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The Mathematical Reasoning of the Quran Reciting Student by the Quran Recitation Ability

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Abstract. Reciting the Quran is a good habit that can improve people's cognitive abilities, including reasoning. However, according to Bloom's theory, memorization is categorized as the lowest cognitive domain, while according to NCTM, the reasoning is included in the higher-order thinking process. Hence, there is a contradiction in theories of thinking. This study aims to describe the type of reasoning of reciting the Quran students based on their recitation of the Quran ability. This research method is qualitative with a case study approach. The instrument used in this study was a reasoning test and interview guidelines. The results showed that 3 of 4 subjects with high recitation ability used creative reasoning, only one with medium recitation ability used algorithmic reasoning, and none with low recitation ability used a specific reasoning type.

Keywords: Mathematical Reasoning; The Quran Recitation Ability; The Quran Reciting Student

Abstrak. Menghafal Al-Qur'an merupakan kebiasaan baik yang dapat meningkatkan kemampuan kognitif manusia termasuk penalaran. Namun, menurut teori Bloom, hafalan dikategorikan sebagai ranah kognitif terendah, sedangkan menurut NCTM, penalaran termasuk dalam proses berpikir tingkat tinggi. Oleh karena itu, terdapat kontradiksi dalam teori-teori pemikiran. Penelitian ini bertujuan untuk mendeskripsikan jenis penalaran siswa penghafal Al-Qur'an berdasarkan kemampuan mereka dalam menghafal Al-Qur'an. Metode penelitian ini adalah kualitatif dengan pendekatan studi kasus. Instrumen yang digunakan dalam penelitian ini adalah tes penalaran dan pedoman wawancara. Hasil penelitian menunjukkan bahwa 3 dari 4 subjek dengan kemampuan menghafal tinggi menggunakan penalaran kreatif, hanya satu subjek dengan kemampuan menghafal sedang yang menggunakan penalaran algoritmik, dan tidak ada subjek dengan kemampuan menghafal rendah yang menggunakan jenis penalaran tertentu.

Keywords: Kemampuan Menghafal Al-Qur'an; Penalaran Matematis; Siswa Penghafal Al-Qur'an

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INTRODUCTION

The Prophet Muhammad was known as a messenger who could not read and write, but he was very intelligent and had a strong recitation (Rohana & Iskandar, 2021). The Prophet Muhammad received and recited the revelation and taught it to his companions by reciting the revelation. While the companions listened carefully, recited, and reread the verse to the prophet to ensure no verse was missing (Gade, 2014). Reciting the Qur'an can activate the left brain as the center of logical and linear thinking (Firdausi, 2017; Munawaroh & Haryanto, 2005). If the left brain's ability is often honed, then a person's thought process will be dominant with the left brain (Munawaroh & Haryanto, 2005). On the other hand, mathematics is a system of relationships that stimulates one's reasoning and has a relationship between basic reasoning skills and mathematical thinking that produces many opportunities to generate new insights (Morsanyi et al., 2018).

The reasoning is an important aspect of solving everyday problems (Sukirwan & Muhtadi, 2018; Putra et al., 2020). Reasoning is defined as a rationale adopted to produce a statement and conclusion when solving a problem (Bergqvist & Lithner, 2012). At the same time, mathematical reasoning ability is one of the abilities that must be possessed by every student (Sayuri et al., 2020) and is a requirement for students to be able to master mathematics (Rosnawati, 2013). Some countries, such as the United States and England, also emphasize the development of logical-mathematical reasoning in mathematics learning (Bunge & Leib, 2020; Smith in Cresswell & Speelman, 2020).

Lithner defines reasoning in mathematics into creative reasoning and imitative reasoning (Bergqvist & Lithner, 2012). Based on Creative Mathematical Founded Reasoning (CMR), creative reasoning (CR) includes three things. The first is creativity or having creativity in creating new reasoning (novelty) or re-creating existing and forgotten reasoning smoothly and flexibly. The second is plausibility or reasonableness in the sense that there are arguments that can explain why this can happen with the correct conclusion. And the last one is anchoring arguments, or some arguments refer to the mathematical nature of the answer to the mathematical problem. In other words, it tries to defend opinions or arguments with mathematical concepts (Bergqvist & Lithner, 2012).

