of students still experience difficulty connecting Pancasila values to contemporary issues. Cholisin (2020) in his research identified that Pancasila Education learning in Indonesia is still dominated by a textual approach that does not stimulate students' critical thinking. This is in line with the findings of initial observations and learning evaluation data, which identified several key gaps: (1) students' low ability to critically analyze arguments using a Pancasila perspective, (2) minimal active participation in discussions on the implementation of Pancasila values, and (3) students' tendency to memorize Pancasila points without contextual understanding. Pre-test results showed that only 35% of students were able to critically analyze actual cases using a Pancasila perspective, while the other 65% still focused on textual answers sourced from textbooks.

Several factors identified as inhibiting the development of critical thinking skills in Pancasila Education learning include: (1) the dominance of conventional, teacher-centered learning methods, as revealed in the research of Zahra et al. (2018), (2) the minimal use of interactive learning media that can stimulate critical analysis of the implementation of

Pancasila values, and (3) the lack of learning activities that encourage students to construct their own understanding of Pancasila (Rahmat et al., 2017).

To address these challenges, various alternative solutions have been proposed by researchers and education practitioners. Noviani et al. (2019) proposed the implementation of problem-based learning, while Kusuma et al. (2020) recommended a discovery learning approach. However, both alternatives have limitations in the context of Pancasila Education learning, particularly in terms of implementation time and preparation complexity. Therefore, a more comprehensive and adaptive solution is needed. Based on an analysis of various existing alternatives, this study proposes the implementation of the Connecting, Organizing, Reflecting, Extending (CORE) learning model integrated with Bingo and Kahoot! media as a potential solution. The CORE model was chosen because of its characteristics, which encourage students to actively construct knowledge through four systematic stages. The integration of Bingo and Kahoot! media This combination of learning models and media was chosen based on its potential to create more engaging and interactive learning.

The selection of this combination of learning models and media was based on several rationales. First, the CORE model, with its systematic stages, can facilitate the gradual development of critical thinking skills. Second, the integration of Bingo and Kahoot! media can accommodate various learning styles and increase student engagement. Third, this combination allows for the creation of a learning environment that is not only effective but also enjoyable. Based on this background, the researcher sought to obtain empirical data on the effect of implementing the CORE learning method with Bingo and Kahoot! media on improving student engagement.

Literature Review

This research focuses on the concept and application of the CORE (Connecting, Organizing, Reflecting, Extending) learning model and interactive learning media such as

Bingo and Kahoot!, which aim to improve students' critical thinking skills. The CORE learning model is known as a constructivist approach that prioritizes active student participation in the learning process. According to Joyce and Weil (2009), this model not only helps students connect new knowledge with existing knowledge but also encourages them to organize, reflect on their understanding, and expand their knowledge within a broader context. Research by Curwen (2010) shows that implementing the CORE model can improve higher-order thinking skills, such as analysis and evaluation, which are crucial in Pancasila Education learning.

Furthermore, the use of interactive learning media such as Bingo and Kahoot! adds a dimension of interactivity to the learning process. Bingo, as a game-based learning medium, allows students to engage in fun, collaborative activities, thereby increasing their motivation and engagement in learning (Richardson et al., 2017). On the other hand, Kahoot! offers a more dynamic learning experience through interactive quizzes that provide immediate feedback to students, encouraging them to think critically and analytically (Dellos, 2015). Previous research has shown that using Kahoot! can significantly increase student active participation, which contributes to the development of critical thinking skills (Licorish et al., 2018).

In the context of Pancasila Education, critical thinking skills are crucial for shaping students' character and enabling them to disseminate and promote the values embodied in Pancasila. According to Kaelan (2016), Pancasila Education should not only teach knowledge about Pancasila but also develop students' ability to apply these principles in everyday life. Therefore, this study seeks to integrate innovative learning models with interactive media to create a learning environment conducive to the development of students' critical thinking skills at SMP Negeri 1 Lamongan.

Method

This study uses a quasi-experimental design with a pretest-posttest approach to analyze the effect of implementing the

CORE learning model with Bingo and Kahoot! media on students' critical thinking skills. The research subjects consisted of two classes, namely class VII C and VII D at SMP Negeri 1 Lamongan, which were selected through random sampling techniques. Class VII C will be the first experimental group that applies the CORE model with Bingo media, while class VII D will be the second experimental group that applies the CORE model with Kahoot! media. Before the treatment, all students will be given a pretest to measure their critical thinking skills. After the implementation of learning actions for several sessions, a posttest will be conducted to measure the development of students' critical thinking skills. The instruments used in this study include a multiple-choice test consisting of 20 questions and a questionnaire with a Likert scale to assess critical thinking skills. The data obtained will be analyzed using descriptive statistical techniques, normality tests, homogeneity tests including paired sample t-tests, linear regression tests and independent sample t-tests to show the effect of independent variables on the dependent variable. This research is expected to provide a clear picture of the effectiveness of the proposed learning model in improving students' critical thinking skills for the Pancasila Education subject.

