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The Effectiveness of the Inquiry Model Assisted Flash-Card Media Based on Ethnoscience to Improve the Critical Thinking Skills

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ABSTRACT

This research is motivated by the low critical thinking ability of students at MI Ma'arif Ngrupit. This is evident from their unsatisfactory answers to given questions. Additionally, the teacher focuses only on explaining the subject matter without providing feedback, causing students to not fully understand the material. The study aims to prove the effectiveness of the inquiry model assisted by flashcard media based on ethnoscience in improving the critical thinking skills. A quantitative approach is used in this study with a quasi-experimental design, specifically the non-equivalent control group design. The sample consists of 36 students selected by nonprobability saturated sampling. Data collection techniques include observation and tests. The results show a significant increase in students' critical thinking ability, with the experimental class achieving a mean post test score of 78. The t-test result is 0.00, indicating a significant difference between the experimental and control classes. The effectiveness of the inquiry learning model with flashcard media based on ethnoscience is supported by an effect size of 2.899 and an N-Gain of 60.04. This shows that the model is quite effective in enhancing the critical thinking skills of fourth-grade science students at MI Ma'arif Ngrupit.

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INTRODUCTION

Learning can be said to be successful if students' critical thinking skills experience an active improvement, both physically, mentally and socially in teaching and learning activities (I Made Kartika et.al., 2020). Therefore, the role of teachers is very necessary because the success of learning is determined by students' critical thinking skills. A teacher is responsible for the process of guiding students to be active and creative in critical thinking and can create interesting teaching and learning activities. Teachers are also responsible for managing the class so that learning can achieve the expected goals (I Made Kartika et.al., 2020).

Skills related to critical thinking include analysis, interpreting data, evaluating statements, exploring ideas, problem-solving, and drawing conclusions (Kirk et.al., 2023). Students must maximize their critical thinking skills to solve various problems they face in everyday life. Therefore, critical thinking skills are important for them.(Junaidi, 2020) Critical thinking can be seen from students' ability to answer questions and solve problems, and also from their ability to ask quality questions (Suyanti, 2023).

However, based on a brief interview with the fourth-grade homeroom teacher and observations conducted in September 2024 at MI Ma'arif Ngrupit Jenangan Ponorogo, it was found that students' critical thinking skills were categorized as lacking. This was evident in the unsatisfactory answers to questions given. During the learning process, several students were unable to answer the teacher's questions effectively. Furthermore, the teacher focused solely on explaining the subject matter without providing feedback to the students, resulting in poor student understanding.

In line with the results of Yurinda & Hidayat's research on grade V of SDN Anjir Seberang Pasar II, it stated that low student activity and critical thinking skills and low student learning outcomes in the learning process. This is because the learning activities still use teacher-centered learning, namely students only listen to the teacher's explanation. This results in students being unable to express opinions both verbally and in writing and their critical thinking skills are still low (Yurinda & Hidayat, 2023).

Considering the importance of students' critical thinking skills, one learning model that can improve students' critical thinking skills is the inquiry learning model (Haikal et.al., 2023). The inquiry model fully engages students to be more active and able to develop their creativity in solving a problem (Rositawati & Nugrahanta, 2018). Students are trained to analyze and evaluate the information received, so this model can improve their critical thinking skills. Inquiry learning is an approach that aims to improve critical thinking and problem-solving skills and effectively increases student creativity (Azisah et.al., 2023). In addition to considering the use of learning models, teachers must also design classroom learning creatively and innovatively, taking into account the media used.

One innovative learning medium is flash cards. Combining the inquiry learning model with flash cards can create a more meaningful learning atmosphere and increase student participation (Srimaharani et.al., 2023). Flash cards can stimulate students' critical

thinking regarding the material that corresponds to the image and make it easier for them to remember it (Rahmawati & Wardani, 2023). To facilitate students' understanding of the learning material, flash cards can be linked to ethnoscience. Ethnoscience can be defined as a system of understanding of local communities, acquired through their interaction with the natural environment and becoming part of their culture (Sari et.al., 2023).

