

## Critical Thinking Ability of Student with Reflective Cognitive Style in Solving Algebraic Numeracy Problems

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**Abstract:** Critical thinking is needed in problem solving. To solve problems, students will use a variety of strategies. Critical thinking ability play a role in determining the strategy used, which is also influenced by students' cognitive styles. In this research, the cognitive style discussed is reflective cognitive style. This research is a qualitative with a case study approach. This research aims to describe the critical thinking ability of students in solving algebraic numeracy problems based on reflective cognitive style. This research was conducted in Class VIII Junior High School students. The research subjects were selected through MFFT (Matching Familiar Figure Test) and Mathematical Ability Test. Data analysis techniques include data reduction, data display, and conclusions. The selected research subjects from reflective took the critical thinking ability test and interviews. The results of the critical thinking test and interviews were analyzed to describe the critical thinking in solving algebraic numeracy problems. The results showed that reflective cognitive style student fulfill each criteria of critical thinking ability FRISCO (Focus, Reason, Inference, Situation, Clarity and Overview). The reflective student is able to carry out the focus and reason criteria of critical thinking ability by identifying the main points of the problem and providing reasons for the relationship between what is known and asked correctly and completely. Reflective student is able to carry out the inference and situation criteria by deciding on the right strategy and solving the problems given correctly and systematically. Reflective student can also able to carry out the clarity and overview criteria of critical thinking ability by drawing conclusions and re-examining the solution of the problems given. So, reflective cognitive style student is categorized as very critical. It is suggested that teachers provide more practice questions and provide further discussion with limited working time.

## INTRODUCTION

One of the important abilities in the 21st century is critical thinking. Kelley et al. (2019) stated that "in the 21st century, there are 4 basic abilities that students must develop, namely 4C including Critical thinking, Creative thinking, Communicating, and Collaborating". List J (2022) also explained that critical thinking is important in life because it can facilitate logical and informed decisions. Critical thinking is very important for every student. Based on Hidayat et al. (2019) critical thinking abilities are very important for students to have, because it can help us to think rationally in solving problems.

Critical thinking ability of junior high school students are not optimal. This is in line with the results of research by Basri et al. (2019) which states that the critical thinking ability of junior high school students in solving mathematical problems are in the low category

with evaluation, analysis, and self-regulation. Students' critical thinking ability are related to the way students solve problems. A problem is a gap between the current state and the desired state with the process to bridge the gap still unclear (Woolfolk, 2017). Therefore, students who think critically can find solutions in solving given problems including in solving contextual problems. Contextual problems are related to numeracy.

Critical thinking ability is closely related to numeracy. Haerudin (2018) stated that numeracy not only helps students in understanding mathematical concepts deeply, but also helps them to collaborate, think critically, creatively, and communicate. According to Jain & Rogers (2019), numeracy ability is related to a person's critical thinking. One of the numeracy contents that students need to master in critical thinking is algebra. Algebra is also related to critical thinking ability. According to Cahyono et al. (2019), critical thinking abilities are needed to solve problems, especially in solving algebra problems. So that the numeracy of algebra is related to students critical thinking ability.

In solving the algebraic numeracy problems, the characteristics of each student are certainly different, including characteristics in critical thinking. The characteristics of critical thinking ability in individual diversity is that each individual has diverse thoughts to solve problem presented (Masitoh et al., 2022). Critical thinking ability of students are influenced by many factors, one of them is cognitive style. The ability to think critically in each student is influenced by cognitive style, one of which is reflective cognitive style (Purnomo et al., 2021). Santrock (2014: 145) suggests that one of the most frequently discussed cognitive styles is reflective. There are several types of cognitive styles that have been classified by psychologists, including reflective cognitive styles (Shodiqin et al., 2020). In this research, more in-depth discussion of reflective cognitive style because reflective cognitive style has unique characteristics in decision making.

Reflective cognitive style is related to the timing and accuracy of decision making which is also related to a person's critical thinking (Schiebener & Brand, 2015). Reflective students are students who have the characteristics of being slow in answering questions but accurate, so answers tend to be correct (Warli & Nofitasari 2021). Related to reflective cognitive style, Santrock (2018) explains that reflective is a cognitive style with individuals thinking first then acting. So, there is a relationship between critical thinking ability with reflective cognitive style in making better decisions.

