

Implementation of Think Pair Share Model Assisted by E-Cergam Media to Improve Critical Thinking Ability of Elementary School Students

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Abstract

Background – The low critical thinking skills in Pancasila Education limit students' ability to analyze information, argue logically, and present clear arguments.

Research Urgency – Developing critical thinking skills requires learning models that facilitate active discussions and use contextual media, enabling students to better understand the material and enhance higher-order thinking skills.

Research Objectives – This study aimed to examine the improvement of students' critical thinking skills in Pancasila Education before and after implementing the Think Pair Share (TPS) model assisted by e-bergam media.

Research Method – The research used a quantitative approach with a pre-experimental one-group pretest-posttest design. Participants were 23 fifth-grade students of SDN 1 Sidorekso in the 2024/2025 academic year, selected through saturated sampling. The instruments consisted of 15 pretest and posttest questions covering FRISCO indicators, and data were analyzed using N-Gain test.

Research Findings – The results showed a medium increase (N-Gain = 0.4874), with the average score increasing from 52.74 to 75.74, a gain of 23 points. All indicators increased, with clarity showing the highest gain (N-Gain 0.724). The Pair stage in TPS model has proven to be the most effective in encouraging active group discussions, while e-bergam media provided contextual stories and tasks aligned with critical thinking indicators, which were found to gradually develop students' critical thinking skills.

Conclusion - The Think Pair Share model assisted by e-bergam media effectively improved students' critical thinking skills in Pancasila Education.

Research Novelty/Contribution – The novelty of this study lies in integrating the TPS model with contextual-based e-bergam media in Pancasila Education, which has not widely studied before. This combination supports the development of students' critical thinking skills through active group discussions and contextual storytelling.

Keywords: think pair share, e-bergam, digital learning media, critical thinking, pancasila education

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INTRODUCTION

Education is the main pillar in nation building because it functions to develop the potential of all humans. Melati, Ardianti, and Fardani (2021) convey that quality education is the right of all citizens and is an important key in shaping a generation that is smart, skilled, and characterized. This goal is in line with the role of Pancasila Education in Directorate General (2022) Pancasila Education aims to form citizens who understand their right and obligation, and are able to think globally and act according to local values reflected in Pancasila as the nation's identity. Akhyar and Dewi (2022) added, Pancasila Education needs to be introduced early to instill the nation's ideology, form a generation that loves the country, and maintain the values of Pancasila in social life.

Education is also an important foundation in shaping superior human resources to face the challenges of the 21st century. Mardhiyah et all (2021) mention seven thinking skills that important targets in 21st century learning, namely: (1) critical thinking, (2) problem solving, (3) metacognition, (4) creativity and innovation, (5) communication, (6) collaboration, and (7) information literacy.

One of the most important skills is critical thinking. Sulaiman and Syakarofath (2018) emphasized that critical thinking is important so that one does not easily accept information without consideration. This ability helps individuals assess the truth of data and avoid mistakes. According to Budiarsih and Supeni (2019), critical thinking is a mental activity used to organize actions and make decisions based on logical sources. Sarifah and Nurita (2023) added, critical thinking is an analytical process that is carried out repeatedly by considering facts, knowledge, and experience to produce rational and accountable decisions. In this study, critical thinking skills were analyzed based on six indicators that refer to the FRISCO model. Ennis in Affandy, Aminah, and supriyanto (2019) states that there are six main indicators in critical thinking known as the FRISCO model, namely: Focus, Reason, Inference, Situation, Clarity, and Overview.

Based on the results of observation and interviews in class V SDN 1 Sidorekso, learning Pancasila Education is still teacher-centered without actively involving students. Students tend to be passive, bored, and less motivated because there is no variety of learning methods and media used. Astuti, Pratiwi, and Masfuah (2022) argue that monotonous learning activities make students lose interest and not actively participate, so their learning outcomes are low. The learning process that occurs also rarely involves discussions activities, so students are not accustomed to expressing opinions, asking question, or responding to other people's ideas. This lack of discussions activities has an impact on students' lo critical thinking skills. As a results, students consider Pancasila Education as a difficult subject because it focuses on memorization rather than in-depth understanding of concepts. The initial test results showed that only 6 out of 23 students achieved learning completeness, with a percentage of completeness of only 26%. These findings indicate that the critical thinking skills of fifth grade students at SDN 1 Sidorekso are still low and need to be improved.