The role of ethnoscience in the learning process in elementary schools is to improve students' critical thinking skills. This is evident from students' positive reactions when receiving structured information. In line with the results of research conducted by Trisakti, it was revealed that there was a significant influence of the application of the guided inquiry learning model assisted by flash cards on the theme of my hometown of grade IV students of SDN Dukuh Dempok 01 Wuluhan Jember's critical thinking skills (Trisakti, 2018). Meanwhile, the results of research conducted by Srimaharani et.al showed that the inquiry learning model assisted by flash cards media had an effect on the science knowledge competencies of grade IV elementary school students (Srimaharani et.al., 2023).

Although various studies have explained that the inquiry model is able to stimulate critical thinking, and there is literature that supports the importance of integrating ethnoscience to contextualize science materials, there is still a gap in the literature regarding the synergy of the three. Therefore, this study tests the effectiveness of the inquiry model assisted by picture cards based on ethnoscience to improve critical thinking skills. Thus, the researcher will conduct a study with the title **"The Effectiveness of the Inquiry Model Assisted by Picture Cards Based on Ethnoscience to Improve Critical Thinking Skills"**.

RESEARCH METHOD

This study used a quantitative approach with a quasi-experimental design. The research design used was a non-equivalent control group design, where a pretest was used to measure students' critical thinking skills before being given treatment and a post test to determine students' critical thinking skills after being given treatment (Rukminingsih et.al., 2020). The sampling method in this study was non-probability sampling using a saturated sample technique of 36 students. The validity test in this study used expert judgement to review the contents of the instruments used in accordance with the research objectives and the statements made and product moment (Pearson correlation) with the help of SPSS (Statistical Product and Service Solution) which obtained valid results. Meanwhile, the reliability test in this study used Cronbach's Alpha (alpha coefficient) with reliable results, meaning it can be used repeatedly.

The steps for implementing an ethnoscience-based flashcard-assisted inquiry model are as follows (Sutiani et.al., 2021):

1. Orientation
   The teacher explains the natural features of land areas related to ethnoscience to students using flash cards.

2. Problem Formulation
   The teacher invites students to formulate questions. Example questions:
   a. What is meant by lowlands? Name one area that is considered a lowland and its local culture!
   b. How do communities around mountains utilize their natural resources?
   c. What are the names of the traditions found around Mount Bromo?
3. Hypothesis Formulation
   The teacher gives students the opportunity to put forward hypotheses based on the questions.
4. Data Collection
   - The teacher divides the students into three groups of six students each.
   - The teacher gives students time to answer the questions based on the information on the flashcards provided.
5. Hypothesis Testing
   - The teacher asks each group to discuss whether the available data supports or refutes the proposed hypothesis. Students can provide opinions and arguments based on the available data.
   - The teacher asks students to present their group work to the class. Other groups provide feedback to the group presenting.
6. Conclusion Formulation
   - The teacher gives students time to draw conclusions from the results of the hypothesis test.
   - The teacher provides feedback on the student discussion.

Meanwhile the data collection technique in this study is using observation to determine the implementation of learning activities using the inquiry model assisted by flash card media based on ethnoscience and tests to determine students' critical thinking skills using the inquiry model assisted by flash card media based on ethnoscience. The data analysis technique in this study uses descriptive statistics and uses inferential statistical tests with t-test, Cohen's d effect size test, and N-Gain test to see the improvement and effectiveness of the inquiry model assisted by flash card media based on ethnoscience on the critical thinking skills of fourth grade students in the science subject at MI Ma'arif Ngrupit.