Result and Discussion

Data on students' critical thinking skills were obtained through multiple-choice tests and questionnaires administered to Experimental Class I and Experimental Class II. These consisted of a pretest and a posttest. The multiple-choice test aimed to determine students' critical thinking skills before and after the treatment, while the questionnaire aimed to determine students' critical thinking skills before and after the treatment.

The results of the multiple-choice test and questionnaire data analysis of students' critical thinking skills before and after the treatment were analyzed descriptively and presented in the following table:

Table 1. Description of Multiple Choice Test Data for Students' Critical Thinking Skills Before (Pretest) and After (Posttest) Treatment

No.	Deskripsi	Eksperimen I		Eksperimen II	
		Before	After	Before	After
1.	Mean	53.78	76.73	56.62	82.51
2.	N	37	37	37	37
3.	Standar Deviasi	9.31	8.02	9.35	7.39
4.	Varians	86.67	64.03	87.57	54.71

The results of the study demonstrated a significant effect of implementing the CORE learning model combined with Bingo and Kahoot media on improving students' critical thinking skills. Based on data from experimental class I, the average (mean) score for students' critical thinking skills before learning was 53.78, which increased to 76.73 after learning. This increase was also accompanied by a decrease in the standard deviation from 9.31 to 8.02, indicating that student learning outcomes became more consistent after learning using the CORE model and Bingo media. The variance, which reflects the spread of the data, also decreased from 86.67 to 64.03, reinforcing the indication that learning outcomes were more evenly distributed among students.

In experimental class II, the average score for students' critical thinking skills also increased from 56.62 before learning to 82.51 after learning using the CORE model and Kahoot media. The decrease in the standard deviation from 9.35 to 7.39 indicates that student learning outcomes in this class also became more consistent after the intervention. The decrease in variance from 87.57 to 54.71 indicates that the variation in student learning outcomes in this class has also decreased, demonstrating the effectiveness of Kahoot in providing a more uniform learning experience. Overall, the increase in average scores in both experimental classes indicates that the CORE learning model combined with Bingo and

Kahoot successfully improved students' critical thinking skills.

Table 2. Description of Data from the Student Critical Thinking Skills Questionnaire Before (Pretest) and After (Posttest) Treatment

No.	Deskripsi	Eksperimen I		Eksperimen II	
		Before	After	Before	After
1.	Mean	58.65	74.43	58.57	79.43
2.	N	37	37	37	37
3.	Standar Deviasi	4.69	5.24	4.61	4.53
4.	Varians	22.01	27.47	21.30	20.58

The results of this study indicate that the application of the CORE learning model combined with Bingo media in experimental class I and Kahoot media in experimental class II had a positive impact on students' critical thinking skills. In experimental class I, the average score for students' critical thinking skills increased from 58.65 before the learning process to 74.43 after the learning process. This indicates that the use of the CORE model with Bingo media was effective in improving student learning outcomes. However, the standard deviation increased slightly from 4.69 to 5.24, indicating slightly greater variation in learning outcomes after the learning process. The variance also increased from 22.01 to 27.47, reflecting a wider spread of scores after the learning intervention.

Conversely, in experimental class II, the average student score increased from 58.57 before the learning process to 79.43 after the learning process, indicating a more significant improvement compared to experimental class I. Furthermore, the standard deviation decreased from 4.61 to 4.53, indicating that student learning outcomes in this class became more consistent after the learning process. The decrease in variance from 21.30 to 20.58 also supports this finding, indicating that student learning outcomes are more uniform.

Overall, both experimental classes demonstrated significant improvements in students' critical thinking skills after implementing the CORE learning model.

Tabel 3. Normality Test Results

Variabel	Shapiro Wilk Sig.	Judgement
Pretest test in experimental class I	.280	Normal
Posttest test in experimental class I	.793	Normal
Pretest questionnaire in experimental class I	.593	Normal
Posttest questionnaire in experimental class I	.382	Normal
Pretest test in experimental class II	.365	Normal
Posttest test in experimental class II	.190	Normal
Pretest questionnaire in experimental class II	.192	Normal
Posttest questionnaire in experimental class II	.510	Normal

The results of the normality test using the Shapiro-Wilk test indicate that all data in this study are normally distributed. In experimental class I, the significance value for the pretest was 0.280 and the posttest was 0.793, both greater than 0.05, so the data can be concluded as normally distributed. Similarly, the significance value for the pretest questionnaire was 0.593 and the posttest questionnaire was 0.382, indicating normal data.

