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Students' Critical Thinking Disposition in Working on Numeration Problems

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Abstract: This study aims to describe the critical thinking disposition of students in working on numeracy problems. This research is qualitative research with a descriptive research type. The instruments used are numeracy questions, student questionnaires, and interview guidelines. The subjects of this study were three grade IX students of one of the junior high schools in Kediri Regency, East Java, with high, medium, and low categories. The results showed that: (1) students in the high category met the indicators of critical thinking, curiosity, open-mindedness, systematic, analytical, truth-seeking, and self-confidence; (2) students in the medium category meet the indicators of critical thinking, curiosity, open thinking, systematic, and analytical; (3) students with low category meet the indicators of critical thinking, curiosity, and open thinking. Based on the results and discussion of the research, it can be concluded that all students in the three categories meet different critical thinking disposition indicators.

Keywords: disposition, critical thinking, numeracy.

Abstrak: *Penelitian ini bertujuan untuk mendeskripsikan disposisi berpikir kritis siswa dalam mengerjakan soal numerasi. Penelitian ini merupakan penelitian kualitatif dengan jenis penelitian deskriptif. Instrumen yang digunakan adalah soal numerasi, angket siswa, dan pedoman wawancara. Subjek penelitian ini adalah tiga siswa kelas IX salah satu SMP di Kabupaten Kediri Jawa Timur, dengan kategori tinggi, sedang dan rendah. Hasil penelitian menunjukkan bahwa: (1) siswa dengan kategori tinggi memenuhi indikator berpikir kritis rasa ingin tahu, berpikir terbuka, sistematis, analitis, mencari kebenaran, dan percaya diri; (2) siswa dengan kategori sedang memenuhi indikator berpikir kritis rasa ingin tahu, berpikir terbuka, sistematis, dan analitis; (3) siswa dengan kategori rendah memenuhi indikator berpikir kritis rasa ingin tahu dan berpikir terbuka. Berdasarkan hasil dan pembahasan penelitian dapat ditarik kesimpulan bahwa semua siswa dalam tiga kategori memenuhi indikator disposisi berpikir kritis yang beda-beda.*

Kata kunci: *disposisi, berpikir kritis, numerasi.*

▪ INTRODUCTION

Preparing Indonesia's golden generation for life in the 21st century is not an easy task. In 2020-2039, it is estimated that there will be a peak transition where Indonesia has a population with a high productive age with a ratio between the productive age of twice the non-productive age (Murtasidin, 2020). The high population of productive age is caused by the decline in the death and birth rates. This condition can be seen as a profitable thing, namely a demographic bonus (demographic bonus), or as a disadvantage, namely a demographic disaster (Demographicdisaster) (Mahanal, 2017). The challenges of the 21st century require 4C skills, namely collaboration, communication , creativityErdoğan, andcritical thinking, 2019). Critical thinking is one of the most important attributes for success in the 21st century (Bell & Loon, 2015). Teachers must complete these 4C skills in order to prepare their students to become quality human resources (Murtiyasa, 2016).

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Critical thinking is a reflective thinking with the aim of making accountable decisions about what to believe and what to do (Ennis, 2015). Critical thinking skills do not stand alone. An individual needs a critical thinking disposition to use these skills (Bell & Loon, 2015). Approaches that develop critical thinking skills can also improve critical thinking dispositions (Bell & Loon, 2015). While the disposition of critical thinking itself can be interpreted as a tendency to use critical thinking in thinking and acting. Thus, both critical thinking skills and dispositions must be developed together. In addition, critical thinking skills and dispositions are mutually reinforcing (Facione, et al., 1955). There is a positive relationship between critical thinking disposition and learning outcomes (Bell & Loon, 2015). Students with critical thinking will have a good influence on academic achievement (Ghanizadeh, 2017). Critical thinking contributes to successful learning at the primary, secondary and tertiary education levels (Mahanal, 2017). People who think critically are people who when faced with a statement can make a decision which one to believe which one not through careful reasoning. In addition, critical thinking can also help us understand and solve all kinds of problems (Facione, 2020). Critical thinking skills are needed especially at this time where information is growing rapidly (Dwyer, et al., 2014).

There are several indicators of critical thinking disposition, namely: always curious, open-minded, systematic, analytical, always looking for the truth and confident (Facione & Francisco, 2016). The indicators of the disposition of mathematical critical thinking are: curiosity (inquisitiveness) with the characteristics of being able to engage in questions and re-examine answers, open-minded (open-mindedness) with the characteristics of being able to identify all possible solutions and include logical reasons for mathematical problems, systematic (systematic) with the characteristics of being able to understand and solve mathematical problems in sequence and correctly, analytical with the characteristics of being able to use reasoning in mathematical problems with applicable formulas, seeking truth (truth seeking) with the characteristics of always trying to capture and convey correct information in solving mathematical problems , and self-confidence with the characteristics of being confident in the results that have been obtained in solving mathematical problems.