Some existing research, namely Yanti et al. (2022) showed that reflective cognitive style affects the critical thinking ability of junior high school students in class VII line and the angle material. Then, research on critical thinking as a correlate of numeracy learning outcomes in Nigeria Kwara state by Jimoh (2019) showed that critical thinking ability is an important factor that can affect student numeracy learning outcomes in secondary schools. However, further studies are needed related to critical thinking ability with numeracy problems in terms of reflective cognitive style. Therefore, this research aims to describe the critical thinking ability of junior high school students in solving algebraic numeracy problems based on reflective cognitive style.

## **METHOD**

### **Research Design**

This research used a qualitative research with a case study approach. The aims to describe the critical thinking ability of junior high school students in solving algebraic numeracy problems based on reflective cognitive style. The case study approach is an intensive study that focuses on one particular individual, group, organization within a certain period of time with the aim of obtaining a complete and in-depth picture of a particular entity (Abdussamad, 2021). According Moleong (2007) the research procedure consists of three stages, namely the pre-field stage (planning), the field work stage (data collection), and the data analysis stage.

### **Participants**

The participants in this research were Junior High School in the 2024/2025 year. The prospective subjects were students of class VIII. The subject age is around 13-14 years old. The subject was selected through the MFFT (Matching Familiar Figure Test) and the Mathematical Ability Test (MAT). The subject was selected one person from reflective cognitive style student. The subject is selecting with high mathematical ability and communicative student.

### **Data Collection**

The data collection techniques used in this research were interviews and written tests consisting of the MFFT (Matching Familiar Figure Test), the Mathematics Ability Test (MAT) and Critical Thinking Ability Test (CTAT). The MFFT used in this research is an adoption of Warli's (2010) MFFT. This test contains 15 picture questions with 2 experimental questions and 13 test questions. The classification of cognitive style criteria based on calculate the average time of work ( $t$ ) and average frequency of correct answers ( $f$ ) on students MFFT. Through this MFFT, subjects are categorized into 4 categories: impulsive, reflective, fast-accurate, and slow-inaccurate (Rozencajg & Corroyer, 2005). In this study only focuses on students who are reflective cognitive style with high mathematical ability.

The MAT consisted of three description questions given to the class selected as the prospective research subject with 60 minutes. The material of this MAT includes comparison and scale. As for the cognitive levels chosen in the MAT are C2 and C3 because this MAT is made to measure students' basic abilities. The critical thinking ability test contains one algebraic numeracy problems given to research subject namely reflective cognitive style with 60 minutes. The context chosen is personal and the cognitive level chosen is reasoning. The interviews were based on indicator of critical thinking ability. The following is algebraic numeracy problems in this research, adapted from Numerasi Bangsa Team book.

Mr. Andika is a contractor who often gets project work. He is planning a new project (project A2). The old project work can be completed by the following workers.

	Lots of workers	Length of time
Project of A1	23 workers	40 days

The working system on Mr. Andika's project is following the regular working day (5 working days in 1 week) and during the weekend workers are off. The following is the calendar for November-December 2024:

NOV							DES						
MIN	SEN	SEL	RAB	KAM	JUM	SAB	MIN	SEN	SEL	RAB	KAM	JUM	SAB
27	28	29	30	31	1	2	1	2	3	4	5	6	7
3	4	5	6	7	8	9	8	9	10	11	12	13	14
10	11	12	13	14	15	16	15	16	17	18	19	20	21
17	18	19	20	21	22	23	22	23	24	25	26	27	28
24	25	26	27	28	29	30	29	30	31	1	2	3	4

If the A2 project is planned to start on November 6, 2024 and the project is completed on December 20, 2024. On the other hand, workers' wages are paid per week with a wage of 150 thousand/day and a bonus wage of 700 thousand after the work is completed. If Mr. Andika's assistant suggests that the A2 project add 4 more workers so that the project is completed on time. Is Mr. Andika's assistant's statement correct? Give the reason!

