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Analysis Students' Critical Thinking Ability in Solving Ratio Problems

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ABSTRACT: Critical thinking is one of the skills needed in the 21st century. Critical thinking skills are very important for students to have because with critical thinking skills, students can solve various problems. This study aims to describe students' critical thinking skills in solving problems related to ratios. This study is a descriptive study with a qualitative approach. The data collection techniques used in this study were tests and questionnaires. This study involved 30 students in class VII-E at SMPN 1 Panti Jember. Data analysis techniques were carried out by reducing data, presenting data, and drawing conclusions. The data validity technique used triangulation methods. The test used in this study consisted of three questions. The results showed that the critical thinking skills of students were predominantly in the medium and low category. Many students in class VIIE have high, medium, and low critical thinking skills, with 10, 12, and 8 students, respectively. Students with high critical thinking skills meet the criteria of focus, reason (R_1 and R_3), inference, clarity, situation, and overview. However, they still fall short on the criterion of reason (R_2). Students with moderate critical thinking skills meet the criteria of focus, reason, situation, and clarity, but fall short on the criteria of reason (R_2), clarity, inference, and overview. Students with low critical thinking skills meet criteria of focus, but still fall short on the criteria of reason, inference, situation, clarity, overview and therefore need improvement in all areas. Based on the results of this study, it is recommended that learning methods, approaches, or models that can accustom students to critical thinking be implemented, or that learning tools that can improve critical thinking skills be applied.

KEYWORDS: Critical thinking skill, problem solving, ratio, thinking skill, mathematical problem

INTRODUCTION

21st-century skills are necessary in education in the current era of the 4.0 revolution, which includes communication, collaboration, critical thinking, problem solving, and creativity (Nurtanto et al., 2020). Critical thinking skills are very important to have because critical thinking enables a person to think rationally, thereby generating various alternative solutions to overcome the problems they face (Thoyibah et al., 2022). Critical thinking skills are also needed in mathematical activities such as problem solving so that students can gain a deeper understanding of the concepts in a lesson (Hobri et al., 2020). Critical thinking is reflected in the implementation of the Pancasila student profile with the term critical reasoning, where critical reasoning is one of the non-cognitive learning outcomes assessed in one of the national assessments, namely the character survey (Regulation of the Head of the Standards, Curriculum, and Education Assessment Agency (PKBSKAP) of the Ministry of Education, Culture, Research, and Technology Number 015/H/KP/2023). Through Permendikbud Number 20 of 2016, the government has stipulated that critical thinking skills are part of the competency standards for primary and secondary education graduates (Kurniati, D. & As'ari A., 2017). Based on this, critical thinking is an important part of the skills that students must have in learning mathematics and life.

The importance of critical thinking has not been matched by the abilities possessed by students, where the critical thinking skills of junior high school students are still in the low category (Nuryanti et al., 2018, Basri et al., 2019, Septiana et al., 2019,Lestari & Roesdiana, 2021) because students are not accustomed to active learning that maximizes their critical thinking potential (Nuryanti et al., 2018). The low level of critical thinking skills is also due to the lack of variety in learning, which makes students consider mathematics a difficult subject and reduces their interest in learning mathematics (Utami & Pramudiani, 2024). This is in line with the test questions conducted by the researcher on November 26, 2024, which found that the critical thinking skills of students in class 8A were predominantly in the low category. Based on interviews conducted with mathematics teachers at SMPN 1 Panti Jember on February 12, 2025, this was because teachers more often used the direct instruction model and did not yet have and apply learning tools specifically designed to improve students' critical thinking skills in the learning process.

One subject that can train students' critical thinking skills is mathematics. Through mathematics learning, students are expected to develop analytical, critical, logical, systematic, and creative thinking skills, as well as collaboration skills (Thoyibah et al., 2022). Critical thinking is a cognitive process that aims to expand, validate, and solve specific problems (Facione, 2011).

