JTAM (Jurnal Teori dan Aplikasi Matematika)
http://journal.ummat.ac.id/index.php/jtam
p-ISSN 2597-7512 | e-ISSN 2614-1175
Vol. 7, No. 4, October 2023, pp. 1128-1141

Reflective Thinking Students with Different Adversity Quotients in Solving Mathematics Problems

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Article History:
Received : 14-07-2023
Revised : 28-09-2023
Accepted : 28-09-2023
Online : 11-10-2023

Keywords:
Adversity quotient;
Reflective thinking;
Problem-solving;
pythagorean.

ABSTRACT

Reflective thinking is considered one of the thinking skills that support the process of solving mathematical problems. Difficulties are always encountered in the problem-solving process therefore individual intelligence is required to persevere in facing challenges. The intelligence to persevere in facing challenges is referred to as the adversity quotient. The adversity quotient is divided into three categories: climber, camper, and quitter. This study is qualitative descriptive research aimed at describing the process of reflective thinking in students' problem-solving abilities from the perspective of adversity quotient. The research was conducted at a public junior high school in Wonogiri, with eighth-grade students as the subjects. Eighth-grade students are in the middle position, a stable level of adaptation. This matter because eighth-grade is still in the adjustment stage, a transition period on the environment and learning process. The respondents in this study consisted of three students, one climber, one camper, and one quitter. The respondents were selected using a purposive sampling technique. The data collection techniques used were questionnaires, tests, and interviews. The data validity used was time triangulation. The results of the study concluded that the climber student demonstrated good reflective activity in each stage of Polya's problem-solving method, from understanding the problem, devising a solution plan, and implementing problem-solving, to reviewing the obtained results. The camper student showed some level of reflective activity, even though it was not optimal at the stages of devising a solution plan, implementing problem-solving, and reviewing. On the other hand, the quitter student did not exhibit reflective thinking activity in any of the stages of Polya's problem-solving method.

https://doi.org/10.31764/jtam.v7i4.16552

A. INTRODUCTION

Mathematics is a systematic subject wherein its principles are organized from easy to more complicated forms (Radovic et al., 2018). Mathematics can increase logical, analytical, critical, and abstract thinking, which helps problem-solving skills (Cresswell and Speelman, 2020). Problem-solving is an important factor in mathematics learning and a requirement in mathematics curricula global (Liljedah et al., 2016).

The process of solving mathematical problems requires high-level thinking skills (Raiyn and Tilchin, 2015). High-level thinking skills encompass critical thinking, logical thinking, reflective thinking, metacognitive thinking, and creative thinking (King et al., 2011). Reflective thinking is one of the abilities that should be possessed and developed in mathematics learning (Demirel et al., 2015). Those who have critical thinking skills in mathematics also possess reflective thinking skills (Nismawati et al., 2019). Reflective thinking also helps students make

meaning from experiences at the highest level of critical thinking (Howlett et al., 2015). This indicates that reflective thinking skills serve as the foundation for acquiring critical thinking skills.

Using their attitudes and knowledge to make decisions, people with reflective thinking will use their active and rigorous activity of reflection to refer to knowledge (Kholid et al., 2020). Gancel and Saracoglu (2018) states that reflective thinking encourages individuals to consider strategies and evaluate them to make accurate decisions in problem-solving. Reflective thinking is highly important and beneficial for enhancing self-ability and capacity (Choy et al., 2019). Reflective thinking emphasizes an individual's ability to solve problems and bridge the gap between their existing knowledge and the problem-solving situation they face. Because it gives students a chance to take a step back and consider how they actually solve problems and how a particular set of problem solving strategies is appropriate for achieving their goal, reflective thinking is crucial in promoting learning during complex problem-solving situations.

The importance of reflective thinking skills in mathematics education has not been fully optimized in schools. Initial observations conducted at a public junior high school in Wonogiri indicate that out of three students who were given a test, two of them did not demonstrate reflective thinking activity (Mashuri et al., 2018). The students were able to identify the information provided in the problem, but they faced difficulties in selecting relevant information for problem-solving. They also struggled to determine the concepts and selecting the appropriate formulas, resulting in incorrect solutions and conclusions. This is because most students perceive Mathematics as a difficult, abstract, and confusing subject due to the abundance of formulas, leading to a lack of interest in delving deeper into the subject. This aligns with the views of Cooney and Cotton (Vionita and Purboningsih, 2017) that some students find Mathematics interesting while others consider it boring.