Figure 1. Algebraic Numeracy Problems

## Data Analysis

Score of the MAT in this research was used to determine students' mathematical abilities and group students into high, medium, and low mathematical ability groups. Categorization is based on Ratumanan and Laurent (2006). The following is a table categorizing mathematics ability levels in this study.

Table 1. Categorization of Mathematics Ability

Interval	Category
$80 \leq \text{test score} \leq 100$	High
$60 \leq \text{test score} < 80$	Medium
$\text{test score} < 60$	Low

The result of MFFT and MAT analyzed and selected with having high mathematical abilities and communicative from reflective student. The selected subject will be given critical thinking ability test (CTAT). The CTAT test instrument describes students' critical thinking ability in solving algebraic numeracy problems. After completing the critical thinking ability test, the subject will be interviewed. The interview aims to explore and complete the required data not identified from the written results. The critical thinking ability test and interview results were analyzed based on indicator of critical thinking ability. The following are the critical thinking ability indicators in this study, adapted from Ennis (2011) namely FRISCO.

Table 2. Indicator of Critical Thinking Ability

Criteria of Critical Thinking Ability	Indicator of Critical Thinking Ability	Code
F (Focus)	Able to identify the problem by writing down what information is known and asked according to the problem	F1
	Able to explain the relationship between what is known and asked from the problem	F2

Criteria of Critical Thinking Ability	Indicator of Critical Thinking Ability	Code
R ( <i>Reason</i> )	Able to provide reasons that support whether the given statement is sufficient to solve the problem	R1
I ( <i>Inference</i> )	Able to draw conclusions regarding used and unused statements	I1
	Able to decide on the most appropriate strategy to use according to the context of the problem	I2
S ( <i>Situation</i> )	Able to explain other possibilities when multiple strategies are applied	S1
	Able to use all information to implement a plan or strategy in solving numeracy problems	S2
C ( <i>Clarity</i> )	Able to assert meaning by drawing conclusions from problem solving solutions in accordance with the consideration of facts and concepts	C1
O ( <i>Overview</i> )	Able to re-examine each step carried out based on facts, concepts, theorems relevant to the context of the given numeracy problem	O1

The categorization of critical thinking abilities in this research consists of 5 levels with reference to the value of each indicator above. Category analysis of the critical thinking abilities test based on the percentage of indicators met, namely

$$X = \frac{\text{Total score obtained}}{\text{total maximum score}} \quad (1)$$

Note: The number of indicators met (score 2 for able to implement; score 1 for less able to implement; score 0 for unable to implement) divided by the total maximum score.

The following are the categories of critical thinking abilities in this research.

**Table 3.** Categorization of Critical Thinking Ability

Category	Percentage
Very Critical	$81,25 < X \leq 100$
Critical	$71,50 < X \leq 81,25$
Moderately Critical	$62,50 < X \leq 71,50$
Less Critical	$43,75 < X \leq 62,50$
Uncritical	$0 < X \leq 43,75$

The interview was conducted after the research subjects did the critical thinking ability test. The results of the critical thinking ability test were used as the basis for conducting interviews. The interview aims to explore and complete the required data not identified from the written results. The interview results were analyzed based on 3 activities according to Miles and Huberman (1994) namely (1) data reduction, (2) data display, and (3) conclusion drawing.

## RESULT AND DISCUSSION

### Result

Data collection in this research was carried out at Junior High School in Surabaya, starting with giving a MFFT (Matching Familiar Figure Test) and Mathematical Ability Test (MAT) in class VIII-E which consisted of 32 students. There are 4 categorizations, this research focuses on subjects with reflective cognitive style. The subjects chosen by reflective cognitive style with high mathematics ability score as indicated by the interval of math ability test. Based on the data, there are 17 students with reflective cognitive style but selected with high mathematics ability, the following student were obtained.

Table 4. Research Subject

Name	Working time (s)	Correct Answers Frequency (f)	Category	Math Ability Score
SDPS	1558	10	Reflective	90

The analysis result of critical thinking ability of reflective cognitive style subject in solving algebraic numeracy problems based on the FRISCO criteria are presented as follows.