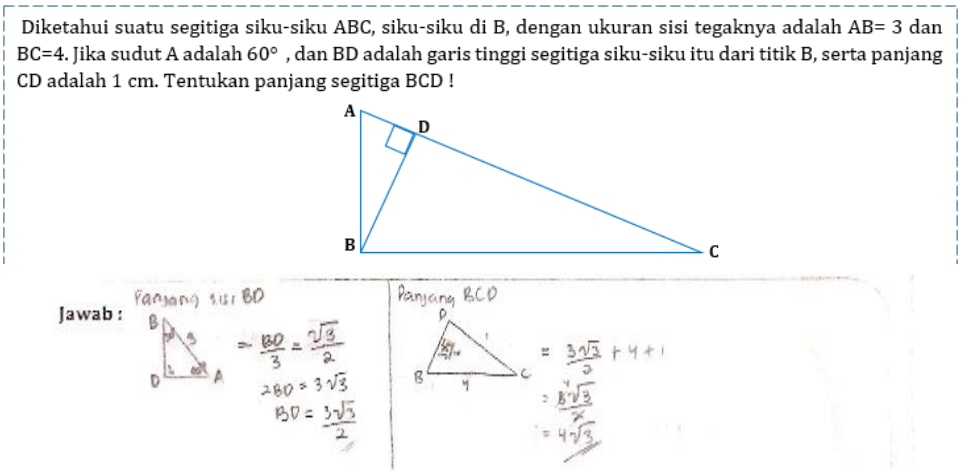


Figure 1. An example students' work in one aspects of critical thinking

In the research conducted by Basri et al (2019), it was concluded that students' critical thinking skills were at a low level. This is supported when the authors conducted a small-scale survey in one of the junior high schools in Kediri Regency, East Java, the fact that students had not searched for the truth of the questions and their answers were also not correct. In fact, one aspect of the disposition to think critically is to always seeking the truth. Examples of student work results can be seen in Figure 1. From Figure 1, it can be seen that students did not re-check their answers. Students do not understand the length of the sides of a triangle. If you use the information that CD=1, AC=5 then AD=5-1=4, then AB=3<4=AD, this is contradictory where the hypotenuse of the triangle is the longest side. From this it can be concluded that students have not thought critically.

Numeration or known as mathematical literacy is an individual's ability to understand and use mathematics in various problem contexts (Goos, et al., 2018). Numeration is needed in all aspects of life, such as at home, at work, and in society (Pratiwi, 2021). When people go shopping, plan a vacation, borrow money from a bank to start a business or build a house, all of them require numeracy skills. So numeration becomes necessary and important. Good numeracy skills can improve a person's critical thinking (Diva, et al., 2022). So that it is important to get used to this numeration in learning or in the questions given by the teacher. Of course, to compile numeracy questions is not arbitrary. The Ministry of Education and Culture (2020) states that the AKM components are cognitive processes, content, and context. Cognitive process components include understanding, application, and reasoning. Content components include numbers, measurement and geometry, data and uncertainty, and algebra. While the context components include personal, socio-cultural, and scientific.

In previous research conducted by Nasution (2020) research on the disposition of critical thinking has been carried out but has not been discussed on each indicator. The results of his research have not described each of the indicators of critical thinking disposition. Therefore, the researcher chose this study which focused on "The students' critical thinking disposition in working on numeracy problems". It is hoped that the research results in the form of a description of students' critical thinking dispositions are able to help teachers when delivering learning in class which will have a positive impact on student learning outcomes.

▪ METHOD

This research is a descriptive qualitative study, because this study examines qualitative data which is then described with the aim of getting a detailed and in-depth picture of students' critical thinking dispositions in solving numeracy problems. The subjects of this study were three grade IX students of one of the junior high schools in Kediri Regency, East Java, with high, medium and low categories. Subject selection was carried out by giving tests to students in class IX, then selected according to predetermined criteria, as shown in Table 1 (Acharya et al., 2013). This technique is suitable for research that will use limited research resources effectively (Campbell et al., 2020). The research implementation time is in the even semester of the 2021/2022 academic year. The instruments used are numeracy questions, student questionnaires, and interview guidelines. Each numeration item represents one or several types of critical thinking disposition indicators that are measured. In addition, numeracy

questions include content components including numbers, geometry, data and uncertainty, and algebra. Selection of number content to trigger proficiency in algebra. While the selection of geometry content to trigger logical thinking and improve spatial understanding. Selection of data content and uncertainty can help in making informed decisions. The purpose of filling out the questionnaire is so that there is a response in accordance with the research. Implementation of interviews as a complement to other data collection and to avoid misinformation. The numeration problem consists of 4 questions covering the components of the problem in the form of numbers, geometry, algebra, data and uncertainty. The interview process was recorded and narrated. Data analysis was carried out by triangulating methods, presenting data in narrative form, and drawing conclusions. The researcher used a triangulation method that showed the relationship between the data collected with numeracy questions, questionnaires, and interviews.