Meanwhile, in experimental class II, the significance value for the pretest test was 0.365 and the posttest test was 0.190. Both of these values are also greater than 0.05, indicating that the data are normally distributed. Furthermore, the pretest questionnaire in this class had a significance value of 0.192 and the posttest questionnaire was 0.510, both of which also meet the requirements for normal distribution. Based on

these results, it can be concluded that all pretest and posttest data, for both the test and questionnaire in both experimental classes, meet the assumption of normality.

Table 4. Results of Homogeneity Test

Variabel	Levene Statistic	Degree of Freedom 1	Degree of Freedom 2	Sig.	Judgement
Multiple choice test of critical thinking skills in the Pretest	.075	1	72	.785	Homogen
Multiple choice test of critical thinking skills on Posttest	.407	1	72	.525	Homogen
Critical thinking skills questionnaire in the pretest	.283	1	72	.596	Homogen
Critical thinking skills questionnaire on Posttest	.658	1	72	.420	Homogen

The results of the homogeneity test using the Levene's test indicate that all data in this study have homogeneous variance. In the multiple-choice critical thinking skills test during the pretest, the Levene Statistic value was 0.075 with a significance value of 0.785, greater than 0.05, thus meeting the assumption of homogeneity. Similarly, in the posttest, the Levene Statistic value was 0.407 with a significance value of 0.525, also indicating homogeneous variance.

For the critical thinking skills questionnaire, the homogeneity test results for the pretest showed a Levene Statistic value of 0.283 with a significance value of 0.596. Meanwhile, in the posttest, the Levene Statistic value was 0.658 with a significance value of 0.420. Both values are greater than 0.05, indicating homogeneity of variance between the questionnaire data groups.

Based on these results, it can be concluded that the pretest and posttest data, for both the multiple-choice test and the questionnaire, had uniform variance across the

experimental groups. This condition indicates that the homogeneity assumption has been met, so that parametric statistical analysis such as the t-test can be carried out with maintained validity.

The influence of the CORE learning model with Bingo media on students' critical thinking skills in Pancasila Education learning for Class VII at SMP Negeri 1 Lamongan

The results of the study showed that the application of the CORE learning model with Bingo media in experimental class 1 had a significant effect on improving students' critical thinking skills, both through multiple-choice tests and questionnaires. The paired t-test analysis for the multiple-choice test showed a t value of -12.74 with a significance level of 0.00 ($p < 0.05$), which indicated a significant difference between the pretest and posttest results. The linear regression results showed an R value of 0.812, with an R Square of 0.659, which means that 65.9% of the variability in improving students' critical thinking skills can be explained by the application of the CORE learning model with Bingo media.

Table 5. Summary of Hypothesis Testing for Experimental Class 1

Test Types	t	Sig.	R	R Square
Multiple choice	-12.7	.00	0.812	0.659
Questionnaire	-13.40	.00	0.765	0.585

Similarly, the paired t-test results on the questionnaire showed a t-value of -13.40 with a significance level of 0.00 ($p < 0.05$), which also showed a significant difference between the pretest and posttest. Linear regression analysis showed an R value of 0.765, with an R Square of 0.585, which means that 58.5% of the variability in the increase in the questionnaire can be explained by the application of the CORE learning model with Bingo media. These results support the theory proposed by Fogarty (1997), which states that the CORE (Connecting, Organizing, Reflecting, Extending) learning model encourages active student involvement in the learning process, thereby improving critical thinking skills. Bingo media, as a form of

educational game, provides a fun and interactive learning atmosphere, so students are more motivated to participate actively.

Overall, the results of this study indicate that the application of the CORE learning model with Bingo media is an effective approach in improving students' critical thinking skills, both through multiple-choice tests and questionnaires, so that it can be an alternative innovation in learning Pancasila Education at the junior high school level.

The influence of the CORE learning model with Kahoot! media on students' critical thinking skills in Pancasila Education learning for Class VII at SMP Negeri 1 Lamongan

The results of the analysis show that the application of the CORE (Connecting, Organizing, Reflecting, Extending) learning model with Kahoot! media in experimental class 2 has a significant influence on improving students' critical thinking skills. Based on the paired t-test analysis on the multiple-choice test, a t-value of -16.84 was obtained with a significance level of 0.00 ($p < 0.05$), which indicates a significant difference between the pretest and posttest results. Linear regression analysis shows an R value of 0.845, with an R Square of 0.714. This means that 71.4% of the variation in improving students' critical thinking skills can be explained by the application of CORE learning with Kahoot!.