RESULT AND DISCUSSION

Description of Research Results

After conducting validity tests on the teaching modules, tests, learning media, and validation sheets by expert validators, the researchers then implemented learning activities using the teaching modules that had been validated by expert validators. Throughout the learning process, the researchers were accompanied by observers to observe the implementation of the learning activities in accordance with the teaching modules, which were assessed using the provided observation sheets. The researchers used tests to measure students critical thinking skills in the natural sciences subject of

land features between the experimental and control classes. The test results obtained from the experimental and control classes are as follows:

1. Description of data on the critical thinking skills of fourth-grade students using an inquiry model assisted by flashcards based on ethnoscience.

   Data on the critical thinking skills of fourth-grade students using an inquiry model assisted by flashcards based on ethnoscience were obtained through a nine-item test. The scores obtained from the experimental class are as follows:

Table 1. Pretest Scores of the Experimental Class

No	Pretest (Experimental Class)	Frequency (F)
1	41	3
2	44	8
3	47	4
4	49	2
5	52	1
	Amount	18

Based on table 1 of the pretest scores of the experimental class, it is known that the lowest score obtained was 41 with 3 students achieving that score, 8 students achieving a score of 44, then 4 students getting a score of 47. Furthermore, 2 students got a score of 49, and the highest pretest score was 52 with 1 student achieving that score.

Table 2. Post test Scores of the Experimental Class

No	Post test (Experimental Class)	Frequency (F)
1	71	3
2	74	3
3	77	4
4	80	2
5	82	5
6	91	1
	Amount	18

Based on table 2 of the post test scores of the experimental class, it is known that the lowest score obtained was 71, with a frequency of 3 students achieving that score, 3 students achieving a score of 74, while 4 students achieving a score of 77. Then 5 students achieved a score of 82, and the highest post test score was 91 with a frequency of 1 student achieving that score.

2. Description of data on the critical thinking abilities of grade IV students using conventional learning models.

   Data on the critical thinking skills of fourth-grade students using conventional learning models was obtained through a nine-item test. The scores obtained by the control class are as follows in table 3.

   Based on table 3 of the pretest scores of the control class, it is known that the lowest score obtained was 25 with 1 student achieving that score, 2 students achieving a score of 27, then 1 student getting a score of 30. There were 5 students

getting a score of 33, while 6 students received a score of 36, then 2 students getting a score of 38, and the highest pretest score was 41 with a frequency of 1 student achieving that score.

Table 3. Pretest Scores of Control Class

No	Pretest (Control Class)	Frequency (F)
1	25	1
2	27	2
3	30	1
4	33	5
5	36	6
6	38	2
7	41	1
	Amount	18

Based on table 4 of the control class post test scores, it is known that the lowest score obtained was 47 with a frequency of 2 students achieving that score, 1 student achieving a score of 49. Then 2 students got a score of 52, while 4 students got a score of 55, then 4 students received a score of 58. There were 3 students who got a score of 66, and the highest post test score was 71 with a frequency of 1 student achieving that score.

Table 4. Post test Scores of the Control Class

No	Post test (Control Class)	Frequency (F)
1	47	2
2	49	1
3	52	2
4	55	4
5	58	4
6	66	3
7	71	1
8	77	1
	Amount	18

Research Data Analysis

The hypothesis testing in this study was used to answer the research questions regarding the feasibility of the ethnoscience-based flashcard-assisted inquiry model, the critical thinking skills of fourth-grade students after implementing the ethnoscience-based flashcard-assisted inquiry model in science, and the effectiveness of the ethnoscience-based flashcard-assisted inquiry model in improving fourth-grade students' critical thinking skills in science. The table below shows the percentage results of the ethnoscience-based flashcard-assisted inquiry model:

Table 5. Percentage Results of the Implementation of the Inquiry Model Learning Assisted by Flash Card Media Based on Ethnoscience

Observed aspects	Score	
	Teacher	Student
∑ Total	30	28
∑ Max. Total	32	32
Percentage	94%	87%
Category	Very good	Very good