### Focus

**Handwritten Note (Left):**

1. Diketahui:  
 Proyek A1 - 23 orang -> 40 hari  
 Dalam 1 minggu biasanya hanya 5 hari bekerja  
 Proyek A2 6 Nov - 20 Des 2024 (33 hari)  
 Upah Pekerja 150 RB/hari dan bonus upah 700RB setelah proyek selesai  
 Ditanya: Apakah pernyataan asisten Pak Andika bahwa proyek A2 ditambah 4 pekerja

**Typed Note (Right):**

**Given:**  
 A1's Project → 23 people → 40 days  
 In 1 week usually 5 working days  
 A2's Project → 6 Nov-20 Dec 2024 (33 Days)  
 Working wage of 150k/day and bonus wage of 700k after project completed.  
**Asked:** Is Mr. Andika's assistant's statement that A2's project added 4 workers is correct?

**Annotations:** Two red boxes labeled **R.F1** are placed to the right of the typed note, with brackets indicating they refer to the 'Given' and 'Asked' sections respectively.

Figure 2. SR's Answer on Focus Criteria

Below is an interview conducted by researchers with SR regarding the solution above.

PR.001 : What are the problems in the question?

SR.001 : It is known that there are 23 workers who can complete the project in 40 days, the work system is only 5 days. The A2 project started on November 6; to be completed on December 20, 2024 and the wages of the project workers. Then what is asked is right or wrong that Mr. Andika's assistant suggestion to add 4 more workers so the A2 project is completed. **(F1)**

PR.002 : Is the wage information needed to solve the problem?

SR.002 : No, the worker's wage is not needed to solve the problem. **(F1)**

PR.003 : What is the relationship between what is known and what is asked in the problem?

SR.003 : The known and asked are related, is the information of the total days needed and the number of workers to be added. The A1 project information is related to the A2 project problem solving. **(F2)**

Based on Figure 1 and the interview above, it can be seen that subject R wrote down the known information starting from information on the time and number of project A1 workers, the work system, workers' wages, and the completion time of project A2 completely on the answer sheet (F1). All information needed to solve the problem has been mentioned in the answers SR.001, SR.002, and R.F1. In answer SR.003, subject R realized that workers' wages were not used in solving the problem. Then in the answer SR.004, subject R relates the known information about the time and many workers of project A1 related to solving project A2's problem about many workers added (F2).

### Reason

Below is an interview conducted by researchers with SR regarding the reason criteria.

PR.004 : Is the information provided enough to answer the problem? Give the reason!

SR.004 : Yes, it is sufficient, because the problem already has a description that the previous project was done by 23 people with 40 days so that information can be used to solve how many workers are needed in project A2. There is also calendar information in the problem so I know the working time of project A2. **(R1)**

Based on the interview above, it can be seen that subject R explained that the information presented in the problem covers all aspects needed to solve the A2 project problem, starting from known and asked information, the completion time of project A2

with calendar information can be seen in the answer SR.004 (R1). Subject R also provided supporting reasons related to the information presented was sufficient to solve the problem.

### Inference

Below is an interview conducted by researchers with SR regarding the inference criteria.

PR.005 : Is all the information given used to solve the problem? Give an explanation!

SR.005 : No, not all the information in the problem was used to solve the problem. (I1)

PR.006 : Conclude what information is used and what information is not used to solve the problem!

SR.006 : The conclusion is the information used is the number of workers and the completion time of project A1, the system working, the new project A2 started and completed, the calendar of November-December 2024. While the information that is not used is the worker's wage per week and the worker's wage bonus. (I1)

PR.007 : Explain the inverse comparison strategy for this problem!

SR.007 : The inverse comparison or proportion. The inverse comparison in this problem is that the less time the project takes to complete (7 days faster than the previous project), the more workers there will be. (I2)

Based on the interview above, it can be seen that subject R sorted and explained the information to be used consisting of time information and many workers of project A1, the work system, A2 project completion time and unused information consisting of workers' wages and workers' bonuses completely and correctly (I1). This is evidenced in the answers of SR.005 and SR.006. Then, subject R can decide the most appropriate strategy to use according to the context of the problem, namely using inverse value comparison, as explained in the answers SR.007 (I2). Subject R did not doubt or forget the concept of inverse value comparison as evidenced by the explanation and answer of SR.007.