Imitative reasoning is divided into Memorized Reasoning (MR) and Algorithmic Reasoning (AR). Memorized reasoning is choosing a strategy for determining answers based on memory and only writing them down, and when the students can apply those strategies or concepts they have had before, that is called algorithmic reasoning (Bergqvist & Lithner, 2012). In the application of problem-solving strategies, Lithner (2008) defines a person's reasoning structure, namely: (1) Problematic situation; (2) Strategy choice; (3) Strategy implemented; (4) Conclusion.

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The theory about reasoning used in this research is Lithner's reasoning theory because there are many similar concepts to the reciting students. Creative reasoning can be had by the students who create a new solution and use their high thinking skills which is also owned by the reciting student. Besides that, the relation between imitative reasoning and the reciting students is always training their memorization ability to strengthen their memory. Therefore they will easy to remember the solution algorithm of their teachers. Beside that, Rosdiana & Ikrimah (2020) argue that a reasoning ability occurs in the brain and is related to the ability to remember, and the results of research conducted by Brained & Reyna, as published in Rustam (2021), said that the accuracy of reasoning depends on the accuracy of one's memory.

Reciting the Quran is a good habit cause it can activate the brain to memorize, control, present, and store something that has been obtained to be recalled in the future (Bahrudin in Gunarta, 2019). Furthermore, that there is a relationship between reciting the Qur'an and academic achievement because the students who recited the Quran had better mathematics learning achievements than students who did not, and also it has positively correlates with mathematics achievement (Al Hafiz et al., 2016; Faiziyah, 2018; Romi et al., 2018). Beside that, reciting the Quran can increase children's IQ (Slamet, 2019). However, according to the theory put forward by Bloom, reciting is a cognitive process that is categorized into the lowest cognitive domain or knowledge (Gunawan & Palupi, 2012). In contrast, the NCTM explains that the reasoning process is included in the higher-order thinking process (Abdullah, 2016).

Recently, many studies have suggested that the ability to recite the Qur'an is related to a person's reasoning ability. Reciting the Al-Quran positively and significantly impacts mathematical reasoning abilities and there was a correlation between students who also recited the Al-Quran and with mathematical logic abilities (Rosdiana & Ikrimah, 2020; Sugilar et al., 2020). The results of the research above are corroborated by Jazuli (2013) which showed that in the creative thinking process, students with relatively large memorization have the advantage of using flexible and new srategies in the answer completion process. From the research above, reciting the Qur'an has a tremendous effect on a student's reasoning ability. In the other hands, everyone needs good reasoning ability to master the job requirements that students will pursue in the future to keep pace with technological advances that are growing very rapidly (Bunge & Leib, 2020) and also, with good reasoning skills, one can make the right decisions in their lives (Bunge & Leib, 2020).

Regarding the explanation that the author has conveyed, the author is very interested in this case because there are different theories from different perspectives. From Munawaroh & Haryanto (2005), students who always train their left brain, such as by memorizing the Quran, might get good thinking skills. That statement is strengthened by much previous research, such as Rosdiana & Ikrimah (2020), Sugilar et al. (2020), and Jazuli (2013) saying that students who have

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memorized many sections of the Quran also have a good ability in reasoning. But, based on NCTM and Bloom's theory, there is no linear connection between memorization skills and reasoning skills because they have different points and are impossible if they relate to each other. In this research, the author wants to know how the type of reasoning of IMTAQ Shigor Isy Karima students, based on Lithner's reasoning theory, remembers that a reciter of the Quran has many features, one of which is in terms of cognitive intelligence.

METHOD

The method of this research is qualitative with a case study approach. This research was conducted at I'dadul Mu'allimin Tahfizhul Qur'an (IMTAQ) Shighor Isy Karima in Karanganyar, Central Java, from September to December 2021. IMTAQ Shighor Isy Karima is an Islamic Junior High School which have a special program for reciting the whole of the Quran as well as students' abilities. The subject selection procedure used is a purposive sampling technique. The subjects of this research are 8 eighth-grade students consisting of 4 students with high recitation ability, 2 students with medium recitation ability, and 2 students with low recitation ability based on the student's achievement of reciting the Quran on August 2021. The students with more than 15 juz recitation achievements were categorized as having high recitation ability. In comparison, the students with recitation achievements of 12-14 juz were categorized as having medium recitation ability. And the students with recitation achievements were less than 12 juz were categorized as having low recitation ability.