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According to Ennis, (1996), critical thinking is reasoned and reflective thinking with an emphasis on making decisions about what to believe or do. One way to improve students' critical thinking skills is to present them with problems, because when students are faced with problems, they tend to be motivated to find the right steps or solutions (Palupi et al., 2017). The type of problem that can improve critical thinking skills is story problems, because solving story problems can train students' critical thinking skills (Maulidiyah et al., 2024). Problems that can measure critical thinking skills must be at cognitive levels C4 (analyzing), C5 (evaluating), and C6 (creating) (Efiana et al., 2025). In line with this, according to Monrat et al., (2022), students' exam answers can be used to measure their cognitive ability in critical thinking. There are different components in measuring critical thinking skills in mathematics (Monrat et al., 2022). Facione describes the components of critical thinking skills is interpretation, analysis, evaluation, inference, explanation, and self-regulation (Facione, 2011). Ennis describes the components of critical thinking skills is focus, reason, inference, situation, clarity, and overveiw. The component is known by the acronym FRISCO (Ennis, 1996). Halpern describes the components of critical thinking skills is verbal reasoning, argument analysis, thinking as hypotesis testing, likelihood and uncertainty, and decision making and problem (Bie et al., 2015). In this research, the researchers developed crtical thinking problems based on the compnent critical thinking proposed by Ennis. Based on the description above, the purpose of this research was to describe students' critical thinking skills in solving problems related to ratios.

MATERIALS AND METHODS (OR METHODOLOGY)

Design and Participants

This type of research is descriptive research with a qualitative approach, as it aims to describe the critical thinking skills of seventh grade junior high school students in solving ratio problems. Qualitative descriptive research aims to describe, explain, and provide in-depth answers to the issues being studied through a comprehensive assessment of individuals, groups, or events (Thoyibah et al., 2022). The subjects of this study were 30 seventh grade students from class VII-E at SMPN 1 Panti Jember. The research subjects were selected using purposive sampling, based on recommendations from teachers and the heterogeneous mathematical abilities of the students. Describe in sufficient detail how the study was conducted so that it can be replicated.

Instrument

The data collection methods used in this study were tests, questionnaires and interview. The critical thinking test consisted of three essay questions on ratio. The context of the question is about the tobacco processing and lahbako dance. Tobacco and lahbako dance were chosen because they are part of the culture in Jember. Jember is famous as the city of tobacco, and lahbako dance was created as a form of appreciation for women, most of whom were tobacco managers at that time (Suwarno et al., 2020). The test was used to measure critical thinking criteria, namely focus, reason, inference, situation, clarity, and overview. The questionnaire was used to supplement data not obtained from the written test and to determine the subjects' critical thinking process in solving problems on the test. The interviews was used to supplement the data that had not been obtained from the written tests and questionnaires and to determine the subjects' critical thinking processes in answering the test questions and questionnaire questions.. Before analysis, the data obtained from the test and questionnaire were labeled and coded as follows:

F: critical thinking criterion of focus
R1: critical thinking criterion of reason for the indicator of finding evidence to be used as grounds for conclusions in investigating problems
R2: critical thinking criterion for the indicator of finding pros and cons in making decisions
R3: critical thinking criterion for the indicator of identifying and assessing the level of acceptance of the reasons expressed in reviewing the argument.
I: critical thinking criteria for inference
S: critical thinking criteria for situation
C: critical thinking criteria for clarity
O: critical thinking criteria for overview

The critical thinking indicators used in this study are those formulated by Ennis, (1996) and can be seen in Table 1.

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Table 1. Critical Thinking Indicators

No	Critical Thinking Criteria	Critical Thinking Indicators
1	Focus	Knowing what to focus on includes what is know and what is asked
2	Reason	R_1 : Seeking evidence to justify conclusions in investigating problems R_2 : Seeking reasons for pros and cons in making decision R_3 : Identify and assess the degree of acceptability of the reasons expressed in revisiting the argument
3	Inference	Determining the steps to be taken based on reasons for drawing conclusions
4	Situation	Connecting relevant knowledge to find rules for problem solving
5	Clarity	Clearly explain the terms used
6	Overview	Double-checking the solution to the problem thoroughly

Source: Ennis, (1996)

The test and questionnaire results were evaluated using a scoring rubric, then categorized based on the critical thinking ability categorization according to the Ministry of Education and Culture (in Utami & Pramudiani, 2024), which can be seen in Table 2.