As an effort to improve the quality of learning, the role of teachers in choosing the right strategy is very important. Darmawan, Fardani, and Ermawati (2024) said that the current curriculum requires teachers to use the right learning strategy to encourage student activeness in the learning process. Based on preliminary findings, researchers chose to apply the Think Pair Share model because it was proven effective in improving critical thinking skills through discussions activities. Latifah and Luritawaty (2020) stated that the Think Pair Share model is a cooperative learning model that encourages student activeness through three stages, namely Think (students think individually), Pair (students discuss in pairs), and share (students present their ideas to the class). According to Amaliyah, Fatimah, and Abustang (2019), the Think Pair Share model is cooperative learning that encourages active student participation through discussions and problem solving, while training students' responsibility, cooperation, communication, critical and creative thinking skills. Huda (2013:206) conveyed the advantages of the Think Pair Share model, namely: encouraging students to learn independently and in groups, increasing participation, and providing space for students to share their thought's.

In addition to applying learning models, teachers also need to use learning media to support students' understanding of the material. Arsyad (2014:25) conveyed that learning media helps students understand abstract material to be concrete and encourages active involvement, so that the material is not only conveyed verbally. Fardani (2023) adds that learning media functions as a bridge that distributes information and material from teachers to students, both in the form of hardware and software. In this study, the media used is e-cergam (electronic illustrated story). The e-cergam media

is a visual-based digital media in the form of illustrated stories that combine narrative text and visuals to attract students' interest in learning. Awalia, Pratiwi, and Kironoratri (2021) the development of science and technology encourages students to be more interested in learning, one of which is through picture story media that conveys material in an interesting and inspiring way to make learning more interesting and fun. Sari and Wardani (2021) illustrated story media presents a contextual storyline, making it easier to understand the material in depth. The story in this e-cergam describes children's activities from learning at school to going home and playing at the home of one of the story characters. The contextual flow makes it easier for students to understand the storyline and important information conveyed.

Various previous studies have proven that the Think Pair Share model and e-cergam media are effective in improving students' critical thinking skills. One of them is by Fembriani and Koroh (2019) the results of their research show that the Cooperative Learning Think Pair Share model encourages students to be more active, reflective, and able to analyze information in depth during the learning process. This is supported by the N-Gain value of 0.65 which is in the range of $0.70 > g > 0.30$, so it is classified as a moderate improvement category. Another study by Kaihatu and Rangkoly (2023) examined the use of the Think Pair Share model in improving students' critical thinking skills in Pancasila Education subjects.

The result showed an increase in students' critical thinking skills after implementing learning in two cycles. Furthermore, research by Yuliandari, Wardana, and Wijayanto (2023) showed that the application of the think Pair Share model assisted by Canva media can improve students' critical thinking skills as evidenced by an increase in the pretest students' critical thinking skills as evidenced by an increase the pretest average of 63.50 to 78.81 in the posttest. The research by Damayanti, Pratiwi, and Ismaya (2020) states that the application of the Think Pair Share model assisted by the traditional game engklek is proven to improve the critical thinking skills of fifth grade students of SD 2 Getas Pejaten after going through two cycle. The improvement occurred in the second cycle after reflection on the first cycle. Susilowati, Setiyadi, and Haenilah (2022) concluded that the problem-based picture storybook products developed proved effective in improving the critical thinking skills of fifth grade elementary school students with the acquisition of a higher N-Gain in the experimental class with an N-Gain of 0.29 (low category).