The process of reflective thinking is important for teachers to pay attention to as it provides insight into how students approach problem-solving. The reflective thinking process not only demands students to provide answers but also requires their understanding of concepts, facts, logical reasoning, and rational decision-making throughout the problem-solving process. Mairing (2018) asserts that the students' process of reaching the solution is given more emphasis than the final outcome obtained. This implies that even though the answers are correct, the focus remains on the process. This can assist teachers in tracking and evaluating the mistakes made by students (Hamidah and Suherman, 2016). The observed mistakes can serve as considerations for improving the quality of teaching and learning.

The process of reflective thinking can be observed through the stage students go through in problem-solving. One of the well-known problem-solving stages is presented by Polya. Polya's problem-solving consists of four stages: understanding the problem, devising a plan, implementing the plan, and reviewing (Polya, 1973). This study integrates indicators of reflective thinking into Polya's problem-solving stages. The purpose is to facilitate the uncovering of how students engage in reflective thinking processes while solving problems. The indicators of reflective thinking in this study, as shown in Table 1.

Table 1. Indicators of Reflective Thinking Process

Polya's Problem-Solving Steps	The process of reflective thinking
1. Understanding the problems	a. Expressing their feelings towards the given problem. b. Explaining the identification of information in the problem. c. Explaining the identification of the issues present in the problem.
2. Making solution plans	a. Explaining how to check the sufficiency of information in the problem. b. Explaining how to choose which formula or concept to use. c. Explaining the approach to problem-solving that will be used.
3. Implementing the problem-solving process.	a. Explaining the results of the calculations that have been performed. b. Being aware of any errors and rectifying them.
4. Reviewing	a. Explaining whether the obtained answer has addressed the question. b. Reviewing the steps of problem-solving and the obtained solution. c. Drawing a proper conclusion from the problem solved.

(Source:Utomo et al., 2021;Suharna, 2018)

One of the topics in 8th-grade Mathematics is the Pythagorean theorem. The Pythagorean theorem is related to right triangles and involves squares and square roots. The concept of the Pythagorean theorem is highly influential as it is connected to many subsequent topics, such as similarity in two-dimensional and three-dimensional spaces (Raudho et al., 2020). The Pythagorean theorem is widely used in various real-life problems, which is why students need to master it accurately.

The Pythagorean theorem is still perceived as a problem by students. This aligns with the findings of Widyastuti (2010) in her research, where students still struggle to apply the Pythagorean theorem to different problem formats, leading them to perceive mathematics as not useful in everyday life. The difficulties in problem-solving need to be addressed. Overcoming challenges in the problem-solving process requires individual intelligence to persevere and find solutions (Fatmahanik, 2018). The Adversity Quotient (AQ) is one psychological aspect that helps individuals face challenges (Hidayat & Sariningsih, 2018). AQ refers to a person's ability to confront and overcome challenges and difficulties in life (Cando & Villacastin, 2014). AQ plays a significant role in students' thinking processes during mathematics learning (Masfingatin, 2013). The success of students in learning depends on how they overcome challenges (Rukmana et al., 2016). AQ can serve as an indicator of how resilient individuals are in facing problems since students often become discouraged when they encounter difficulties in their studies. Stoltz (2005) differentiates AQ into three types: climber, camper, and quitter. The variation in AQ among students can lead to differences in their reflective thinking processes.

Previous research on reflective thinking has been conducted extensively (Sumardi dan Tyas, 2022; Hidayat et al., 2021; Ratnaningsih dan Hidayat, 2020; Widyasari et al., 2020). Most of these studies describe thinking abilities, while this research emphasizes the thinking process. This study develops indicators of the reflective thinking process integrated into problem-

solving stages according to research needs and subject characteristics. The research utilizes the think-aloud interview technique. Think-aloud interviews are more appropriate and accurate in revealing students' thinking processes in solving problems.