Table 2. Critical Thinking Ability Category

Critical Thinking Ability Category		
High	**Medium**	**Low**
80 to 100	65 to 79	Under 65

Analysis

The test, questionnaire, and interview results were analyzed by reducing the data, presenting the data, and drawing conclusions. The details of the data analysis conducted are as follows: (1) data from the test and questionnaire results were reduced by selecting important data and eliminating unimportant data; (2) data from the test and questionnaire results were analyzed by calculating the total score and presented in the form of a table grouping critical thinking ability levels. In addition to being presented in the form of total scores and tables, some test and questionnaire results were described descriptively for each critical thinking criterion; (3) conclusions were drawn from the findings.

Procedures

All students in class VII E have received the ratio material. All students in class VII E were given a ratio test to measure their critical thinking skills. The test had to be completed within 60 minutes, after which the students completed a questionnaire within 20 minutes. The students' test and questionnaire answers were evaluated using a scoring rubric created by the researcher.

RESULTS

Based on the test results, questionnaires and interview, the distribution of critical thinking skills among students in class VII-E can be seen in Table 3.

Table 3. Distribution of Critical Thinking Ability among Students

Students' Critical Thinking Ability		
High	**Medium**	**Low**
10	12	8

Based on Table 3, the following presents the results of the study describing the critical thinking process for each student with high, medium, and low critical thinking skills. Students with high critical thinking skills were selected based on the highest test, questionnaire, and interview results. Students with medium critical thinking skills were selected based on test, questionnaire, and

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interview results that were in the middle range. Students with low critical thinking skills were selected based on the lowest test, questionnaire, and interview results.

The Critical Thinking Process Of Students With High Critical Thinking Ability

Students with high critical thinking ability were code as FR. FR'scritical thinking ability for number one can be seen in Figure 1.

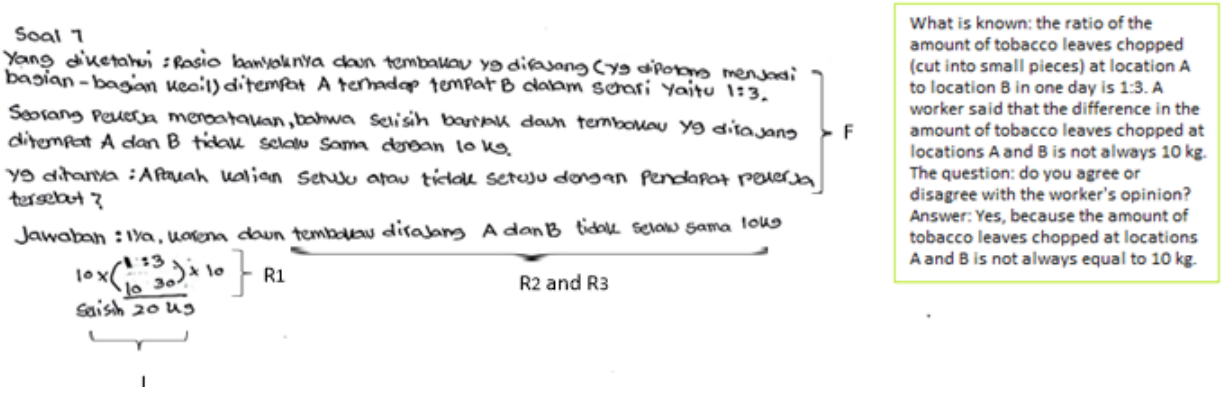

Figure 1. FR's First Test Answer

Based on Figure 1, FR can write the core of the problem correctly and entirely and can answer corecctly the questions related to the information known and asked in the problem, which means FR undertands the problem given well., FR can write down the method for calculating the difference between the amount of tobacco chopped at locations A and B. The method is to find the amount of tobacco chopped at locations A and B using a comparison. The steps and calculation used by BA are correct in code R_1. FR can also state pro and con reasons, FR wrote down the pro argument, which was "I agree, because the tobacco leaves chopped by A and B are not always the same 10 kg." This was reinforced by the results of the questionnaire, in which FR wrote down the pros and cons. The pro argument was the same as the one written in the test, while the con argument was "the workers' opinion is not wrong."

In code R_3, FR can also assess the level of acceptance of the result of the work steps that have been done, which is indicated by FR writing down the difference between the amount of tobacco chopped at locations A and B, which is 20 kg. In addition to the test results, based on the interview results, it was found that FR was able to assess the level of acceptance of the results obtained, the following is an except from the SR interview.