### Situation

<p>1. menggunakan Perbandingan senilai</p> $\frac{40}{33} = \frac{23}{x}$ $40x = 23 \cdot 33$ $x = \frac{23 \cdot 33}{40}$ $x = 18,9$	<p>Used Value Comparison</p> $\frac{40}{33} = \frac{23}{x}$ $40x = 23 \times 33$ $x = \frac{23 \times 33}{40}$ $x = 18,9$	<div style="border: 1px solid red; padding: 5px; color: red; font-weight: bold;">R.S1</div>
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Figure 3. SR's Notes During the Interview

<p>Jawaban :</p> $\frac{23}{x} = \frac{33}{40}$ $33x = 23 \cdot 40$ $x = \frac{23 \cdot 40}{33}$ $x = 27,8 \approx 28$	<p>Answer:</p> $\frac{23}{x} = \frac{33}{40}$ $33x = 23 \times 40$ $x = \frac{23 \times 40}{33}$ $x = 27,8 = 28$	<div style="border: 1px solid red; padding: 5px; color: red; font-weight: bold;">R.S2</div>
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Figure 4. SR's Answer on Situation Criteria

Below is an interview conducted by researchers with SR regarding the situation criteria.

PR.008 : Are there any other possible answers when you use the strategy you chose?

SR.008 : There are no other possibilities, because the use of inverse value comparison is appropriate in solving this problem. (S1)

PR.009 : What if you do the problem using value comparison? Try to write it on the answer sheet provided!

SR.009 : After I worked on the problem using inverse value comparison, the number of workers is getting smaller which is not logical and the result is that the project A2 only needs 19 workers ( $x=18.9$ ). So, if the time to build the A2 project is to be faster, the number of workers should be increased, not decreased. (S1)

PR.010 : Explain how to solve the problem you have created?

SR.010 : First, we look at the question first, namely whether Mr. Andika's assistant suggestion that the number of workers added to the A2 project is 4 people. Then my first solution is to first identify the A2 project must be completed in how many days by looking at the November-December 2024 calendar and the system works.



It was found that the A2 project had to be completed in 33 days or 7 days faster than the previous A1 project. Then I used inverse value comparison like the solution on the answer sheet. It was found that project A2 needed 28 workers to finish in 33 days. (S2)

PR.011 : Okay, after that what do you get from solving the problem?

SR.011 : After that, it is found that the number of workers needed for project A2 is 28 people ( $x = 27.9$ ), rounded up to 28 people. This means that the workers that must be added are 28 people minus the previous workers, namely 23 people. The number of workers to be added is at least 5. (S2)

Based on Figure 2, Figure 3, and the interview above, it can be seen that subject R explained that there are no other possible answers when using the concept of inverse value comparison as shown in the answer SR.008 (S1). In addition, subject R also convinced that there was only one strategy or way to solve the problem by trying to work on the problem using value comparison in the answers SR.009 and the notes of subject R.S1 in Figure 2. Subject R explained that when the problem was done using equivalent comparison, the results became illogical. Then, subject R can use all information to implement the plan or strategy of inverse comparison in solving algebraic numeracy problems completely according to R.S2 in Figure 3 (S2). In the answers SR.010 and SR.011, subject R also re-explained correctly, completely, and systematically related to the implementation of the inverse value comparison strategy in solving problems.

### Clarity

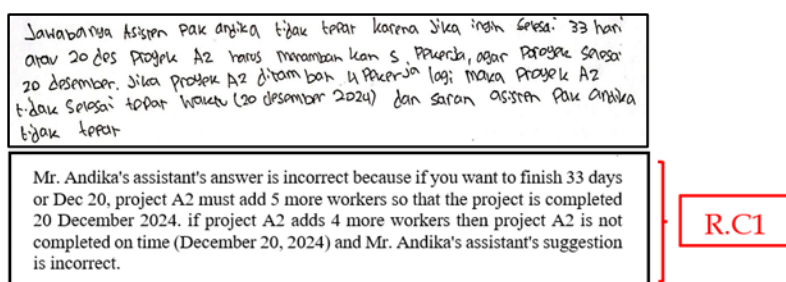


Figure 5. SR's Answer on Clarity Criteria

Below is an interview conducted by researchers with SR regarding the clarity criteria.