Based on table 5. the results of the percentage of learning inquiry model assisted by flash card media based on ethnoscience, it is known that the percentage of teacher activity regarding the implementation of the inquiry model assisted by flash card media based on ethnoscience is higher, namely 94% and the percentage of student activity is 87% which can be categorized as very good. This can be seen when learning is in progress, where students in groups find answers to a problem using flash card media based on ethnoscience provided by the teacher. The following is a table of post test data results for the experimental class:

Table 6. Experimental Class Post Test Results Data

Statistical Parameters	Post test (Experimental Class)
N	18
Minimum	71
Maximum	91
Mean	78
Std. Deviation	5,179
Variance	26,824

Based on table 6. post test results data of the experimental class, it is known that the critical thinking ability of students after implementing learning using the inquiry model assisted by flash card media based on ethnoscience obtained an average value (mean) of 78 and a standard deviation value of 5.179. Meanwhile, the data table of post test results of the control class is below:

Table 7. Post test Results Data for the Control Class

Statistical Parameters	Post test (Control Class)
N	18
Minimum	47
Maximum	77
Mean	58,06
Std. Deviation	8,235
Variance	67,820

Based on the data in Table 7, the post test results for the control class, it is known that students' critical thinking skills after learning using the conventional model achieved an average (mean) score of 58.06 and a standard deviation of 8.235.

This study used five indicators of critical thinking skills: providing simple explanations, building basic skills, drawing conclusions, providing further explanations, and developing strategies and tactics. The percentage data for each critical thinking skill indicator for the post tests of the experimental and control classes are as follows:

Table 8. Percentage Results of Each Critical Thinking Ability Indicator

No	Critical Thinking Ability Indicators	Percentage of Each Indicator	
		Experimental Class	Control Class
1	Elementary Clarification	85%	61%
2	Basic Support	81%	58%
3	Inference	76%	57%
4	Advances Clarification	69%	50%
5	Strategies and Tactics	78%	61%

Based on the data in Table 8, the percentage of each critical thinking ability indicator shows that the percentage of the indicator providing a simple explanation in the

experimental class is 85% and the percentage of the control class is 61%, which means the experimental class is superior to the control class. Meanwhile, for the percentage of the indicator building basic skills, the experimental class is also superior to the control class, namely 81% for the experimental class and 58% for the control class. The percentage of the indicator drawing conclusions, the experimental class obtained a score of 76% and the control class 57%. This shows that the percentage in the experimental class is superior to the control class. The percentage of the indicator providing further explanation in the experimental class obtained a score of 69%, while the control class obtained a percentage of 50%. This means that the experimental class is superior to the control class in this indicator. In the indicator of setting strategies, the experimental class obtained a higher percentage than the control class, namely 78% and the control class got 61%.

After analyzing the data, the next step was to test the hypotheses using the normality test, homogeneity test, t-test, Cohen's d effect size test, and N-Gain test. The normality test in this study used the Shapiro-Wilk method, with the following results:

Table 9. Normality Test Results

Test	Class	N (Sampel)	Sig.
Pretest	Experimental	18	0,056
	Control	18	0,123
Post test	Experimental	18	0,097
	Control	18	0,164

Based on Table 9, the results of the normality test show that the pretest Sig. value for the experimental class is 0.056. The post test Sig. value for the experimental class is 0.097. The pretest Sig. value for the control class is 0.123, and the post test Sig. value for the control class is 0.164. Since the Sig. values for both classes are greater than 0.05, the data can be said to be normally distributed. The homogeneity test in this study used the Levene test with the following results:

Table 10. Results of Homogeneity Test

Test	***Levene's***	df_1	df_2	Sig.
Pretest	1,224	1	34	0,242
Post test	0,327	1	34	0,151

Based on Table 10, the homogeneity test results show that the pretest Sig. value between the experimental and control classes is 0.242, meaning the pretest Sig. values for both classes are greater than 0.05, indicating homogeneous data. Meanwhile, the post test Sig. values for both the experimental and control classes are 0.151, indicating homogeneous data, as the post test Sig. values for both classes are greater than 0.05.