The study began with student activities working on 4 numeracy questions according to indicators of critical thinking disposition. After that, it was continued by filling out student questionnaires with the aim of getting a response according to the research needed. In this study, a closed questionnaire was used so that students were asked to put a checklist ($\checkmark$) on the statement that was appropriate to their situation. The results of student work are then scored according to the rubric that has been arranged according to critical thinking indicators, including: always curious, open-minded, systematic, analytical, always looking for the truth and confident. The subject is then reduced according to the value obtained. Based on research by Rasid, et al (2021), the level of mathematical ability is divided into three categories with P being the value obtained by students from the results of working on numeracy problems. The category of student scores on numeracy questions can be seen in Table 1.

Table 1. Students' score category (Rasid et al., 2021)

Score	
Qualitative	**Quantitative**
High	$80\% \leq P \leq 100\%$
Middle	$65\% \leq P < 80\%$
Low	$0\% \leq \mathrm{P} < 65\%$

After analyzing the results of student work, continued interviews conducted by researchers with each category representative based on Table 1. Interviews were conducted to obtain more accurate information and strengthen research conclusions. After obtaining test results, filling out questionnaires, and interviews, then data analysis was carried out by triangulating methods, presenting data in narrative form, and drawing conclusions. The use of triangulation method aims to obtain a data validity and reduce bias in research.

▪ RESULT AND DISSCUSSION

The results of working on numeracy questions conducted on 36 students showed that 6 students (16.67%) were in the high category, 22 students (61.11%) were in the medium category, 8 students (22.22%) were in the middle category. in the low category. Then the research subjects were selected as representatives of each category. The test results of the three research subjects can be seen in Table 2.

Table 2. The result of numeration test

Code	Numeration test result		
	Gender	**Result**	**Category**
S1	Female	86	High
S2	Male	75	Middle
S3	Female	58	Low

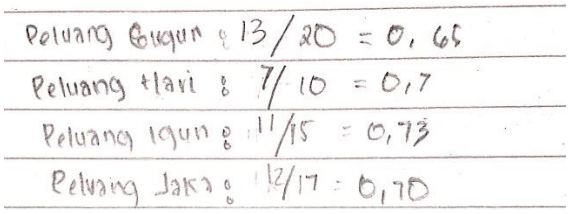
Based on Table 2 S1 is a student with high category, S2 is a student with a medium category, and S3 is a student with a low category. The following are the results of the analysis of 3 subjects from each category based on the results of working on test questions, filling out questionnaires, and interview results.

1) Inquisitiveness

The following are the results of the subject work for the curiosity indicator which are presented in Table 3.

Table 3. Hasil Pengerjaan Siswa dan Angket Indikator Rasa Ingin Tahu

Code	Description
S1	Result d. Merek D : 50/100 × 100.000 = Rp 50.000,00 Rp 100.000,00 − Rp 50.000,00 = Rp 50.000,00 e. Merek E : Beli 1 gratis 1 = Rp 100.000,00 : 2 = Rp 50.000,00 / baju ∴ jadi urutan harga masing-masing merek kemeja dr terendah hingga tertinggi setelah didiskon adlh Merek D → Merek E → Merek C → Merek B → Merek A
	Questionnaire Saya berkeinginan terlibat dalam pertanyaan yang diajukan guru ✓ Saya berkeinginan bertanya ketika menemukan hal yang baru maupun bertentangan dengan saya ✓ Saya memeriksa kembali hasil temuan saat mengerjakan soal numerasi yang diberikan ✓
S2	Result Merek D = 50/100 × 100.000 = 50.000 100.000 − 50.000 = 50.000 Merek E = 100.000 : 2 = 50.000 Urutan harga kemeja dari terendah hingga tertinggi Merek E, D, C, B, A
	Questionnaire

	Saya berkeinginan terlibat dalam pertanyaan yang diajukan guru	✓	
	Saya berkeinginan bertanya ketika menemukan hal yang baru maupun bertentangan dengan saya	✓	
	Saya memeriksa kembali hasil temuan saat mengerjakan soal numerasi yang diberikan	✓	
S3	Result  		
	Questionnaire		
	Saya berkeinginan terlibat dalam pertanyaan yang diajukan guru	✓	
	Saya berkeinginan bertanya ketika menemukan hal yang baru maupun bertentangan dengan saya	✓	
	Saya memeriksa kembali hasil temuan saat mengerjakan soal numerasi yang diberikan	✓	