Based on the above background, a study was conducted with the aim of analyzing the improvement of critical thinking skills of grade V student of SDN 1 Sidorekso through the use of the Think Pair Share learning model assisted by e-cergam media in the subject of Pancasila Education theme 4 Bhinneka Tunggal Ika in the even semester of the 2024/2025 school year.

METHODS

This research uses a quantitative approach with a type of pre-experimental design, namely one group pretest-posttest research. This design involves one group given an initial test (pretest), treatment, and a final test (posttest), without a control group. The study population was all fifth grade students of SDN 1 Sidorekso in the 2024/2025 school year. The sampling technique used saturated sampling, where all members of the population were sampled because there were less than 30 people. Suriani, Risnita, and Jailani (2023) mentioned that the saturated sampling technique is applied by making entire population as a sample, especially in conditions when the population size is limited, which is less than 30 people. The total population was 23 students, consisting of 6 male students and 17 female students. Based on saturated sampling technique, because the number of students is less than 30, so that all students are sampled. This research was conducted in February of the 2024/2025 school year, in the subject of Pancasila Education in theme Bhinneka Tunggal Ika. The treatment given was the application of the Think Pair Share model assisted by e-cergam media, which was carried out for three meetings. The e-cergam media used is in the form of a digital flipbook that can be accessed via a link by students. This media is design to support student involvement and train students' critical thinking skills based on FRISCO indicators.

This research instrument was in the form of pretest and posttest questions totaling 15 items, consisting of 10 multiple choice and 5 descriptions. Multiple choice scores are worth 1 for each question, while description question are scored on a scale of 1 to 4. The validity of the instrument content as tested using expert judgment technique, namely the assessment of feasibility and relevance by experts. Technical data analysis was carried out, namely the N-Gain test which was used to measure

the level of improvement in critical thinking skills. According to Wulansari, Raditya, and Sukmawati (2022), the N-Gain test is used to increase the average student score by comparing pretest and posttest scores. In this study, the N-Gain test shows the extent to which learning with the Think Pair Share model assisted by e-cergam media can improve students' critical thinking skills.

RESULTS AND DISCUSSION

N-Gain Test

The problem of low students' critical thinking skills in this study was overcome by applying the Think Pair Share learning model assisted by e-cergam media. To measure the increase in students' critical thinking skills before and after treatment, the N-Gain test was used through the SPSS application. The N-Gain test results were used to categorize the improvement that occurred, namely between low, medium, and high. The calculation is done by comparing the difference between the pretest and posttest scores.

Table 1. N-Gain Test Results

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
NGain_Skor	23	.31	.67	.4874	.09431
NGain_Persen	23	31.48	66.67	48.7352	9.43106
Valid N (listwise)	23				

The calculation results in the table show that there is an increase in the critical thinking skills of fifth grade students of SDN 1 Sidorekso. The N-Gain value obtained of 0.487 is in the range of $0.3 < g < 0.7$, which is included in the medium improvement category, thus, learning using the Think Pair Share model assisted by e-cergam media is able to improve students' critical thinking skills. The N-Gain test results showed an increase in the medium category, with a score of 0.487 or 48.78%.

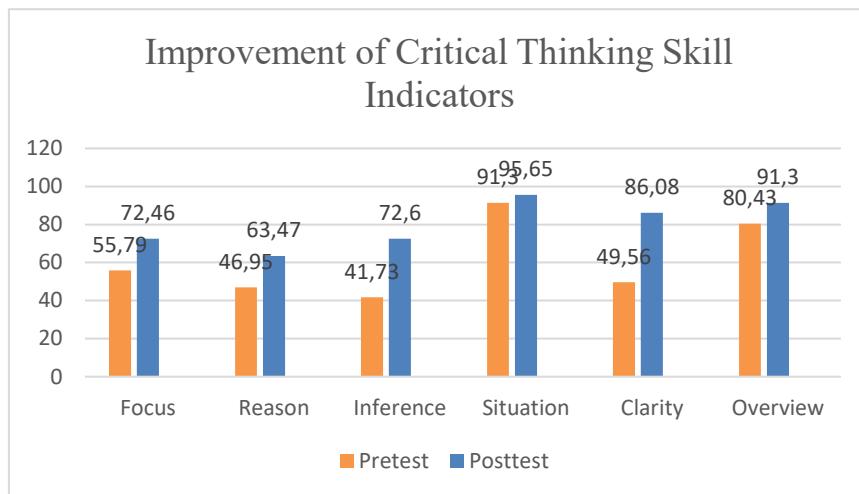
Table 2. Average Increase in Pretest & Posttest Score