Table 1. The Research Subjects

Recitation Ability	Students' Number	Subjects' Code	Recitation Achievement
High Recitation Ability	4	S_1	22,20 Juz
	59	S_2	15,10 Juz
	63	S_3	14,06 Juz
	69	S_4	25,01 Juz
Medium Recitation Ability	3	S_5	13,20 Juz
	24	S_6	12,07 Juz
Low Recitation Ability	60	S_7	9,01 Juz
	20	S_8	11,19 Juz

Actually, the total of instrument used in this study is 9 questions, which the first 3 questions are designed to bring up students' memory reasoning, and other 6 questions are made to bring up students' algorithmic or creative reasoning, but only question 1, 6, and 9 giving a good result so they can be researched, and the other questions are reduced. The instrument used in this study is adapted from Lithner (2008). The researchers also use the interview to define how the subject solved the problem and where they found the method (by creating a new solution or just

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remembering and following their teachers' solution). The questions of reasoning test can be seen on Table 2.

Table 2. Reasoning Test

No.	Questions
1.	Notice the statements below. A. There is a set of whole numbers which is not part of the set of natural numbers B. There is a set of natural numbers which is not part of the set of whole numbers Which one the correct statement? Give an explanation about it.
6.	A car spends 8 liters of gasoline to cover a distance of 56 km. If the distance covered is 84 km, how many liters of gasoline are needed?
9.	A farmer has 25 livestock such as goats and chickens which are placed in one cage. When the farmer's son peeked under the door of the barn and counted the legs of the animals in the pen, there were 70 animal legs in the pen. Can you help the child determine how many goats and chickens are in the pen?

The data collection is carried out by grouping students' recitation achievements into 3 categories (high, moderate, and low), giving a reasoning test, judging the type of students' answers, selecting research subjects as interviewees, and conducting interviews. The reasoning test questions and interview guidelines have been through content validation tests by 4 experts. The data were validated using the triangulation of method. The data were concluded to be correct if the test results with interview data were complementary and matched. Lastly, the data were analyzed descriptively.

RESULTS AND DISCUSSION

Types of Mathematical Reasoning Students Recite Al-Quran with High Memorization Ability

An indication of introduction in all of the questions, all subjects in this group, subject 1 to subject 4, can understand the problems in the question well. However, some needed to write down the information in the questions on the answer sheet.

An indication of strategy choice in question 1, 6, and 9 has a different explanation. Look at Table 3.

Table 3. Strategy Choice for High Memorization Ability

Questions	Subjects			
	S1	S2	S3	S4
1	Cannot determine the strategy	Recalling the concept or definition	Recalling the concept or definition	Recalling the concept or definition
6	Recalling the formula from the teacher	Create a new strategy (novelty)	Create a new strategy (novelty)	Create a new strategy (novelty)
9	Using the formula that the teacher has given	Create a new strategy (novelty)	Create a new strategy (novelty)	Create a new strategy (novelty)

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An indication of strategy implementation in question 1, only subject 2 can apply the strategy well. Even tough subject 3 and 4 can choose their strategy, they can not apply it well. Here the explanation of subject 2 about his answer on the answer sheet.

$S_{2,1}$: *"This is the other way around. Earlier, I thought that the whole number was from 1, then the real number was from 0. Now, when I was working on it, I remembered that it was the other way around."*

P : *"Okay, so which one is correct? And why"*

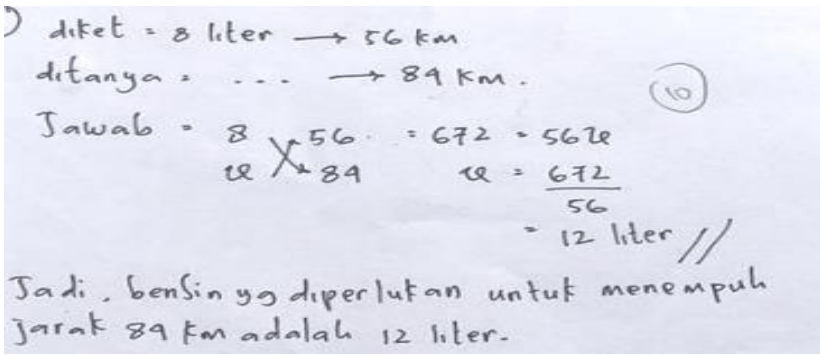
$S_{2,1}$: *"Which A is correct, miss. Because the whole number is from 0 to the next."*