Based on the first and second statements in the S1 questionnaire agreed with the statement of wanting to ask. Asking activities are allowed when working on test questions but should only be addressed to the teacher and not checking the correctness of the answers. During the interview, S1 also stated that he had asked about the determination of the order. The following is a snippet of the interview with S1

P : *"During the process of working on the question, did you ask any questions?"*

S1: *"Yes, for question number 1 I am confused because brands D and E have the same price after discounting"*

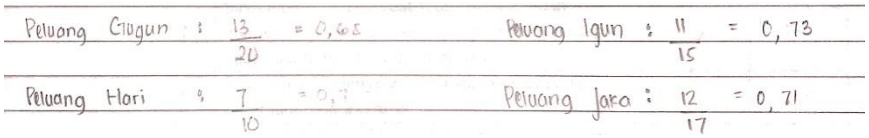
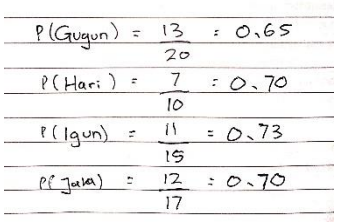
The results of the interview show that S1 has asked. This is in accordance with Watson's (2015) opinion that people who have curiosity are identified as people who are motivated to engage in good questions. In fact, a good question is a question where the questioner really wants to know or understand the answer not for any other reason (Watson, 2015). Supported by filling out the third statement questionnaire and interview results that S1 have re-checked the answers. On numeration question number 1 S1 has also re-examined the findings, it can be seen that S1 is able to draw conclusions correctly based on the answers obtained (Wahyu, et al., 2019). So it can be concluded that the results of S1 work on numeracy questions, filling out questionnaires, and interviews have conformity which shows that S1 has met the various indicators think critically curiosity. Similar to S2, the results of working on numeracy questions, filling out questionnaires, and interviews have shown indicators of critical thinking, curiosity, but the final answer is still not quite right. S2 reverses in sorting brands based on the price of clothes after discount. In the interview, S3 stated that he was involved in questions which showed that S3 already had an indicator of curiosity. S3 admitted to

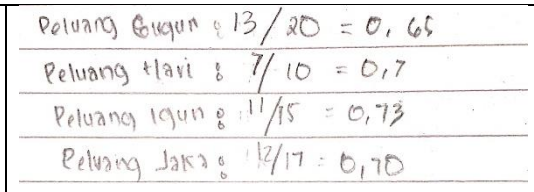
asking question number 2 regarding the intent of the player ranking strategy and the opportunities that have been obtained.

2) Open mindedness

The following are the results of working on the subjects of S1, S2 and S3 for indicators of open thinking on numeracy question number 2 which are presented in Table 4.

Table 1. Results of student work and questionnaire indicators of open mindedness

Code	Description
S1	Result 
	Questionnaire Saya selalu berusaha mengidentifikasi segala kemungkinan jawaban yang terdapat pada soal numerasi ✓ Saya memiliki cara sendiri dalam menyelesaikan soal numerasi ✓ Saya berusaha memberikan alasan logis dalam menyelesaikan soal numerasi ✓
S2	Result 
	Questionnaire Saya selalu berusaha mengidentifikasi segala kemungkinan jawaban yang terdapat pada soal numerasi ✓ Saya memiliki cara sendiri dalam menyelesaikan soal numerasi ✓ Saya berusaha memberikan alasan logis dalam menyelesaikan soal numerasi ✓
S3	Result



Questionnaire

Saya selalu berusaha mengidentifikasi segala kemungkinan jawaban yang terdapat pada soal numerasi	✓	
Saya memiliki cara sendiri dalam menyelesaikan soal numerasi		✓
Saya berusaha memberikan alasan logis dalam menyelesaikan soal numerasi	✓	

Based on the results of working on S1 on numeration question number 2, it can be seen that S1 changed the form from fractions to decimals. This shows that S1 tries to identify all possible answers and has its own way of solving problems according to the first and second statements in the questionnaire. This is in accordance with the opinion of Kwong, et al. (2016) open-minded people have the characteristics of being willing and able to go beyond the general cognitive point of view to benefit from a different cognitive point of view. During the S1 interview, he also gave a logical reason.