P : "Why are you sure that the worker's opinion is correct?"

FR : "Because the tobacco leaves chopped at locations A and B are not always equal to 10 kg, the answer I got was 20"

In code I, FR wrote down the method for obtaining the difference between the amount of tobacco chopped at locations A and B, by subtracting the amount of tobacco chopped at location B from that at location A. So, the difference between the amount of tobacco chopped at locations A and B is 20, which agrees with the workers' opinion. During the interview, FR was also able to explain the conclusions correctly.

Based on Figure 1, the code S, FR can remember and used previous knowledge to solve problems and solved problem 1 using the ratio method. Based on the results of the interview with FR regarding the criteria for critical thinking in situational indicators, FR stated that the material used to solve the problem was ratios.

P : "What material was used to solve the problem?"

FR : "Ratio"

Based, questionnaires and interview for code C, FR has explained that the meaning of difference is the difference or reduction of a large number from a small number. FR also can explained explanation of the term ratio 1:3. The following is an explanation of the meaning of 1:3 from the interview.

P : "What does the ratio of the number of tobacco leaves chopped at location A to B being 1:3 mean?"

FR : "If 10 kg of tobacco leaves are chopped in A, then 30 kg are chopped in B. Or, if 1 kg is chopped in A, then 3 kg are chopped in B."

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Based on interview, FR conducted a review by looking back at the questions and how they were answered. The following are the results of the interview for the overview indicator.

P : "Yesterday, after finishing the work, did you check your answers again or not?"

FR : "Yes"

P : "How do you correct it?"

FR : "Review the questions and how to answer them."

In addition to revising by reviewing the questions and answers based on the questionnaire, FR also rewrote the results of the calculations he had made. FR rewrote the calculation: 1 : 3 = 10 : 30, then 30 minus 10 = 20. Therefore, based on this, FR fulfilled the overview indicator.

FR'scritical thinking ability for number two can be seen in Figure 2.

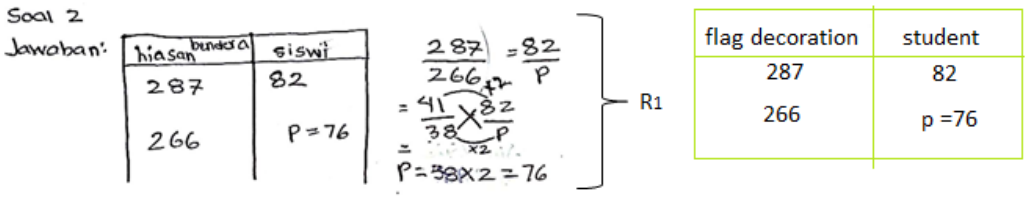

Figure 2. FR's Second Test Answer

Based on Figure 2 and questionare, FR does not write down what is known and asked in the question. FR did not write down what he knew and was asked on the answer sheet, but based on the interview results, FR knew what was known and asked in question number 2. The following are the interview results.

P : "Try to mention what is known and asked in question number 2"

FR : "There were 287 flag decorations used by 82 female students. The audience thought that if the number of flag decorations was reduced by 21, there would be more than 70 dancers. Question: Do you agree or disagree with the audience's opinion?"

Based on the results of the interview, FR understood the question well.

FR can write down the method to find many female students corresponding to the many flags. The method used by FR is to create a table, then create two ratios. The methods and calculations used by FR were correct. Based on the interview results, the meaning of the table was "determined to be used to distinguish between flag decorations and female students."

Based on Figure 2. FR only wrote down his calculations until he found many female students when many flags were reduced and did not write down his conclusion as to whether he agreed or disagreed with the audience's opinion. Even though I haven't written the conclusion yet, based on the interview results, FR can draw the correct conclusion. Here are the interview results:

P : "What is the conclusion of question number 2?"

FR : "agree with the audience's opinion"

P : "yes, correct, why isn't it written on the answer sheet?"

FR : "I forgot, ma'am, also because the time was up, ma'am"

Based on quetionare and interview, FR can also state pro and con reasons, FR wrote down the pro argument, which was "The audience's opinion is correct, because if the number of flags is reduced from 21 to 266, then there are 76 female students." FR can also assess the level of acceptance of the results of the steps that have been taken, as seen in the interview results.