After the prerequisite test results (normality and homogeneity tests) are obtained, the next step is to test the hypothesis using an independent sample t-test to determine the improvement in critical thinking skills through the application of the inquiry model. The following table shows the results of the independent sample t-test.

Table 11. Independent Sample T-Test Results

Test	T	df	*p-value* Sig. (2 tailed)	*Mean Difference*
Post test	8,698	34	0.000	19,944

Based on the results of the independent sample t-test in Table 11, the Sig. (2-tailed) for the post test of the experimental and control classes is 0.00, as the Sig. (2-tailed) value is less than 0.05. This indicates a significant difference between the learning outcomes of the experimental and control classes. The calculated t-value for the post test is 8.698, while the table t-value is 2.032. This indicates a significant difference between the learning outcomes of the experimental and control classes.

Next, to analyze the effectiveness of the ethnoscience-based flashcard-assisted inquiry model, the N-Gain test was used, with the results shown below.

Table 12. N-Gain Test Results

N-Gain Persen	*N*	*Minimum*	*Maximum*	*Mean*	*Std. Deviation*
Experimental Class	36	50,85	83,02	60,04	8,34
Control Class	36	20,90	61,02	36,91	11,03

Based on Table 12, the results of the N-Gain test show that the average N-Gain Percentage for the experimental class was 60.04, which can be categorized as quite effective, and the average N-Gain Percentage for the control class was 36.91, which can be categorized as ineffective. Therefore, it can be concluded that the ethnoscience-based flashcard-assisted inquiry model is quite effective in improving the critical thinking skills of fourth-grade students in science at MI Ma'arif Ngrupit.

This study used Cohen's d effect size test to determine the effectiveness of the ethnoscience-based flashcard-assisted inquiry model in improving students' critical thinking skills. The following table shows the results of the effect size test using Cohen's d:

Table 13. Cohen's Effect Size Test Results

Learning Outcomes	Point Estimate
Cohen’s d	2,899

Based on Table 13, the results of the Cohen's d effect size test show a result of 2.899, which means it is greater than 0.8, which can be categorized as very large. Therefore, it can be concluded that the inquiry model assisted by flashcard media based on ethnoscience has a significant influence on improving the critical thinking skills of fourth-grade students in the science subject at MI Ma'arif Ngrupit.

Discussion

Implementation of the Inquiry Learning Model Assisted by Ethnoscience-Based Flashcards to Improve Critical Thinking Skills of Fourth Grade Students in Science at MI Ma'arif Ngrupit

The implementation of the inquiry model assisted by ethnoscience-based flashcards in fourth grade science was carried out in an experimental class. The percentage of learning implementation by the teacher was higher than the percentage of learning implementation by the students, with 94% achieved by the teacher and 87% achieved by the students, which can be categorized as very good. This statement aligns with the

opinion of Srimaharani et al., who stated that the inquiry learning model prioritizes activities that engage students in critical thinking, active logical inquiry, collaboration to solve problems, and finding their own answers to questions (Srimaharani et.al., 2023). This can be seen during the lesson, where students work in groups to find answers to problems using ethnoscience-based flashcards provided by the teacher.

The different percentages obtained in this study are due to the fact that during the hypothesis-posing stage, the teacher encourages students to propose hypotheses based on the statements presented. This allows students to hone their critical thinking skills. Observers can observe and assess the teacher and student activities, categorizing them as very good. Furthermore, the use of flashcards can help make learning activities more engaging and enjoyable. This is consistent with research conducted by Aziza & Yulia, which found that flashcards can help teachers convey learning materials to students, facilitate student understanding, capture their attention and interest, can be used continuously, and are affordable and readily available (Aziza & Yulia, 2022).

Research conducted by Zahrotin shows that ethnoscience-based learning has a significant positive impact on improving students' critical thinking skills. Ethnoscience-based learning is not only effective in improving critical thinking skills but also holds great potential for preserving and utilizing local culture in modern education (Zahrotin et.al., 2025).