P : *"Then you think that the B option is wrong, right? Why can it be?*

$S_{2,1}$: *"Because there shouldn't be Ms. The natural numbers from 1,2,3,4, and so on. If the whole number, it is from 0 miss. That means it covers everything in whole numbers."*

Subject 2 can provide the right argument regarding the selected answer based on the interview. In contrast to subject 2, the other three subjects in this group have yet to be able to provide correct arguments.

In question 6, all subjects in this group could apply the previously determined strategy correctly but with a different type of reasoning. Subject 1 uses the AR type because the answer completion process is carried out only by applying the completion steps according to the problems that have previously been done. Subject 1 can also explain the completion steps well, so subject 1 does understand the completion process. The answer of subject 1 can be seen on Figure 1.



Given 8 liters for 56 km.

Asked how many liters for 48 km.

Answer:

x equals 8 times 84 divided by 56 equals 12 liters.

So, the gasoline needed to cover a distance of 84 km is 12 liters.

Figure 1. Results of Subject 1's Answer to Question 6 who used AR

In contrast to subject 1, the other three subjects used the CR type. On the answer sheet, there is no completion step written by subject 2, so subject 2 immediately writes only 12 liters. At the time of the interview, subject 2 understood the existing problems, so he could explain the process of solving and implementing the strategy he had just made. Look at the conversation below.

P : *"Tell me about the method you used to do this."*

$S_{2,6}$: *"Firstly, 56 was divided by two, then the result was added to itself. Now it means the same thing, divide the 8 liters by 2, and then add to 8. So, add 4 and 8, then I get 12 liters."*

P : *"Why do 8 liters have to be divided by two?"*

$S_{2,6}$: *"Since 84 km is the result of the addition of 56 km and its half."*

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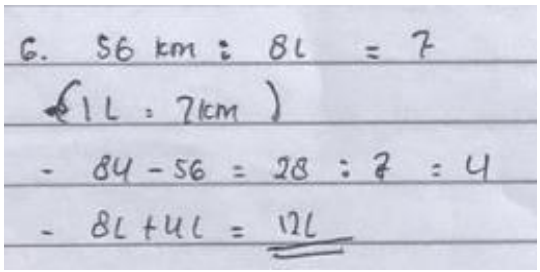
Subjects 3 and 4 wrote down the completion process on the answer sheet and explained the flow of completion well. Subjects 2, 3, and 4 can defend their new strategy and show that it is correct. The strategy that was used by them can be seen on Figure 2.



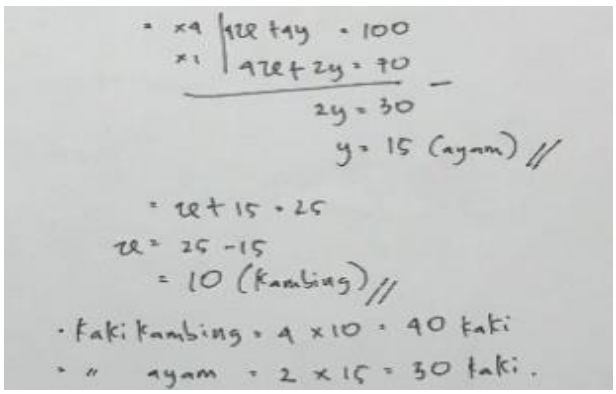
56 km needs 8 liters. It means 1 liter for 7 km per liter. (*Subject do not use proper units*)

The difference between 84 km and 56 km is 28 km. It needs 4 liters. (*Subject do not use units*)

So, we need 8 liters and 4 liters or a total of 12 liters.