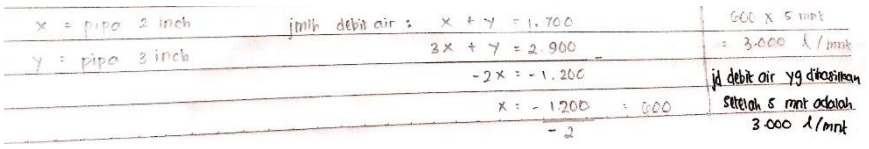
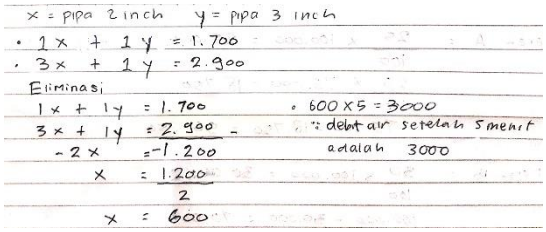
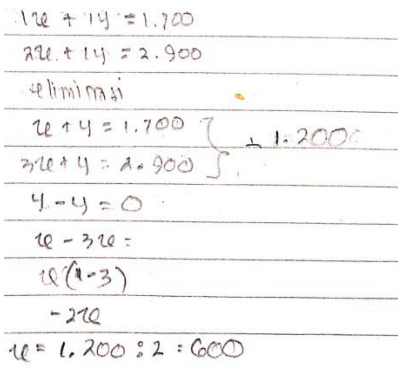
P : *"How was your working process on question number 2*
S1 : *"First, I looked for opportunities for each player. Initially it was still in the form of a fraction after I read that I was asked to sort it so I changed the form to decimal"*
Q : *"Why was it converted to decimal form?"*
S1 : *"In my opinion, because the bottom forms are different, it is easier to sort in decimal form"*

From the results of the interview above, it can be seen that S1 can convey arguments in solving problems which are the characteristics of logical thinking (Ni'Matus in Noviani and Hakim, 2020). So it can be concluded that the results of S1 work on numeracy questions, filling out questionnaires, and interviews have conformity which shows that S1 has met the indicators of open-minded critical thinking. Similar to S2, the results of working on numeracy questions, filling out questionnaires, and interviews have shown indicators of open-minded critical thinking but when converting Jaka's chances into decimal form it is still not quite right. S2 writes that Jaka's odds are 0.70 which means it's the same as Hari's odds. In fact, if S2 is more careful in thinking about possible answers, then it can be obtained 0.71 which means Jaka's chance is greater than Hari. From the results of working on numeracy questions and interviews, S3 has also tried to identify possible answers by changing from fractions to decimals to make it easier when sorting, S3 already has an open-thinking indicator.

3) Systematic

The following are the results of working on subjects S1, S2 and S3 for systematic indicators on numeration question number 3 which are presented in Table 5.

Table 5. Students' work and questionnaire results on systematic indicator

Code	Description
S1	Result  x = pipa 2 inch y = pipa 3 inch jmlh debit air : x + y = 1.700 3x + y = 2.900 -2x = -1.200 x = -1.200 / -2 = 600 600 x 5 mnt = 3.000 l/mnt jd debit air yg dikeluarkan setelah 5 mnt adalah 3.000 l/mnt Questionnaire Saya mampu mengidentifikasi masalah dan menjelaskan kembali permasalahan yang terdapat pada soal numerasi yang diberikan ✓ Saya mampu menyelesaikan soal numerasi yang diberikan secara terurut ✓ Saya yakin menyelesaikan soal numerasi dengan terurut memudahkan dalam pengerjaan ✓
S2	Result  x = pipa 2 inch y = pipa 3 inch 1x + 1y = 1.700 3x + 1y = 2.900 Eliminasi 1x + 1y = 1.700 3x + 1y = 2.900 - -2x = -1.200 x = 1.200 / 2 x = 600 600 x 5 = 3000 ∴ debit air setelah 5 menit adalah 3000 Questionnaire Saya mampu mengidentifikasi masalah dan menjelaskan kembali permasalahan yang terdapat pada soal numerasi yang diberikan ✓ Saya mampu menyelesaikan soal numerasi yang diberikan secara terurut ✓ Saya yakin menyelesaikan soal numerasi dengan terurut memudahkan dalam pengerjaan ✓
S3	Result  1x + 1y = 1.700 2x + 1y = 2.900 eliminasi x + y = 1.700 } - 1.200 3x + y = 2.900 } y - y = 0 x - 3x = x(1-3) -2x x = 1.200 : 2 = 600

	Questionnaire

Saya mampu mengidentifikasi masalah dan menjelaskan kembali permasalahan yang terdapat pada soal numerasi yang diberikan		√
Saya mampu menyelesaikan soal numerasi yang diberikan secara terurut		√
Saya yakin menyelesaikan soal numerasi dengan terurut memudahkan dalam pengerjaan	√	