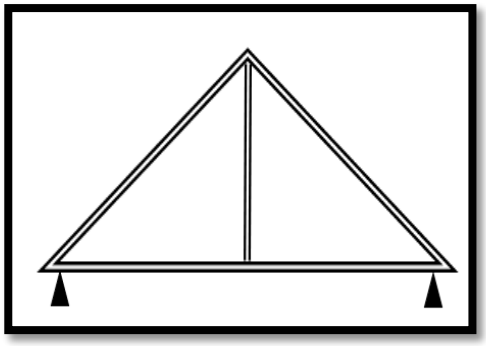
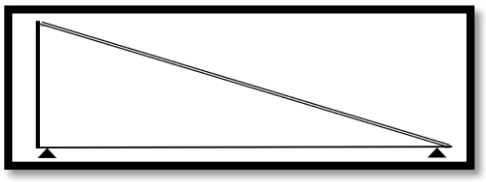
According to the description given above, the researcher feels the need to investigate the concerns further by conducting a study on students' use of reflective thinking when solving mathematical problems, with a particular emphasis on the Pythagorean theorem in relation to AQ. The findings of this study are anticipated to give a general overview of the reflective thinking process used by eight-graders to solve Pythagorean problems and to act as a guide for teachers in how best to help students who are having trouble learning new material.

B. METHODS

This study used descriptive qualitative research as its approach. One of the public junior high schools in Wonogiri Regency, Central Java, will host the study. The study will run from March to May 2022, covering a roughly three-month timeframe. In the school year 2021–2022, pupils from Class VIII B will serve as the study's subjects. Purposive sampling will be used to choose the research participants. This study used purposive sampling because it enables researchers to get in-depth information on a certain subject or problem. Three respondents—one climber (R-1), one camper (R-2), and one quitter (R-3)—will be chosen based on the findings of their AQ questionnaire. The main instrument for this research will be the researcher assisted by supplementary instruments such as the AQ questionnaire, Pythagorean problem test questions, and interview guidelines. The Pythagorean problem-solving test questions are shown in Table 2.

Table 2. Pythagorean Problems Test

First test question	Second test question
	
Mr. Ammar bought wooden beams to make the roof frame of his house right triangle shape like the picture above. The vertical side is 15m and the hypotenuse is 25m. The building shop provides two types of wood, namely Meranti and Borneo. The price of Meranti with the size 8cm×12cm is IDR125,000 each 4m and Borneo is IDR100,000 each 3m with the same size. The amount of money owned by Mr. Ammar is IDR1,900,000. Which type of wood should Mr. Ammar choose with the money he has?	A house with a minimalist model was liked by many people. Two models of roof frames can be used for minimalist model homes like in the picture below. Model (a):

First test question	Second test question
	 Model (b):  Based on the frames model (a) and (b), both models have the same base length namely 12m. The height of model (b) is 3m shorter than model (a), with the height of model (a) being 8m. Which model of roof frame requires a lower cost, if the price of wood for the frame is IDR20,500 each meter?

Prior to their use, the AQ questionnaire and test questions were validated by three expert validators in their respective fields. The sources of research data will be obtained from the results of the AQ questionnaire, the respondents' work, and interviews with the respondents. The think-aloud interview will be the method of data collecting used in this study. With a time interval of roughly one week between the first and second data collection, triangulation of time will be used to assure data veracity. As described by Miles and Huberman (1994), the data will be examined through the steps of data reduction, data presentation, and conclusions.

C. RESULT AND DISCUSSION

The research data collected consists of students' reflective thinking processes obtained from the think-aloud interviews while solving Pythagorean problem tasks. The data obtained from the first data collection were analyzed to obtain preliminary conclusions regarding the respondents' reflective thinking processes. On a separate occasion, the respondents were interviewed using the think-aloud method, and the results were analyzed, followed by triangulation to ensure data validity. The analysis was conducted by categorizing the data according to the stages of Polya's problem-solving approach. The results of this study are presented as follows.

1. The respondent with the Climber AQ

The comparison of the results from the first and second data collection for the respondent with Climber AQ can be seen in Table 3.