Figure 2. Results of Subject 3's Answer to Question 6 who used CR

In question 9, all subjects in this group can complete the complete process correctly and can explain the process of completing the answers that have been done correctly. Similar to question 6, in this number, subject 1 uses the AR type, and the other three subjects use the CR type. Subject 1 can apply the elimination and substitution method well so that he can find the number of chickens and goats correctly, as in Figure 3.



Eliminate 4x from 4x + 4y = 100 and 4x + 2y = 70. So, we get y = 15 (cocks/hens).

Substitute y = 15 to x + y = 25. So, we get x = 10 (goats).

Goats' legs are 4 times 10 or 40 legs.

Cocks/hens' legs are 2 times 15 or 30 legs.

Figure 3. Results of Subject 1's Answer to Question 9

P : *"Okay, why did you multiply by 4, then the bottom one, you multiply by 1?"*

$S_{1,9}$: *"Because it has to equate to the x."*

P : *"Oh, I see. What is the purpose of the elimination? And why is this deducted?"*

$S_{1,9}$: *"To get the y, and to make the x becomes 0. Finally, I found x is equal to 15. So it means 15 chickens. Then the second method, because I've already found x, so just putting it in here "*

P : *"It means that every time you solve questions like this, you use this way to find the second variable?"*

$S_{1,9}$: *"Yes."*

In contrast to subject 1, the other three subjects use logic to solve existing problems (novelty). In this number, the new strategy made by the three subjects tends to be similar, namely by guessing the number of chicken and goat legs, which is then tested with the information in the problem, namely the total number of animals must be 25 and the total number of legs must be 70 feet. If there are different results, they will look for other numbers until the number of chicken and

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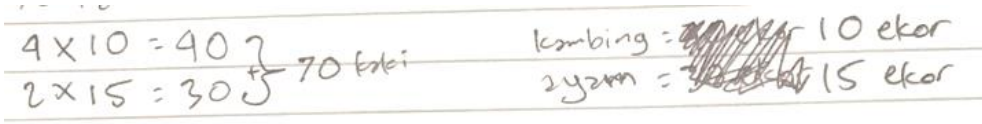
goat legs matches the information in the problem, as shown in Figure 4. The following is an example of the complete process of subject 4.



Goats' legs are 4 times 10 or 40 legs.

Cocks'/hens' legs are 2 times 15 or 30 legs.

It sums exactly 70 legs.

It means there are 10 goats and 15 cocks/hens.

Figure 4. Results of Subject 4's Answer to Question 9

P : "Tell me how you use it."

$S_{4,9}$: "A goat has 4 legs, right? So the total number of legs is 70. Then I multiply 4 by 10, and it is equal to 40."

P : "Why are you suddenly multiplying by 10? Why not another number?"

$S_{4,9}$: "Because there are 25 animals."

P : "Then how do you prove your answer is correct? Because you didn't use the formula."

$S_{4,9}$: "Like this. One goat has 4 legs. Now 4 legs times 10, then I got 40 legs. Then the chicken has 2 legs, then it is multiplied by 15, then I got 30 legs. So if I sum both of them, I got 70 feet."

An indication of conclusion, in question 1, only subject 2 can get the correct and correct conclusion even though at first he wrote the wrong answer on the answer sheet. Because the other three subjects do not have strong concepts related to whole numbers and natural numbers, they need help to get the right conclusions. In question 6 and 9, all subjects can conclude the problem correctly from the process of solving the answers they have done. Although the type of reasoning they use is different, they still get the same conclusion.

Based on the research results, the reasoning of subject with high reciting ability can be seen on Table 4.

Table 4. The Reasoning of Student Reciting Quran with High Reciting Ability

Questions	**Subjects**			
	S1	**S2**	**S3**	**S4**
1	-	MR	-	-
6	AR	CR	CR	CR
9	AR	CR	CR	CR

Based on Table 4, subject 1 always use AR in question 6 and 9. The research results obtained are in line with Manasikana & Junaedi (2021) who argued that high memorization fulfills all elements of reasoning. Subject 1 can do all of the reasoning elements well.

Based on the research results from other 3 subjects, in question 1, specifically designed to bring up the reasoning process of students' memory (MR), only subject 2 can answer well and fulfill all stages of mathematical reasoning. This fact is in line with Baddeley's (1988) theory which says that a person's memory can be lost. Hence, Nawaz & Jahangir (2015) argue that a recited Al-

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Quran verse should be repeated continuously. The memory of theories and definitions of mathematical concepts should also be re-learned to avoid being forgotten.