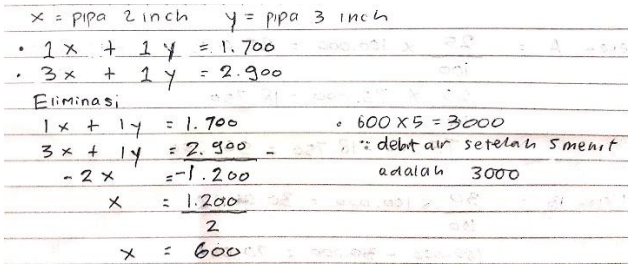
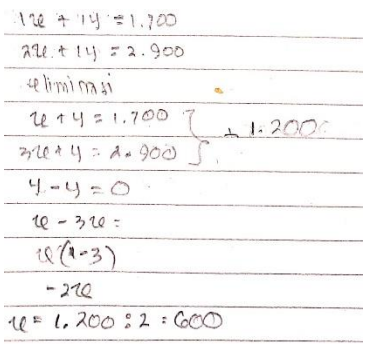
Based on the results of working on S1 on numeration problem number 3, it can be seen that S1 has presented answers in an orderly and orderly manner starting from examples, mathematical modeling, finding values using the application of elimination to determining the final result. S1 also agreed to the second and third statements in the questionnaire. According to Maharani, et al. (2019) exposure to the data shows that S1 has a tendency to be a systematic person. The results of the interview also showed that S1 was able to re-explain the problem. By re-explaining the problem, students can proceed to problem solving to a conclusion. So it can be concluded that the results of S1 work on numeracy, filling out questionnaires, and interviews have conformity which indicates that S1 has met the indicators of systematic critical thinking. Similar to S2, the results of working on numeracy questions, filling out questionnaires, and interviews have shown indicators of systematic critical thinking that distinguish the first statement questionnaire. S2 did not agree with the first statement in the questionnaire, but the results of the interview showed that S2 was able to re-explain the problem. However, for systematic indicators, S3 has not been able to answer in a coherent manner. It can be seen that S3 is constrained in solving the two-variable equation system implied in the problem which results in irregular work. Supported by filling out a questionnaire where S3 admitted that he did not agree with the second statement. Moreover, when the doctoral interview revealed that he had difficulty in finding the value of x so that his work was irregular. So that doctoral degree did not yet have systematic indicators.

4) Analytic

The following are the results of working on subjects S1, S2 and S3 for analytical indicators on numeration question number 3 which are presented in Table 6.

Table 6. Students' work and questionnaire results on analytic indicators

Code	Description
S1	Result
	Questionnaire

	Saya masih ingat dengan materi pembelajaran yang telah saya tempuh sebelumnya ✓ Saya mampu mengaplikasikan rumus matematika dalam kehidupan sehari-hari ✓ Saya mampu menghubungkan materi lalu dengan materi yang baru saya pelajari ✓
S2	Result  x = pipa 2 inch y = pipa 3 inch • 1x + 1y = 1.700 • 3x + 1y = 2.900 Eliminasi 1x + 1y = 1.700 3x + 1y = 2.900 − −2x = −1.200 x = 1.200 / 2 x = 600 • 600 x 5 = 3000 ∴ debit air setelah 5 menit adalah 3000
	Questionnaire Saya masih ingat dengan materi pembelajaran yang telah saya tempuh sebelumnya ✓ Saya mampu mengaplikasikan rumus matematika dalam kehidupan sehari-hari ✓ Saya mampu menghubungkan materi lalu dengan materi yang baru saya pelajari ✓
S3	Result  1x + 1y = 1.700 2x + 1y = 2.900 eliminasi x + y = 1.700 + 1.200 3x + y = 2.900 y − y = 0 x − 3x = x(1−3) −2x x = 1.200 : 2 = 600
	Questionnaire Saya masih ingat dengan materi pembelajaran yang telah saya tempuh sebelumnya ✓ ✓ Saya mampu mengaplikasikan rumus matematika dalam kehidupan sehari-hari ✓ Saya mampu menghubungkan materi lalu dengan materi yang baru saya pelajari ✓

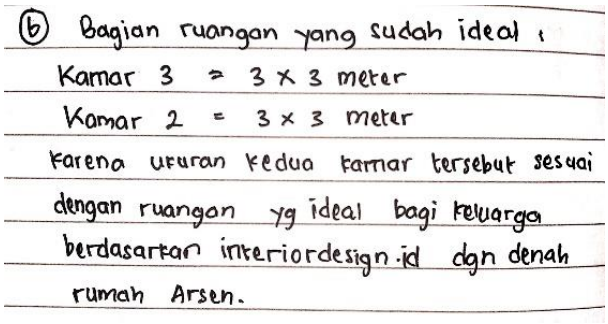
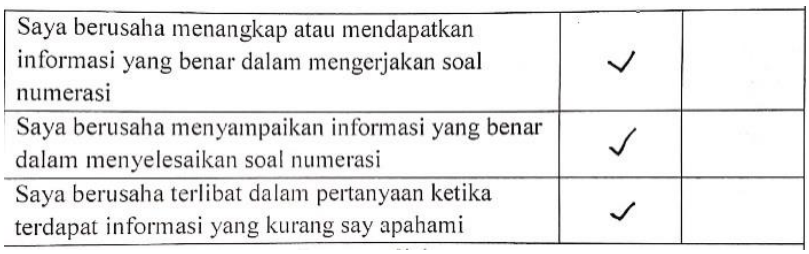
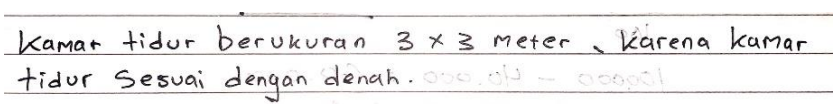
Based on the results of working on S1 on numeration question number 3, it can be seen that S1 still remembers the previous learning material (first statement questionnaire), namely SPLDV (Two Variable Linear Equation System). S1 is also able to apply the material that has been obtained to the problems of everyday life such as question number 3, which is about water pumps in the fields. This is supported by S1 agreeing to the second and third statement questionnaires. This is in accordance with the