P : "Why are you sure that the value of p is 76?"

FR : "because I believe my calculations are correct"

Based on Figure 2, the code S, FR can remember and used previous knowledge to solve problems and solved problem 2 using the proportion method. Based on the results of the interview with FR regarding the criteria for critical thinking in situational indicators, FR stated that the material used to solve the problem was ratios.

P : "What material was used to solve the problem?"

FR : "Proportion"

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Based on interview for code C, FR has explained that the meaning of p is many female students when the flag is lowered. Based on interview, FR conducted a review by looking back at the questions and how they were answered. The following are the results of the interview for the overview indicator.

P : "Yesterday, after finishing the work, did you check your answers again or not?"

FR : "Yes"

P : "How do you correct it?"

FR : "Review the questions and how to answer them."

Based on quesioner and intervew, FR did not recheck his answers because his time had run out.

FR'scritical thinking ability for number three can be seen in Figure 3.

Based on Figure 3 and questionare, FR does not write down what is known and asked in the question. FR did not write down what he knew and was asked on the answer sheet, but based on the interview results, FR knew what was known and asked in question number 2. The following are the interview results.

P : "Try to mention what is known and asked in question number 3"

FR : "Known: Mr. Wawan has two tobacco fields, field A and field B, each with an area of 45 square meters. Mr. Jalal also has a field with an area of 45 square meters. A = 4 kg of urea fertilizer for 860 tobacco plants in field A. B = 5 kg of urea fertilizer for 915 tobacco plants in field B.Question: If Mr. Jalal wants to choose the most economical use of fertilizer for the number of plants he has, based on what Mr. Wawan did in his two fields, which field should Mr. Jalal follow?"

Based on the results of the interview, FR understood the question well.

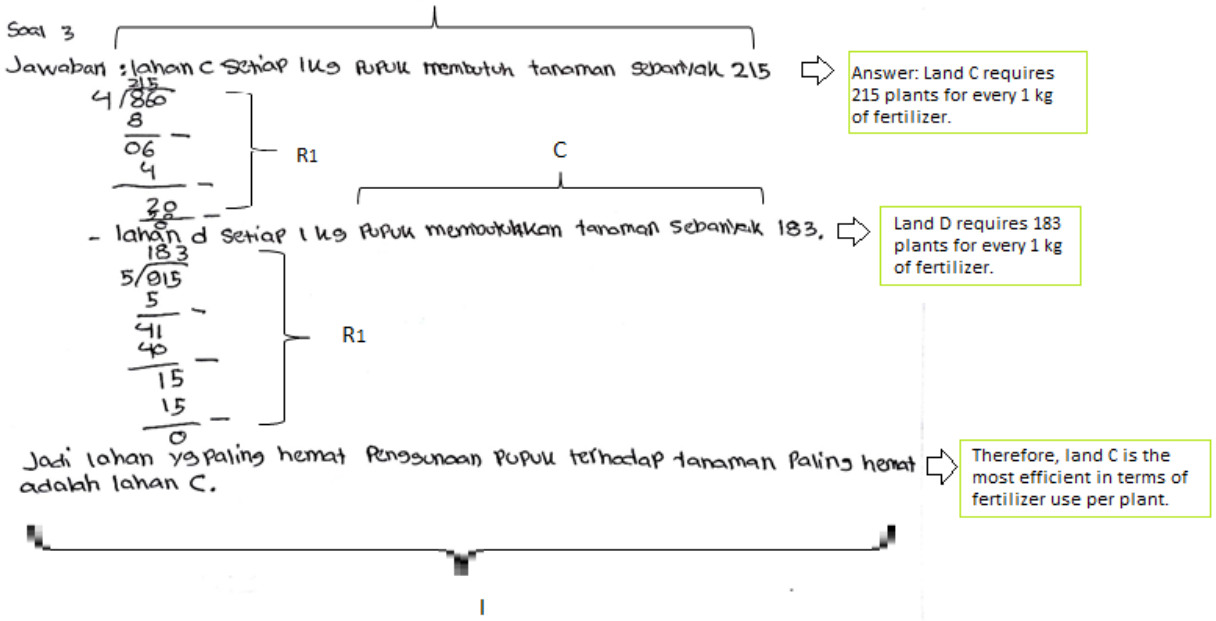

Figure 3. FR's Third Test Answer

FR can write down the method to find land that is more economical and can be followed by Mr. Jalal. Based on the FR interview, explain how question number 3 was answered. Provide the interview.