In questions 6 and 9, subjects 2, 3, and 4 use CR type. The results that have been found follow the research conducted by Rosdiana & Ikrimah (2020) that reciting the Al-Quran has a positive and significant effect on mathematical reasoning abilities. In addition, the results of the research that have been found are strengthened by research conducted by Jazuli (2013) that in the creative thinking process, students with relatively large memorization have the advantage of using flexible strategies in the answer completion process. In addition, they also dare to try new strategies that can be used to solve the problems given (Jazuli, 2013).

Types of Mathematical Reasoning Students Recite Al-Quran with Moderate Reciting Ability

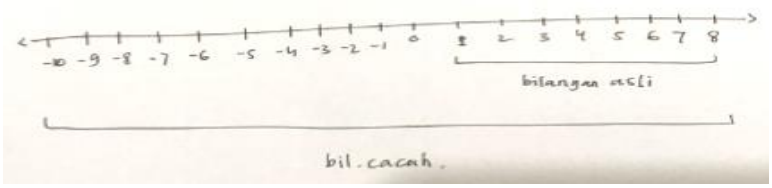
An indication of introduction in question 1, subject 5, and subject 6 can help understand the information on the problems that have been given. Some chose not to write down the information and immediately answered the questions.

An indication of strategy choice in question 1, 6, and 9, each subject has its argument. Look at Table 5.

Table 5. Strategy Choice for Moderate Memorization Ability

Questions	Subjects	
	S5	S6
1	Cannot determine the strategy	Remembering the concept or definition
6	Recalling the process of solving the previous problem	Recalling the process of solving the previous problem
9	Making a new strategy	Recalling the process of solving the previuos problem

As an indication of strategy implementation in question 1, both subjects failed to implement the previously chosen strategy. It is because they need to understand natural and whole numbers concepts. Although the answers they wrote on the answer sheet at first showed the correct results, they could not explain their answers clearly at the time of the interview. Subject 5 made up the answer because, from the previous stage, he did not understand natural numbers and whole numbers. The same thing happened to subject 6, who could not give a valid reason for the answer that had been written (see Figure 5).



1 to 8 are integers.

Overall (-10 to 8) are whole numbers.

Figure 5. Results of Subject 6's Answer to Question 1

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P : "Okay, so what's your answer?"

$S_{6,1}$: "The A one. Because the whole numbers also include natural numbers and non-natural numbers."

P : "Hahaha, the non-natural number? What is it mean?"

$S_{6,1}$: "Eee that one hahaha (pointing to his answer sheet)"

P : "Then?"

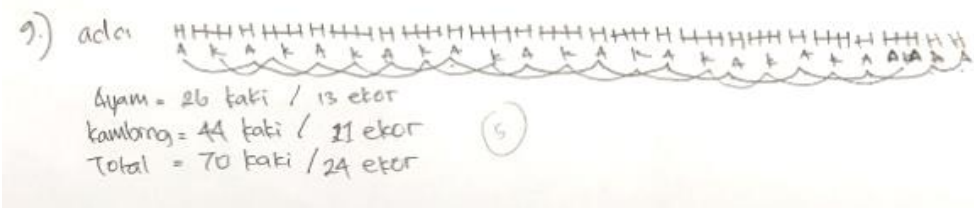
$S_{6,1}$: "Then the whole numbers are numbers that consist of 1, 2, 3, and so on, basically positive numbers. Well, if it's a whole number, it's a number that includes positive, zero, and negative numbers. So, whole numbers do not consist of natural numbers only."

P : "Then how do you prove that B option is wrong?"

$S_{6,1}$: "The B is incorrect because all natural numbers are whole numbers.

Although at first, he made a good step by making a number line to facilitate the proofing process, it turned out that his definition of whole numbers and natural numbers was wrong, and at the time of proving, he explained the wrong things. In question 6, both subjects were able to apply the strategy well. Both subjects used the AR type when solving the problem. At the time of the interview, they could explain the completion steps very well, so it was seen that they understood the completion process that had been carried out. In question 9, subject 5 failed to implement the chosen strategy.