Fourth Grade Students' Critical Thinking Skills in Science Learning

This study measured students' critical thinking skills based on Ennis' five indicators: providing simple explanations, building basic skills, drawing conclusions, providing further explanations, and organizing strategies and tactics. Students' critical thinking skills were assessed through post test results obtained from the experimental and control classes. The post test scores were calculated using IBM SPSS Statistics Version 25 software, yielding a minimum score of 71 and a maximum score of 91 for the experimental class, with a mean of 78. The post test scores for the control class were a minimum of 47 and a maximum of 77, with a mean of 58.06. This suggests that the critical thinking skills of students in the experimental class, using the ethnoscience-based flashcard-assisted inquiry model, were higher than those in the control class, using the conventional learning model. This is further supported by the experimental class's mean score of 78 and the control class mean score of 58.06. So the percentage of critical thinking ability of students in the experimental class was 21% compared to the control class.

The critical thinking skills of students in the experimental and control classes can also be analyzed based on the percentage of each indicator. For the elementary clarification indicator, the experimental class achieved a percentage of 85%, while the control class only achieved a percentage of 61%. This indicates that students in the experimental class were able to answer basic questions more easily and thoroughly than students in the control class. Furthermore, using flashcards as a medium, students were more motivated to answer questions because the information provided was clearer and

more engaging. This statement aligns with Ennis's opinion that providing simple explanations requires students to analyze a problem and imagine possible answers based on the information received. This is evident in their responses to questions or statements (Adisty et.al., 2021).

Meanwhile, for the basic support indicator, the experimental class achieved 81%, while the control class only achieved 58%. This is due to students in the experimental class being able to observe and explore the truth of information using ethnoscience-based flashcards. This finding aligns with research conducted by Wahyuni et al., which found that students are able to identify and establish evidence for a statement from a source to construct accurate information within a theoretical context (Wahyuni et.al., 2021).

For the inference indicator, the experimental class achieved a score of 76%, while the control class achieved a score of 57%. This is because the experimental class was able to draw conclusions from information obtained from ethnoscience-based flashcards. This statement aligns with Anggraini's research, which found that students can assess the validity of the sources they use and solve problems by constructing arguments and considering inaccurate results (Anggraini, 2023).

Meanwhile, for the advance clarification indicator, the experimental class achieved a score of 69%, while the control class achieved a score of 50%. This is based on the fact that students in the experimental class were more capable of providing explanations for problems encountered than those in the control class. This aligns with Ennis's opinion that providing further explanations can be effective if students are able to provide appropriate explanations for solving a problem (Adisty et.al., 2021).

The indicator providing further explanations had a lower percentage than the other indicators. This is because students struggled to explain information in depth. Therefore, students still need more guidance and practice to improve their ability to provide further explanations. This statement aligns with research conducted by A'yun et al., which found that the indicator providing further explanations had the lowest average score, indicating that this indicator presents a challenge for students (A'yun et.al., 2025).

As for the indicator managing strategies and tactics, the experimental class achieved a percentage of 78%, while the control class achieved a percentage of 61%. This is because the experimental class was more capable of determining a course of action or finding a solution to solve a problem than the control class. This statement aligns with research conducted by Damayanti et al., which states that environmental factors can have a significant impact on critical thinking processes. Therefore, critical thinking requires a supportive environment for students to convey it (Damayanti et.al., 2023).

Based on the study conducted by Arifin et al., there is a significant difference in the success of the Inquiry-Based Learning (IBL) model in enhancing students' critical thinking skills globally. The Inquiry-Based Learning (IBL) model is highly successful in improving students' critical thinking skills, with effect size from moderate to high. IBL combined with advanced technology such as smart learning or inquiry-based game environments shows the very large impact. This extraordinary success is due to the interactive and personal nature of the technology, which allows students to be more

engaged and encouraged to think critically and deeply (Arifin et.al., 2025).