P : "Please explain how FR solved question number 3."

FR : " The way to calculate this is by using the porogapit method, which is: on plot A, 860 tobacco plants are divided by 4 = 215 tobacco plants for 1 kg of fertilizer. On plot B, it is the same, which is 915 divided by 5 = 183 tobacco plants for every 1 kg of fertilizer. So, the more economical plot is plot A."

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Based on quetionare and interview, FR can also state pro and con reasons, FR wrote down the pro and con argument, which was "T Land A is more economical because it requires 215 tobacco plants per 1 kg, while land B is not economical." FR can also assess the level of acceptance of the results of the steps that have been taken, as seen in the interview results.

P : "Why are you sure that land A is more economical?"

FR : "because I believe my calculations are correct"

Based on Figure 3, the code S, FR can remember and used previous knowledge to solve problems and solved problem 2 using the stacked distribution method. Based on the results of the interview with FR regarding the criteria for critical thinking in situational indicators, FR stated that the material used to solve the problem was ratios.

P : "What material was used to solve the problem?"

FR : "Porigapit"

Based on interview for code C, FR has explained that the meaning of FR can correctly explain the meaning of the results of dividing 860 by 4 and 915 by 5. In addition to revising by reviewing the questions and answers based on the questionnaire, FR also rewrote the results of the different calculations he had made. FR rewrote the calculation: "860 : 4 = 215, 915 : 5 = 183." Based on the above explanation, it can be concluded that FR meets all the criteria for critical thinking.

This explanation is an example of critical thinking carried out by students with a high level of critical thinking ability. The following are the results of the calculation of the fulfillment of critical thinking indicators carried out by students with high critical thinking abilities, which can be seen in Table 4.

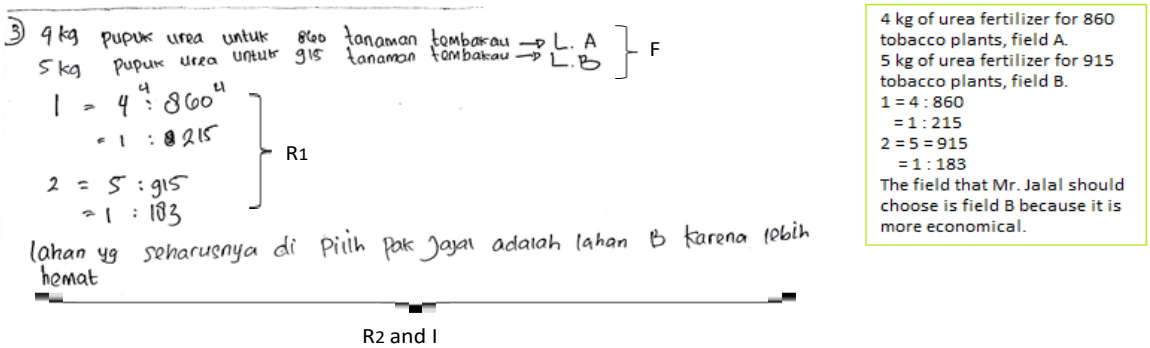
Table 4. Summary of Test Results and Questionnaires of Students with High Critical Thinking Skills

Critical Thinking Criteris	Qualifying score
Focus	93%
Reason (R_1)	97%
Reason (R_2)	63%
Reason (R_3)	88%
Inference	83%
Situation	100%
Clarity	78%
Overview	87%

Based on Table 4, it was found that students with high critical thinking skills could meet the criteria of critical thinking focus, reason, inference, situation, clarity, and overview. Of the six criteria, the criterion that still needed improvement was the reason criterion (R_2).

The Critical Thinking Process of Students with Medium Critical Thinking Ability

Students with medium critical thinking ability were code as AO. AO'scritical thinking ability for number three can be seen in Figure 2.