In contrast, subject 6 implemented the strategy well and explained the completion steps that had been carried out correctly and clearly, so that subject 6 used the AR type on the problem. Subject 5 wrote down the wrong result on the answer sheet. After checking, it turned out that subject 5 could not maximize the information provided in the question and needed clarification about the direction of the strategy (see Figure 6).



There are 2 legs for every single cock/hen and 4 legs for every single goat.

There are 26 legs cocks/hens so 13 cocks/hens are exist.

And there are 44 goats so 11 goats are exist.

Overall there are 70 legs or 24 cocks/hens and goats.

Figure 6. Results of Subject 5's Answer to Question 9

P : "How about your answer here? Explain to me, please."

$S_{5,9}$: "The picture of the legs is 70. Then, because I can't think anymore, hehe, I just made a bond like two, or four. So you can see here that there are 2 chicken legs, and 4 goat legs, right? Then two, four, two, four, that's it."

As an indication of the conclusion in question 1, the two subjects could not get the correct conclusion from the given problem because they did not understand natural numbers and whole numbers well from the previous stage. In question 6, both subjects could conclude the problems

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given well, while in question 9, only subject 6 succeeded in concluding the problems that had been given correctly. It is because, in the previous stage, subject 5 failed to implement the strategy, so he did not get the correct results from the completion process.

Based on the research results, the reasoning of subject with moderate reciting ability can be seen on Table 6.

Table 6. The Reasoning of Student Reciting Quran with Moderate Reciting Ability

Questions	Subjects	
	S5	S6
1	-	-
6	AR	AR
9	-	AR

By Table 6, in question 6, subject 5 and subject 6 can use the AR process well. In question 9, just subject 6 uses AR. The idea raised by subject 5 is actually good, but subject 5 needs to understand the information provided well, so subject 5 fails to use the strategy that has been made. This fact is contrary to the results of research conducted by Sajiman & Hasbullah (2021), which says that someone who learns by reading the Quran significantly affects mathematical reasoning abilities, so to optimize mathematical reasoning skills, one can start by reading the Quran. Subject 5 is only included in the group of moderate memorization abilities, but someone who has recited the Quran in his day-to-day must always read the Qur'an.

The strategy selection used by subject 6 is AR, and he can do all of the reasoning steps well. The results of the research are not in line with the results of research conducted by Manasikana & Junaedi (2021) that students with moderate memorization abilities only meet the elements of reasoning information and concepts and ideas that are precise, relevant, and not deep. Subjects in moderate memorization are indeed dominated by imitative reasoning because the reasoning process only imitates the previous work's steps. However, even though subject 5 made an error when working on question 9, they could draw the correct conclusion at the time of the interview. It was just not written on the answer sheet.

Types of Mathematical Reasoning Students Recite Al-Quran with Low Reciting Ability

An indication of introduction, in question 1, subject 7 and subject 8 can understand the problems given well. They can understand the information in the question, but some need to write it down on the answer sheet.

Each subject has its theory as an indication of strategy choice in questions 1, 6, and 9. Their theories can be seen in Table 7.

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Table 7. Strategy Choice for High Memorization Ability

Questions	Subjects	
	S7	**S8**
1	Recalling the material related to whole numbers	Remembering the concept or definition
6	using the steps of completion that have been used before, which will later be used to solve the given problem	Recalling the process of solving the previous problem
9	Making a new strategy	Making a new strategy

As an indication of strategy implementation in question 1, both subjects could not apply the strategies chosen in the previous stage well. At the time of the interview, it turned out that they needed help understanding the material related to natural numbers and whole numbers, so their application to the problems they had done was wrong.

P : "Why did you choose to answer the B statement?"

$S_{7,1}$: "Because I remembered the previous lesson. But I forgot about the whole number"

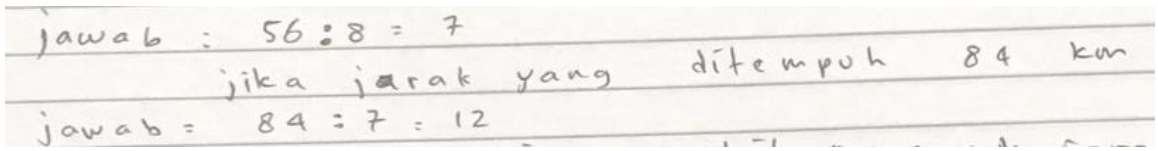
P : "Okey, in your opinion, a natural number is a number that starts with what number?"