Table 3. Comparison of Reflective Thinking Process Data in Problem Solving for R-1

First Data Collection for R-1	Second Data Collection for R-1
Stage of Understanding the Problem	
- Conveying that the given problem is ordinary, as well as sharing previous experiences related to the problem. - Explaining the identification of information obtained from the problem, namely:1) The roof framework is in the shape of a right-angled triangle with a length of 25m for the hypotenuse side and 15m for the vertical side. 2) The two types of wood are meranti and Borneo, both with the same dimensions of 8cm x 12cm, 3) The price of meranti wood is Rp125,000.00 per 4m, and the price of Borneo wood is Rp100,000.00 per 3m, 4) The amount of money owned by Mr. Ammar is Rp1,900,000.00 accurately. - Stating the problem in the question, which is to determine the type of wood chosen by Mr. Ammar with the money he has, using their own sentence.	- Conveying that the given problem is commonplace, and sharing previous experiences related to the problem. - Explaining the identification of information obtained from the problem, namely: 1) two models of house roof frameworks (a) and (b), 2) Both models have the same base length, which is 12m, 3) The height of model (b) is shorter by 3m compared to model (a), where model (a) has a height of 8m, 4) The price of wood with dimensions 8cm x 14cm used for making the frame is Rp20,500.00 per meter. - State the problem in the question, which is to determine the model that has a lower cost using your own sentence.
Stage of Planning the Solution	
- Explaining how to examine the adequacy of the information provided in the question with logical reasoning. - Explaining the concepts that will be used, namely exponentiation, square roots, addition, division, and multiplication. - Explaining the systematic problem-solving approach, which includes the following steps: 1) Finding the length of the roof framework base using the Pythagorean theorem. $a^2 = \sqrt{c^2 - b^2}$, 2) The perimeter is determined using the triangle's perimeter formula $a + b + c$, - 3) The cost is sought for Borneo and Meranti wood.	- Elaborating on how to assess the sufficiency of information in the problem with logical reasoning. - Explaining the concepts that will be used, namely exponentiation, root forms, addition, division, and multiplication. - Explaining the systematic problem-solving approach that will be conducted sequentially, namely: 1) Finding the hypotenuse using the Pythagorean theorem $c^2 = a^2 + b^2$ for both models, 2) The perimeter of each model is determined, 3) The cost required for each model is found by multiplying the perimeter by the known cost.
The steps to carry out the solution.	
- Executing the problem-solving according to the prepared plan and providing a clear and fluent explanation of the calculations performed. - Believing in the correctness of the problem-solving process, which involves understanding the meaning of the question starting from what is known and unknown, up to what is being asked.	- Executing the problem-solving according to the prepared plan and explaining the calculations performed clearly and fluently. - Believing in the correctness of the problem-solving process entails understanding the purpose of the question from what is known to what is being asked.
The stage of rechecking	

- Believing that the obtained answers are correct and provide logical reasoning to address the question in the problem. - Double-check the calculations by reviewing the steps of the solution that have been performed. - Concluding the results of the solution accurately and properly.	- Believing that the obtained answers are appropriate and address the question in the problem, supported by logical reasoning. - Review the calculations by revisiting the steps of the solution that have been performed. - Re-contextualizing the calculation results within the context of the problem.

Based on Table 3, the reflective thinking process of respondents with AQ climber in solving problems is described as follows.

a. Understanding the problem

R-1 expresses their opinion on the given problem by the researcher. R-1 believes that the criteria of the problem are ordinary because they have solved similar ones before, even though the format of the problem is different. R-1 also clearly explains the information and issues in the problem using their own sentences. R-1 provides a prompt response to the researcher's questions. This indicates that the respondent has a good understanding of the purpose of the problem. This condition is consistent with the study conducted by Hanafiah, Riyadi, & Sujadi (2016), where respondents mention the known information and the questions using their own sentences.

b. Developing a problem-solving plan

R-1 explains the process used to assess the sufficiency of information in the problem. R-1 considers, elaborates, and believes in the adequacy of information in the problem. The respondent also selects their knowledge to choose the concepts and formulas involved in problem-solving. R-1 makes connections between the given information and the existing knowledge to develop an effective problem-solving plan. This is consistent with the view of Choy dan Oo (2012) that reflective thinkers are aware of what is known and what is needed. Amalia dan Manoy (2021) states that subjects with the climber type, during the stage of developing a problem-solving plan, engage in the process of processing, storing, and retrieving information.

c. Implementing problem-solving

R-1 describes the sequential and accurate steps of the calculations according to the previously made plan. R-1 does not encounter difficulties in implementing the previously mentioned problem-solving plan. R-1 understands and explains each step effectively and believes in the accuracy of the obtained answers. This is in line with the view of Kashinat, (2013) that reflective thinking characteristics include the ability to connect acquired knowledge to find solutions to a problem.

d. Rechecking

R-1 considers and believes that the obtained answers are solutions to the problem. R-1 reviews the steps of the solution that have been performed. R-1 also contextualizes the calculation results within the problem, resulting in an appropriate conclusion. This is consistent with the view of Widyawati (2016) who states that reflective thinkers are those who utilize their existing knowledge to draw conclusions from problem-solving.