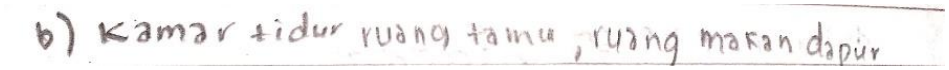
opinion of Ware and Rohaeti (2018) that the indicators of analytical thinking include skills in understanding concepts, skills in identifying, applying concepts, and connecting. So it can be concluded that the results of S1 work on numeracy, filling out questionnaires, and interviews have conformity which shows that S1 has met the indicators of analytical critical thinking. Similar to S2, the results of working on numeracy questions, filling out questionnaires, and interviews have shown indicators of analytical critical thinking. There is a small error in the application of the concept of elimination, the writing is still not quite right. There are less operations with symbols that do not match. While S3 has not been able to remember the previous learning material. This can be seen in the work on the elimination section. In the interview, S3 revealed that he had not been able to determine the value of x or y by using elimination or other methods. This indicates that S3 does not yet have analytical indicators.

5) Truth Seeking

The following are the results of working on subjects S1, S2 and S3 for indicators of seeking truth in numeration questions number 4 which are presented in Table 7.

Table 7. Students' work and questionnaire results on truth seeking indicators

<table>
<tr><th>Code</th><th>Description</th></tr>
<tr><td rowspan="2">S1</td><td>Result
 
(b) Bagian ruangan yang sudah ideal :
Kamar 3 = 3 x 3 meter
Kamar 2 = 3 x 3 meter
Karena ukuran kedua kamar tersebut sesuai dengan ruangan yg ideal bagi keluarga berdasarkan interiordesign.id dgn denah rumah Arsen.</td></tr>
<tr><td>Questionnaire
 
<table><tr><td>Saya berusaha menangkap atau mendapatkan informasi yang benar dalam mengerjakan soal numerasi</td><td>✓</td><td></td></tr><tr><td>Saya berusaha menyampaikan informasi yang benar dalam menyelesaikan soal numerasi</td><td>✓</td><td></td></tr><tr><td>Saya berusaha terlibat dalam pertanyaan ketika terdapat informasi yang kurang say apahami</td><td>✓</td><td></td></tr></table></td></tr>
<tr><td>S2</td><td>Result
 
Kamar tidur berukuran 3 x 3 meter , karena kamar tidur sesuai dengan denah.</td></tr>
</table>

	Questionnaire Saya berusaha menangkap atau mendapatkan informasi yang benar dalam mengerjakan soal numerasi ✓ Saya berusaha menyampaikan informasi yang benar dalam menyelesaikan soal numerasi ✓ Saya berusaha terlibat dalam pertanyaan ketika terdapat informasi yang kurang say apahami ✓
S3	Result  b) kamar tidur ruang tamu, ruang makan dapur Questionnaire Saya berusaha menangkap atau mendapatkan informasi yang benar dalam mengerjakan soal numerasi ✓ Saya berusaha menyampaikan informasi yang benar dalam menyelesaikan soal numerasi ✓ Saya berusaha terlibat dalam pertanyaan ketika terdapat informasi yang kurang say apahami ✓

Based on the results of working on the S1 on numeration question number 4 and filling out the questionnaire, it can be seen that S1 has captured the information on the questions correctly. This is contained in the reasons stated by S1 in the results of the work, which means that S1 has also conveyed the correct information. In line with the opinion of Kurniati, et al. (2019) that truth seekers are accustomed to checking the truth of problems so that they can take the right decisions in problem solving. So it can be concluded that the results of S1 work on numeracy, filling out questionnaires, and interviews have conformity which indicates that S1 has met the indicators of critical thinking in seeking the truth. In contrast to S2, the results of the work on the numeration question number 4 part b show that the critical thinking indicators for seeking the truth have not been fulfilled. S2 has not captured the correct information (the first statement in the questionnaire) in the question, namely the ideal house criteria section based on interiordesign.id. S2 uses unfounded reasons so that the information conveyed is still not correct (second statement in the questionnaire). In the results of working on the S3 test questions, they have not caught the correct information with the questions. This also happened to S2. During the interview, S3 was silent when asked about the reasons for the written answers. So it can be concluded that S3 does not yet have an indicator of seeking the truth.