PR.012 : Okay, then explain the conclusion you have made from solving the problem!

SR.012 : The conclusion of the solution is that Mr. Andika's assistant suggestion is not correct because if you want to finish in 33 days, project A2 must add at least 5 more workers so that the project is completed on December 20, 2024. If project A2 only adds 4 more workers then project A2 will not be completed on time on December 20, 2024. (C1)

PR.013 : Okay, then Mr. Andika's assistant suggestion is incorrect and the minimum number of workers to add is 5. What if Mr. Andika adds 6 workers? Will it finish faster or longer?

SR.013 : Faster, if Mr. Andika adds 6 workers, then the work time will be faster, it maybe could only take 31 days to complete project A2.

Based on Figure 4 and the interview above, it can be seen that subject R assert that the answer obtained was the minimum answer, namely the minimum number of workers added was 5 workers correctly and completely as seen in the answer SR.012 (C1). Subject R also emphasized the meaning of the minimum workers added so that when many workers are added  $\geq 5$  then the work can be completed before 33 days. Subject R also answered the questions asked by the researcher correctly as seen in the answer SR.013.



## Overview

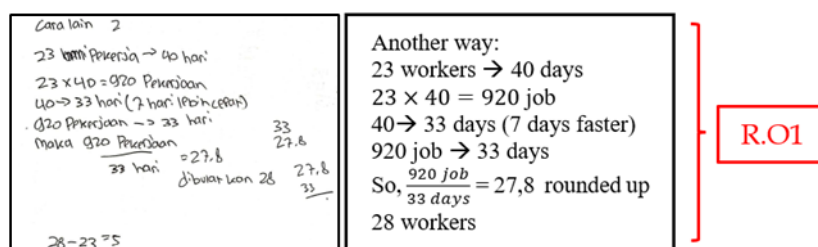


Figure 5. SR's Answer on Overview Criteria

Below is an interview conducted by researchers with SR regarding the overview criteria.

PR.014 : Well, lastly, is there any other way or strategy to ensure that your work is correct according to the theorem and proof!

SR.014 : Yes, there is another way to solve the problem, which is by multiplying all of the work time and the number of workers later divided by the time to finish. I have done calculate in this note. (O1)

PR.015 : Okay, did you find any calculation errors in solving the problem?

SR.015 : Not found

PR.016 : Okay, are you sure about the solution you made?

SR.016 : Sure, because I have corrected and rechecked it twice.

Based on Figure 5 and the interview above, it can be seen that subject R mentioned that there are other ways or strategies in solving the problem by writing down other ways or strategies in notes, namely by using the multiplication system on the processing time and the number of workers on the note sheet of subject R.O1 in Figure 5 correctly and completely (O1). Then, subject R also double-checked the answers in solving the problem properly and completely as seen in the answers SR.015 and SR.016.

Based on the result, the critical thinking ability category of student with reflective cognitive style is presented as follows. (score 2 for able to implement; score 1 for less able to implement; score 0 for unable to implement)

Table 5. Critical Thinking Ability Category of Student with Reflective Cognitive Style

	Code Indicator of Critical Thinking Ability								
	F1	F2	R1	I1	I2	S1	S2	C1	O1
Reflective Student	√	√	√	√	√	√	√	√	√

Student with reflective cognitive style fulfill all indicators of critical thinking ability then

$$X = \frac{\text{Total score obtained}}{\text{total maximum score}} \quad (2)$$

$$X = \frac{18}{18} = 100$$

So, student with reflective cognitive style is categorized as **very critical**.

## Discussion

Based on results of students' critical thinking ability in solving algebraic numeracy problems. The following is a discussion related to the critical thinking ability of reflective subject at each FRISCO criteria.