Table 6. Summary of Hypothesis Test Results for Experimental Class 2

Test Types	t	Sig.	R	R Square
Multiple choice	-16.84	.00	0.845	0.714
Questionnaire	-18.97	.00	0.793	0.629

In the questionnaire test, the results of the paired t-test analysis also showed a significant difference between the pretest and posttest, with a t-value of -18.97 and a significance level of 0.00 ($p < 0.05$). Linear regression analysis on the questionnaire showed an R value of 0.793, with an R Square of 0.629, which means that 62.9% of the increase in questionnaire results can be explained by the intervention carried out.

The stages in the CORE learning model,

which include connecting, organizing, reflecting, and extending, systematically connect, discover, and apply learned concepts. This process optimizes students' ability to understand and work on the material being taught. The success of the CORE learning model in improving students' critical thinking skills can be seen from the stages that directly support the development of these skills. This model not only involves students at the beginning of learning, but ensures their active involvement until the end of the learning process, allowing them to reinforce concepts independently with the teacher acting as a facilitator and mediator.

Thus, the results of this study indicate that the combination of the CORE learning model and Kahoot! media is an effective approach to improving students' critical thinking skills, which is highly relevant in Pancasila Education learning at the junior high school level. This approach can serve as a reference for developing more innovative and interactive learning methods in the future.

Differences in the application of Bingo media and Kahoot! media on students' critical thinking skills in Pancasila Education learning for Class VII at SMPN Negeri 1 Lamongan

The third hypothesis test in this study aims to determine whether there is a significant difference in the improvement of critical thinking skills between students who learn using Bingo learning media and those who learn using Kahoot! media in the PPKn subject in grade VII of junior high school. To test this difference, an independent samples t-test analysis was used on the Ngain scores from both the objective test results (multiple choice) and the critical thinking skills questionnaire.

Table 7. Results of the Independent Sample T Test

Group Statistics					
	Treatment	N	Mean	Std. Deviation	Sig.
Multiple choice	Bingo	37	,4811	,17682	0,008
	Kahoot	37	,5914	,17004	
Questionnaire	Bingo	37	,3724	,15722	<0,001
	Kahoot	37	,4968	,13331	

Based on the results of the independent samples t-test, the significance value (Sig.) for the multiple-choice test Ngain data was 0.008. Because this value is less than the significance limit of 0.05 ($0.008 < 0.05$), it can be concluded that there is a statistically significant difference between the Bingo and Kahoot! groups in improving critical thinking skills based on the objective test results. This indicates that Kahoot! is more effective in improving critical thinking skills test results than Bingo, as indicated by the higher average Ngain score for the Kahoot! group (0.5914) compared to the Bingo group (0.4811).

Furthermore, the results of the critical thinking skills questionnaire data also showed consistent results. The significance value for the Ngain data from the questionnaire was less than 0.001 (< 0.001), which is also less than 0.05. Thus, there is a highly significant difference in the improvement of students' perceptions and critical thinking attitudes between the two treatment groups. The group using Kahoot! again demonstrated a higher average Gain (0.4968) compared to the Bingo group (0.3724), indicating that the use of interactive digital media like Kahoot! is more effective in facilitating critical thinking skills, both cognitively and affectively.

This difference in effectiveness can be explained by the characteristics of each medium. Kahoot! offers an interactive, competitive, and real-time digital game-based learning experience, which can increase student engagement, motivation, and deeper reflection. Meanwhile, although Bingo is also an educational game, its approach is more conventional and does not provide instant feedback like Kahoot!. Thus, the results of this study indicate that the use of interactive digital learning media like Kahoot! is superior in improving students' critical thinking skills compared to conventional learning media like Bingo.

Conclusion

Based on the results of the research data analysis, the researchers concluded findings aligned with the research problem formulation. These conclusions concern the effect of the application of the CORE learning model and the use of learning media on students' critical

thinking skills in Pancasila Education learning in junior high schools. These conclusions are summarized as follows:

First, the application of the CORE learning model combined with Bingo media has been shown to have an impact on students' critical thinking skills in Pancasila Education at SMPN 1 Lamongan. Based on the data analysis, the combination of the CORE learning model and Bingo media contributed 65.9% to the improvement of students' critical thinking skills for the multiple-choice test and 58.5% for the questionnaire test. Therefore, it can be concluded that the CORE learning model combined with Bingo media is effective in improving students' critical thinking skills.

Second, the use of the CORE learning model combined with Kahoot media also had a positive impact on students' critical thinking skills in Pancasila Education learning at SMPN 1 Lamongan. The analysis showed that the CORE learning model combined with Kahoot media had an impact of 71.4% on multiple-choice tests and 62.9% on questionnaire tests on critical thinking skills. In conclusion, the application of the CORE learning model and Kahoot media was able to improve students' critical thinking skills.

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