		Mean	N	Std. Deviation
Pair 1	Pretest critical thinking	52.74	23	12.689
	Posttest critical thinking	75.74	23	7.806

The average pretest score of 52.74 increased to 75.74 on the posttest, so there was a difference of 23 points after treatment. The standard deviation decreased from 12.689 in the pretest to 7.806. The shrinking standard deviation shows that the increase in students' critical thinking skills is more evenly distributed at the end of learning after treatment.

Table 3. N-Gain Increase for Each Critical Thinking Indicator

Indicator	Average		N-Gain	Criteria
	Pretest Score	Posttest Score		
Focus	55.79	72.46	0.377	Medium
Reason	46.95	63.47	0.311	Medium
Inference	41.73	72.60	0.530	Medium
Situation	91.30	95.65	0.500	Medium
Clarity	49.56	86.08	0.724	High
Overview	80.43	91.30	0.556	Medium



The development diagram of critical thinking ability indicators shows that all aspects of critical thinking ability have increased after students take part in learning with the Think Pair Share model supported by e-cergam media on class V. Each indicators shows an increase in critical thinking ability, with the highest increase occurring in the clarity indicator, which obtained an N-Gain score of 0.724. Meanwhile, the lowest increase was recorded in the indicators with an N-Gain value of 0.311.

Improvement of Students' Critical Thinking Ability Before and After Using Think Pair Share Model Assisted by E-Cergam Media

The application of treatment tailored to the needs of students proved effective in improving critical thinking skills. The low ability of students to analyze and express opinions due to the lack of discussion in class was successfully overcome using the Think Pair Share model assisted by e-cergam media. This model encourages students to think actively, discuss, and convey ideas logically. This findings is in line with Valianty & Hardini (2020) who stated that Think Pair Share can not only increase the courage to argue, but also can increase critical thinking through discussion and sharing ideas in class.

Critical Thinking Development Across Think Pair Share Stage

The implementation of the Think Pair Share model took place in three meetings according to its main syntax, namely Think, Pair, and Share with the help of e-cergam media. This media contains tasks that are arranged based on FRISCO indicators (focus, situation, clarity, reason, overview, and inference). In the Think stage, the teacher presents the material and directs students to read the e-cergam and do the assignment independently. At the initial meeting, the answers that students gave were still short, but in the next meeting they became more complete and logical. This is in accordance with research from Damayanti, Ismaya, and Pratiwi (2020) Think Pair Share increases students' critical thinking skills which are accompanied by increasing their activeness, courage, and ease in responding to questions using the language they master.

In the Pair stage, student conduct group discussions to compare and unify answers. This stage, trains students' social skills in conveying and respecting opinions. This is line with the findings of Lestari (2023) at the pair stage, students learn to be good speakers and listeners. Although initially the discussions tended to be passive, group activities developed to be more active. Students begin to be confident, respond, and organize answer logically. At the Share stage, students presented the results of student discussions in front of the class and summarized the material together to deepen their understanding of the material. At the Share stage, there was an increase in students' confidence and accuracy of thinking from meeting to meeting. Salim and Disman (2023) share stage, allows students to express opinions and listen to friends' views critically, so that understanding of the material is built together. During the share stage, at the initial meeting the rest were still hesitant to express their opinions, so the teacher needed to directly appoint group to present. However, through teacher guidance, at the next meeting, students' confidence increases and some groups began to come forward voluntarily.