R2 and I

Figure 4. AO's Three Test Answer

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Based on Figure 4, the code F, R_1, R_2, R_3, I, and the result of the questionnaires, AO can write down what is known correctly, but AO does not write down what is asked, but based on the interview results, AO knew what was known and asked in question number 3. The following are the interview results.

P : "Try to mention what is known and asked in question number 3"

AO : "Known: 4 kg of urea fertilizer for 860 tobacco plants in field A, 5 kg of urea fertilizer for 915 tobacco plants in field B. Question: If Mr. Jalal wants to choose the most economical use of fertilizer for the number of plants he has, based on what Mr. Wawan did in his two fields, which field should Mr. Jalal follow?"

Based on the results of the interview, P understood the question well.

AO can write down how to obtain the rate of change from more efficient land based on the amount of fertilizer used to the amount of tobacco used. The steps and calculations performed were first to find the rate of change from fertilizer use to the amount of tobacco in land A, then continued in land B. The steps and calculations performed by AO were correct, so AO met the R_1 criteria. For code R_2, based on tests and questionnaires, AO answered correctly for the pros and cons with less accuracy. The questionnaire question related to the pros was "Write down the reason why fertilizer use on land A is more efficient," and the answer was "The more efficient land is land B." Based on the correct answer, the more efficient land is land A, so AO does not meet the R_2 criteria. Based on the questionnaire, AO was convinced that the more economical land was land B, so AO did not fully meet the R_3 criteria. Based on Figure 4, AO did not write an explanation of the meaning of 1:215 and 1:183, but AO wrote an explanation of the meaning of 1:183 in the questionnaire. The explanation written is "1 kg of fertilizer for 183 tobacco plants." Although the meaning of 1:215 is not written, based on the explanation written for 1:183, which is correct, AO has met criterion C. AO concluded that the land that Pak Jalal should choose is land B because it is more economical. This answer is incorrect, so AO does not meet the Inference criteria. Based on test dan interview, AO solved the problem using the sub-topic of rate of change, and based on the interview, AO was also able to explain that he solved the problem using rate of change. Based on this, AO meets the criteria for the situation. Based on Figure 4, the questionnaire and interview, AO did not recalculate to check his work. The following are the results of the calculation of the fulfillment of critical thinking indicators carried out by students with medium critical thinking abilities, which can be seen in Table 5.

Table 5. Summary of Test Results and Questionnaires Of Students With Medium Critical Thinking Skills

Critical Thinking Criteris	Qualifying score
Focus	75%
Reason (R_1)	91%
Reason (R_2)	65%
Reason (R_3)	75%
Inference	74%
Situation	100%
Clarity	63%
Overview	67%

Based on Table 5, it was found that students with medium critical thinking skills could meet the criteria of critical thinking focus, reason, inference, situation, clarity, and overview. Of the six criteria, the criterion that still needed improvement was the reason criterion (R_2), clarity, inference, and overview.

The Critical Thinking Process of Students with Low Critical Thinking Ability

Students with low critical thinking ability were code as UH. UH'scritical thinking ability for number one can be seen in Figure 3.

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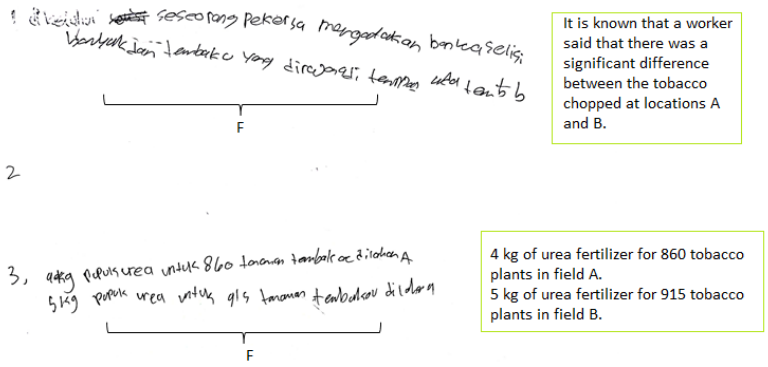

Figure 7. UH's First, Seccond, and Third Test Answer

Based on Figure 3 and the questionnaire, UH only demonstrated critical thinking on criterion F, and his answers were insufficient. Because UH only wrote down what he knew correctly, but did not write down what was asked. UH did not write down everything that was asked and known completely on the answer sheet, but based on the interview results, UH was able to mention everything that was known and asked completely and correctly for questions 1, 2, and 3. The following are the interview results.