6) Self Confidence

The following are the results of working on S1, S2 and S3 subjects for the confidence indicators on numeration question number 2 which are presented in Table 8.

Table 9. Students' work and questionnaire results on self-confidence indicators

Code	Description
S1	Result jdi tim A dpt berpeluang menang jika urutan pemain dilakukan dri Igun, Jaka, Gugun, Hari Questionnaire Saya yakin dengan jawaban yang saya temukan pada soal numerasi yang diberikan ✓ Saya yakin mampu menyelesaikan soal numerasi lain dengan benar ✓ Saya yakin dapat mengaplikasikan ilmu matematika pada kehidupan sehari-hari ✓
S2	Result Urutan Pemain Melakukan tendangan Penalti berpeluang Menang , Igun : 0,73 Jaka : 0,70 Hari : 0,70 gugun : 0,65 Questionnaire Saya yakin dengan jawaban yang saya temukan pada soal numerasi yang diberikan ✓ Saya yakin mampu menyelesaikan soal numerasi lain dengan benar ✓ Saya yakin dapat mengaplikasikan ilmu matematika pada kehidupan sehari-hari ✓
S3	Result urutan Pemain melakukan tendangan penalti Igun 0,73 - Jaka 0,70 - Gugun 0,65 - Hari 0,7 Questionnaire Saya yakin dengan jawaban yang saya temukan pada soal numerasi yang diberikan ✓ Saya yakin mampu menyelesaikan soal numerasi lain dengan benar ✓ Saya yakin dapat mengaplikasikan ilmu matematika pada kehidupan sehari-hari ✓

Based on the results of working on S1 agree with the first and third statements and disagree with the second statement on the questionnaire. However, the results of the interview show that S1 believes that he is capable of certain conditions. The following are the results of the interview with S1

P : *"After doing all the questions, are you sure about your answers?"*
S1: *"Yes, I'm sure"*
P : *"Are you sure you can solve other numeracy problems correctly?"*
S1: *"Actually I'm sure if I've studied before"*

From the results of the interview above, S1 is confident in his ability to do numeracy problems. Supported with good results. With confidence in their abilities, it indicates that S1 fulfills the indicators of self-confidence critical thinking (Kunhertanti & Santosa, 2018). In contrast to Masters, at the time of the interview, Masters stated that he was not ready when working on numeracy questions, causing him to lack confidence in his answers and tend to confirm the answers to other friends first. The activity of confirming answers to friends first indicates that the level of confidence in master's degree is still low (Kushartanti, 2009). Then it is stated that S2 does not have confidence indicators. The results of filling out the questionnaire stated that S3 did not agree with all the statements in the questionnaire. S3 is not confident in his mathematical abilities. This was also stated during the interview.

▪ CONCLUSION

The results of the study found that students had met the critical thinking indicators, namely: (1) curiosity by asking the teacher, (2) open thinking by identifying all possible answers and having their own way of solving problems, (3) systematically by how to present answers regularly and sequentially starting from examples, mathematical modeling, looking for values by using the application of elimination to determine the final result, (4) analytically seen from students still remembering the previous learning material, namely SPLDV (Two Variable Linear Equation System) and also able to applying the material that has been obtained to problems of daily life, (5) seeking the truth by giving reasons in the results of the work which means that they have conveyed the correct information, (6) self-confidence can be seen from students believing in their ability to work on numeracy problems. The following conclusions are drawn from each category of students, namely the high category meets the indicators of critical thinking, curiosity, open thinking, systematic, analytical, truth-seeking, and confident. Students in the medium category meet the indicators of critical thinking, curiosity, open thinking, systematic, and analytical. While students with low categories meet the indicators of critical thinking, curiosity and open thinking. Based on the results and discussion of the research, it can be concluded that of the three students, all of them have different levels of critical thinking disposition indicators.

The results of the study stated that the three students with different categories also met different indicators of critical thinking dispositions. This will affect the learning outcomes. For this reason, so that students can fulfill all indicators of critical thinking, teachers can use learning models that are able to encourage self-confidence, seek truth, be analytical and systematic, especially in learning mathematics. This research is still limited to just describing how students fulfill their critical thinking indicators, not yet examining the factors that influence this. For this reason, research is still open to examine in more detail what factors affect each indicator of students' critical thinking dispositions so that they are able to assist teachers in choosing the right learning model.

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