The pair stage in the Think Pair Share model is the most effective moment that encourages

students to think critically. When discussing, students exchange ideas with each other, this activity encourages them to reflect on answer, look for strong arguments, and formulate logical conclusions. This process directly hones students' critical thinking skills. This statement is supported by the findings of Tullis and Goldstone (2020), paired discussions significantly improve students' accuracy and confidence. Discussions help students review answers, realize mistakes, and form new understandings. This process encourages metacognition, where students are more open to opinions if their friends' reasoning is more convincing. Compared to answering alone, discussions is more effective in building critical thinking.

The e-cergam media effectively attracts students' attention and creates meaningful learning experiences through contextual stories. Ambarinanti, Fardani, and Fajrie (2024) stated that digital media such as e-cergam can improve critical thinking skills by linking material with everyday life. Widianingsih (2020) illustrated stories in e-cergam encourage students to understand the character's situation and identify problems, thus increasing the focus and situation indicators. The tasks in the e-cergam also train students to express opinions clearly and logically, as well as find information that supports statements. This has an impact on improving their abilities in the clarity and reason indicators. This is in line with Umam (2021) that picture story media helps students more easily understand the material and convey answers clearly along with the reasons, so that their critical thinking skills develop.

The critical thinking indicators in the tasks on the e-cergam media are structured. This helps students to review their answer (overview) and draw conclusions (inference). Supporting this, Susilowati, Setyadi, and Haenilah (2022) said that the integration of critical thinking indicators in picture stories familiarizes students with identifying problem, analyzing ideas, drawing conclusions, arguing, and evaluating which ultimately improves students' critical thinking skills. This e-cergam media is specifically designed to improve students' thinking skills according to their characteristics and needs. In line with Fardani, Rohmah, and Fajrie (2023) visual media tailored to student needs can increase learning motivation, concept understanding, and independence. So the use of Think Pair Share model with e-cergam not only improves critical thinking, but also creates interactive, fun, and meaningful learning.

Improvement of Critical Thinking Skills Based on FRISCO Indicators

The implementation of the Think Pair Share model assisted by e-cergam media is proven to improve students' critical thinking skills in all indicators. The first indicator, focus, showed an increase from an average pretest score of 55.79 to a posttest score of 72.46 with an N-Gain score of 0.377, categorized as a medium improvement. Prior to the intervention, most students had difficulty understanding the core meaning and importance of the national motto Bhinneka Tunggal Ika in building unity. After receiving treatment, students' understanding of the meaning and function of Bhinneka Tunggal Ika in the life of the nation increase significantly. Students' focus ability increase during the Think stage, when they read the story in the e-cergam and worked on the task independently. The activity trained students to focus on understanding the storyline, capturing important information, and connecting questions with the reading. Pratiwi, Afisa, Fajrie (2023) comic media or illustrated stories can increase interest in learning and improve reading comprehension skills in students. The process helps increase student focus by directing attention to relevant information.

The second indicator, reason, obtained an average pretest score of 46.95 and posttest 63.47 resulting in an N-Gain of 0.311, including in the medium category. Before the treatment, students were not able to provide logical reasons for the importance of preserving culture. But after being given treatment, students can understand the relevance of surrounding culture and convey reason logically. The pair stage in TPS learning trains students' reasoning ability by encouraging them to develop logical arguments based on discussions and consideration of friends' viewpoints. This discussions helps to strengthen students' reasoning and understanding of their answer. In line with these findings, Budiarsih and Supeni (2019) stated that pair discussions train students to build deep understanding, as well as hone their logical and critical thinking skills by providing relevant reasons.