$S_{7,1}$: "One."

P : "So, if a whole number, what number will it begin?"

$S_{7,1}$: "Forget. Hehe."

In question 6, both subjects can write their answers on the answer sheet properly and correctly. At the time of the interview, which was conducted as a cross-check of data, it turned out that only subject 8 could explain the completion process that had been carried out properly and clearly. Subject 8 seemed to understand the steps taken to find answers from the completion process that had been carried out. Different from subject 8, subject 7 does not give as good as subject 8's result (see Figure 7).



56 km divided by 8 liters of gasoline equals 7 km per liter. (*Subject do not use units*)

If the distance traveled is 84 km, then 84 km divided by 7 km per hour equals 12 liters. (*Subject do not use units*)

Figure 7. Results of Subject 7's Answer to Question 6

P : "Explain the method you used, please."

$S_{7,6}$: "Okey, the distance was 56, then the gasoline was 8. So 56 divided by 8. This is to be the base. 84 will be divided by another number so that there is a result. "

P : "Let me ask again. If it's 84, why do you divide by 7? Is it possible to divide by 8?

$S_{7,6}$: "Yes, it can be, but it'll be in a coma form."

P : "It's okay if the gasoline results in a coma, right?"

$S_{7,6}$: "Yeah, but I just look for simple thing."

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Subject 7 could not explain the origin of the complete steps that were carried out properly, so they could not provide a strong argument. Subject 7 is copying the answer steps from the problems that have been done before without knowing what the purpose and objectives of this step are. At this stage, subject 7 used the MR type, while subject 8 used the AR type.

In question 9, the two subjects showed a similar strategy implementation process, namely by trial and error, and then matched it with the information in the question. During the interview, subject 7 said that at the beginning of choosing numbers, he immediately shot with 10 for goats and 15 for chickens because only those numbers matched the number of legs and the number of animals known in the question. Like subject 7, subject 8 also uses a trial and error method and shoots numbers 40 and 30 directly so that if each is divided by 4 and 2, respectively, it will produce numbers 10 and 15, corresponding to the number of animals when added together.

As an indication of the conclusion in question 1, neither of the two subjects could conclude the problems that had been given correctly because, from the previous stage, the two subjects could not understand the material of natural numbers and whole numbers well, so they could not produce the correct conclusions. In question 6 and 9, both subjects can conclude the problems that have been given correctly from the completion process that has been carried out.

Based on the research results, the reasoning of subject with low reciting ability can be seen on Table 8.

Table 8. The Reasoning of Student Reciting Quran with Low Reciting Ability

Questions	**Subjects**	
	S7	**S8**
1	-	-
6	MR	AR
9	CR	CR

By Table 8, subject 7 and subject 8 have different types of answers in question 6. Subject 7 uses MR while subject 8 uses AR. For question 9, subject 7 and subject 8 both use CR type. The results that have been found align with the research conducted by Sugilar et al. (2020) that there is a correlation between students who also recite the Al-Quran with logical-mathematical abilities. Still, it is different from the results of research conducted by Manasikana & Junaedi (2021), which says that students with low memorization skills can only fulfill the informational reasoning element. Subjects 7 and 8 can use their logic in solving mathematical problems well, considering that they can conclude from the problems given well. However, from this study's results, it is impossible to know the reasoning owned by subjects 7 and 8 because they are not consistent in using the existing reasoning in the problem-solving process.

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CONCLUSION

The conclusions from the results of the research that have been carried out are: Subjects belonging to the high memorization ability group tends to use the type of creative reasoning or creative reasoning because of the four selected subjects. Three of them consistently use the type of creative reasoning. The type of reasoning that appears in subjects belonging to the moderate memorization ability group is algorithmic reasoning. The two existing subjects both tend to use the type of algorithmic reasoning. In the subjects belonging to the low-ability group, the dominant type of reasoning is not known with certainty because no consistent subject uses certain types of reasoning.

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