At the focus stage, students able to identify the problem by writing down what information is known and asked according to the problem systematically and completely. Students able to explain the relationship between what is known and asked logically. The

results of this analysis are in line with the opinion expressed by Ariyul Mufida et al. (2020) that students able to record and explain exactly the known information and questions asked in the problem. Ennis (2011) also explained that the indicator of critical thinking that meets the focus criteria is that students can understand the problem by mentioning the information known and asked from the given problem.

At the reason stage, students with reflective cognitive style able to provide supporting reasons whether the statement given is sufficient to solve the problem completely. This is in line with what is stated by Widyastuti and Jusra (2022) that students able to provide supporting reasons related to questions based on the information found. In addition, Cahyono et al. (2019) also explained that male students with reflective cognitive style can provide reasons based on facts or data, definitions, axioms, theorems that are relevant to each step planned during the focus criteria.

At the inference stage, students able to draw conclusions related to the statements used and not used to solve the problem completely. Then, students able to decide the most appropriate strategy to use according to the context of the problem. As stated by Ennis (2011) that the criteria for critical thinking inference is that students can decide and make conclusions appropriately in accordance with existing theorems. These results are influenced by student with reflective cognitive style tends to be careful and consider a variety of information before making conclusions or choosing a strategy.

At the situation stage, students able to explain other possibilities when several strategies are applied in solving the problem. Students able to use all information to implement strategic plans in solving problems appropriately and completely. This is in line with the opinion of Cahyono et al. (2019) that male student with reflective cognitive style able to use all information based on data, definitions, or other forms of representation relevant to the problem. In addition, Ariyul Mufida et al. (2023) also explained that reflective students able to use all information appropriately to solve problems.

Students able to assert the meaning of solving the context of numeracy problems by drawing conclusions from problem solving solutions according to clear consideration of facts and concepts at the clarity stage. As stated by Cahyono et al. (2022) that reflective cognitive style students able to draw conclusions from the process to determine the most appropriate solution. In addition, Ennis (2011) suggests that indicators of critical thinking clarity, students can be able to explain the meaning of the intent that has been written.

At the overview stage, student able to re-examine each step carried out based on facts, concepts, theorems relevant to the context of the given numeracy problem and review the entire solution of the numeracy problem solution with the suitability of the context. In line with the opinion conveyed by Ariyul Mufida et al. (2023) that students recheck the results of the answers obtained before collecting. Cognitive style also proves that students with reflective cognitive style can review each step implemented based on facts, strategies and theorems that are relevant in solving the problem given.

## CONCLUSION AND SUGGESTIONS

Based on the analysis that has been done, it is obtained that reflective cognitive style students able to solve algebraic numeracy problems. Students able to carry out each criteria of critical thinking ability correctly and completely. Students can perform mathematical calculations correctly and systematically. Reflective students fulfill every criteria and indicator of critical thinking ability FRISCO (Focus, Reason, Inference, Situation, Clarity, Overview). Reflective student is categorized as very critical. In the Focus indicator, students able to identify the main points of the problem by writing the known and questionable information in the problem and able to explain the relationship between the known and questionable completely. At the Reason stage, students able to provide supporting reasons that the statements given are sufficient and cover the whole to solve algebraic numeracy problems appropriately. At the Inference stage, students able to draw and make conclusions related to statements used and not used in solving algebraic numeracy problems and able to decide the most appropriate strategy to use in solving algebraic numeracy problems using inverse comparison. At the Situation stage, students able to use all information to implement strategies in solving algebra problems and able to explain other possibilities, namely students explain that the results are not logical when using other strategies (value comparison). At the Clarity stage, students able to assert meaning by drawing conclusions from the solution of algebraic numeracy problem solving clearly and coherently. At the Overview stage, students able to review by re-examining each step carried out based on facts, concepts relevant to the context of the algebraic numeracy problem given.

Based on the results of the study, reflective students are more likely to be systematic and coherent in making decisions but spend a lot of time, so it is recommended that teachers provide more practice problems in the form of numerical problems and provide further discussion with limited time in working.

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