Students' critical thinking skills can be improved through the use of inquiry-based learning models that encourage their active participation in the learning process. In this model, students not only listen to the teacher's explanation but also try to find the answers themselves. Furthermore, the use of flashcards makes learning more engaging and enjoyable because students better understand concepts through the images and text presented.

An ethnoscience approach that connects learning materials with local culture also helps students understand and retain information and stimulates their curiosity. Through group discussions and collaboration, students can support each other, which trains their critical thinking and analysis of information. All of these factors help students develop their critical thinking skills and solve various problems they face.

The Effectiveness of the Ethnoscience-Based Flashcard-Assisted Inquiry Learning Model to Improve Fourth Grade Students' Critical Thinking Skills in Science at MI Ma'arif Ngrupit

The ethnoscience-based flashcard-assisted inquiry learning model has proven effective in improving students' critical thinking skills, with post test results showing a significant difference between the experimental and control classes (p-value 0.00). The N-Gain test showed an average score of 60.04% for the experimental class, categorized as moderately effective, while Cohen's d test yielded a score of 2.899, indicating a significant effect. The experimental class had an average post test score of 78, significantly higher than the control class's score of 58.06. Each critical thinking skill indicator also demonstrated superiority in the experimental class, with higher percentages in all aspects. The implementation of this model encourages students to actively engage in learning, in line with the principles of active learning and constructivism theory, which helps them better understand and retain information.

Based on the statement above, it is known that the application of the inquiry model assisted by flashcard media based on ethnoscience helps students to receive information actively and enjoyably. This is because learning is not focused on the teacher, but students are also actively involved in the learning process and the teacher only acts as a facilitator. This is supported by research conducted by Rahmawati, et.al that the use of the inquiry learning model assisted by flashcard media provides opportunities for students to actively participate in the learning process, for example by discussing, asking and answering questions (Minallahalibada et.al., 2025). This is in line with the principle of active learning which emphasizes the importance of student involvement in the learning process. In this way, students play a role not only as recipients of information, but also as active information seekers.

Furthermore, the above statement aligns with constructivist theory, which states that students are able to think critically to solve problems, generate ideas, and make decisions. By directly engaging in the teaching and learning process, students will better understand the knowledge they gain and be able to apply it in various situations.

Furthermore, by actively engaging, students are able to retain all the concepts learned (Wahab & Rosnawati, 2021).

This contrasts with the control class using the conventional model, where students only understood the core issues discussed and their critical thinking skills were less developed. Therefore, the inquiry model supported by ethnoscience flashcards proved quite effective in improving students' critical thinking skills compared to the control class using the conventional model.

CONCLUSION

Based on the research that has been conducted, it can be concluded that the inquiry model assisted by flash card media based on ethnoscience has proven effective in improving the critical thinking skills of fourth grade students in the science subject at MI Ma'arif Ngrupit, with teacher and student activities reaching 91% and 81% respectively, which indicates a very good category. The average critical thinking ability score of the experimental class is 78 with a good category. The experimental class also excels in all indicators of critical thinking ability, with a significant percentage difference. The results of the analysis show a p-value sig. (2-tailed) of 0.00, which indicates a significant difference between the two classes. The average N-Gain value of the experimental class is 60.04, and Cohen's d effect size of 2.899, confirming that the inquiry model is quite effective in improving the critical thinking skills of fourth grade students in the science subject at MI Ma'arif Ngrupit.

This study, while providing valuable insights into the effectiveness of a flashcard-assisted inquiry model for improving critical thinking skills, has several limitations: it used a small sample of 36 students and only studied one school, making it impossible to compare samples and schools across different schools. Based on the figures we have, this model is recommended for use by teachers as an alternative in Science instruction to enhance students' critical thinking abilities, especially in contexts that can be linked to culture and the surrounding environment.

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