The third indicator, inference, obtained an average pretest score of 41.37 and posttest 0f 72.60 with an N-Gain value of 0.530 in medium category. Initially, student were not able to draw logical conclusions about cultural diversity. After the treatment, students' ability increase in drawing conclusions based on information obtained and learned from e-cergam media. Students' inference

ability developed during the pair stage, when they worked together to conclude answer by linking previous answers with information in the reading. This ability is strengthened in the share stage through presentations, listening to other groups' opinions, and questions and answers, which help deepen their understanding. Salim and Disman (2023) explains that the pair and share stages encourage students to work together to draw conclusions through discussion and exchange of opinions, so that their understanding of the material becomes deeper and more structured.

The fourth indicator, situation, obtained an average pretest result of 91.30 and posttest 95.65 with an N-Gain value of 0.500, classified as medium. Although the initial score is already high, the increase still occurs. After receiving treatment with the Think Pair Share model assisted by e-cergam media, students are increasingly able to understand situations related to how to appreciate differences and efforts to preserve culture. Students' situation ability develops during the think stage, when they are required to understand every situation that occurs in the story, starting from the characters, background, and problems that exist in the story in e-cergam as a basis for answering questions appropriately. Warastuti, Prayitno, and Rahmawati (2025) contextual e-cergam media helps students understand the content and purpose of the story in depth, as well as train critical thinking in recognizing situations and problem.

The fifth indicator, clarity, obtained an average pretest score of 49.56 and posttest score of 86.08 showing an N-Gain of 0.724, classified as high. Before the treatment, students still had difficulty conveying ideas clearly related to the meaning of forms of cultural diversity and the importance of mutual respect for differences. After receiving treatment, students showed significant improvement in conveying ideas coherently and logically. The share stage in TPS trains the clarity indicator, because students learn to convey ideas verbally coherently and clearly. Feedback from teachers and friends during presentation activities also helps students organize explanation that are more precise and easy to understand. Josi (2025) states that the share stage provides space for students to train the delivery of ideas coherently and clearly, thus supporting the development of the clarity indicator in critical thinking.

The sixth indicator, overview, obtained an average pretest result of 80.43 and posttest of 91.30, resulting in an N-Gain of 0.556 which is classified as medium. Before the treatment, students were not accustomed to reviewing their answers or connecting the Bhinneka Tunggal Ika motto with real situations. After the treatment, student showed improvement in evaluating and reflecting on their thinking process. The overview ability developed during the pair and share stages, when students reviewed their initial opinions, compared with their friends' answers, and refined them through discussion. Then at the share stage, student are also trained to re-evaluate their answers based on feedback from the teacher or friends. Salim and Disman (2023) corroborate that the TPS model improves students' critical thinking skills, especially in evaluation and reflection of understanding. This activity can be seen when students discuss and revise their answers in the pair and share stages. This is part of the overview in critical thinking.

CONCLUSION

Based on the results of the study, it can be concluded that the Think Pair Share model assisted by e-cergam media is effective in increasing the critical thinking skills of fifth grade students of SDN 1 Sidorekso. This is indicated by a significant increase in the average score from pretest 52.74 to 75.74 on the posttest, with an N-Gain value of 0.4874, which is classified as medium. All FRISCO critical thinking indicators showed improvement, with clarity as the highest indicators (0.724, high category). The integration of TPS steps, starting from independent thinking, pair discussions, and sharing in groups, along with the use of contextually relevant e-cergam media, created an engaging and meaningful learning process. The implementation of this model successfully facilitated students to think independently, discuss actively, and express ideas logically. Teachers acted as facilitators, guiding students in exploring concepts, exchanging ideas, and developing logical arguments. E-cergam media supports understanding through stories and tasks aligned with FRISCO indicators, thereby strengthening critical thinking skills. The practical implication of this research is that the TPS model assisted by e-cergam media can be recommended as an alternative strategy for elementary school teachers to enhance students' critical thinking skills while maintaining active, enjoyable, and meaningful learning. The theoretical contribution lies in adding empirical evidence to the literature on integrating cooperative learning models with technology-based storytelling media to improve

essential 21st-century skills, particularly critical thinking skills. Future implementations should consider developing more varied and locally relevant digital media and that teachers receive regular training to maximize the implementation of this model in the classroom.

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