P : "Try to mention what is known and asked in question number 1."

UH : "Known: The ratio of tobacco leaves chopped at locations A and B is 1:3. A worker said that the difference in the amount of tobacco chopped at locations A and B is not always 10 kg. Question: Do you agree or disagree with the farmer's opinion?

P : "Try to mention what is known and asked in question number 2"

UH : "There were 287 flag decorations used by 82 female students. The audience thought that if the number of flag decorations was reduced by 21, there would be more than 70 dancers. Question: Do you agree or disagree with the audience's opinion?"

P: "Try to mention what is known and asked in question number 3"

UH : "4 kg of urea fertilizer for 860 tobacco plants in field A, 3 kg of urea fertilizer for 915 tobacco plants in field B. The question is: which field is more economical?"

Based on test, quesioner, and interview, UH could not solve the problem because he did not know how to do it. Therefore, the indicators of reason, inference, situation, clarity, and overview were not met.

The following are the results of the calculation of the fulfillment of critical thinking indicators carried out by students with high critical thinking abilities, which can be seen in Table 6.

Table 6. Summary of Test Results and Questionnaires of Students with Low Critical Thinking Skills

Critical Thinking Criteris	Qualifying score
Focus	64%
Reason (R_1)	39%
Reason (R_2)	29%
Reason (R_3)	33%
Inference	33%
Situation	42%
Clarity	23%
Overview	29%

Based on Table 6, it was found that students low high critical thinking skills Applying critical thinking criteria to focus, reason, inference, situation, clarity, and overview. However, all criteria applied fall short of meeting these criteria, so there is still much room for improvement.

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DISCUSSION

Students with high critical thinking skills FR for questions 1 and 3 fulfilled all critical thinking criteria, while for question 2 they fulfilled all critical thinking criteria except overview due to insufficient time. Therefore, it can be concluded that FR met all critical thinking criteria. This is in line with the opinion Hobri et al., (2020) and (Hafidhoh et al., 2024) that students are said to have high critical thinking skills when they meet five to six critical thinking criteria.

Students with medium critical thinking skills AO for question number 3 fulfilled criteria focus, reason (R_1), situation, and clarity. However, for the criteria of reason (R_2 and R_3), inference, and overview insufficient. Based on this, it can be concluded that AO meets the three criteria for critical thinking. This is in accordance with the opinion Hobri et al., (2020) and (Hafidhoh et al., 2024) that students are said to have moderate critical thinking skills when they meet three to four critical thinking criteria.

Students with low critical thinking skills on questions 1, 2, and 3 only met the focus criteria. This is in line withHobri et al., (2020) and (Hafidhoh et al., 2024) who state that students are said to have low critical thinking skills when they only meet one to two critical thinking criteria. Some students with low critical thinking skills can only meet the criteria for focused critical thinking and cannot complete the questions because they do not know how to solve them.

Based on Tables 5 and 6, the critical thinking criteria overview has a low percentage, which indicates that many students with moderate and low critical thinking skills do not meet these criteria. This is in line with research conducted by Meriza et al., (2024) which found that many students did not double-check their answers. The reason why students rarely checked their answers was because some of them did not read the instructions carefully, were confident of their answers, and did not have enough time. This is in line with Meriza et al., (2024) which found that students were confident of their answers and therefore did not double-check them.

CONCLUSION

Many students in class VIIE have high, medium, and low critical thinking skills, with 10, 12, and 8 students, respectively. Students with high critical thinking skills meet the criteria of focus, reason (R_1 and R_3), inference, clarity, situation, and overview. However, they still fall short on the criterion of reason (R_2). Students with moderate critical thinking skills meet the criteria of focus, reason, inference, situation, clarity, and overview, but fall short on the criteria of reason (R_2), clarity, inference, and overview. Students with low critical thinking skills meet all the criteria for critical thinking, but still fall short on all criteria and therefore need improvement in all areas. Based on the results of this study, the recommendation to improve the critical thinking skills of students in the low and moderate categories is to apply methods, approaches, or learning models that can accustom students to think critically, or to apply learning tools that can improve critical thinking skills.

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