Overall, respondents with AQ climber demonstrate good reflective thinking activities in each stage of Polya's problem-solving, from understanding the problem to rechecking. This is in line with research findings that indicate climber students can mention all the known and asked information and implement the solution according to the planned steps (Malik et al., 2018;Mardika & Insani, 2017;Sari et al., 2019). Climber students solving mathematical problems are persistent and resilient, persevering until they successfully solve the problems they face (Yani et al., 2016;Sari et al., 2016; Safitri et al., 2018).

2. Respondents with AQ Camper

The comparison of results from the first and second data collection in respondents with AQ camper can be seen in Table 4.

Table 4. Comparison of Reflective Thinking Process Data in Problem Solving for R-2

First Data Collection R-2	Second Data Collection R-2.
Stage of Understanding the Problem	
- Conveying that the given problem is ordinary, along with previous experiences related to the problem.	- Convey that the issue is just a common one for researchers, along with previous experience related to the given problem.
- Explaining the identification of information obtained from the problem, namely: 1) a roof framework in the shape of a right-angled triangle with the length of the hypotenuse being 25 meters and the length of the perpendicular side being 15 meters. 2) The two types of wood are meranti and Borneo with the same size $8cm \times 12cm$, 3) The price of meranti wood is Rp125,000.00 for every 4 meters. The price of Borneo wood is Rp100,000.00 for every 3 meters. 4) The amount of money that Mr. Ammar has is Rp1,900,000.00.	- Provide a comprehensive explanation of the information obtained from the problem, which includes: 1) two models of house roof frameworks (a) and (b), 2) both models have an equal base length $12m$, 3) Model (b) is 3m shorter in height compared to model (a), with model (a) having a height of 8m 4) The price of wood, with a size of $8cm \times 14cm$ used for constructing the framework is Rp20,500.00 per meter.
- The problem stated in the question is to determine the type of wood chosen by Mr. Ammar with the money he has, using their own sentences.	- State the problem presented in the question, which involves determining a model with a lower cost, using their own phrasing.
Stage of Developing a Solution Plan:	
- A detailed explanation regarding how to assess the adequacy of the information provided in the problem has not been provided yet.	- The correct elaboration on how to assess the adequacy of information in the problem has not been provided yet.
- Mentioning the concepts that will be used, although not complete, such as exponentiation, multiplication, division, and addition.	- The complete mention of the involved concepts has not been provided yet.
- Explaining the problem-solving approach to be employed, although not complete and coherent.	- Explaining the problem-solving approach to be employed, although not accurate.
Stage of Implementing the Solution:	
- Implementing the problem-solving process and explaining the calculations performed quite well.	- Implementing the problem-solving process and explaining the calculations performed quite well.
- Not realizing the calculation errors made in the steps of the solution.	- Not acknowledging the calculation errors made in the written solution.
Stage of Double Checking:	

- Believing that the obtained answers are correct and address the question in the problem, although not providing the reasoning. - Not reviewing the calculations and steps of the solution that have been carried out. - Failing to accurately conclude the results of the solution performed.	- Believing that the obtained answers are correct and address the question in the problem, although lacking knowledge of the reasoning. - Not double-checking the steps of the solution and the calculations that have been performed. - Not accurately relating the calculation results back to the contextual problem in the question.

Based on Table 4, the reflective thinking process of the respondents with camper AQ in problem-solving is described as follows:

a. Understanding the problem
   R-2 expressed their opinion about the given problem. R-2 accurately identified the information and issues in the problem. R-2 remained silent several times before answering the researcher's questions, indicating some confusion initially but gradually understanding the purpose of the problem. Masfingatin (2013) stated in their research that individuals with camper AQ can sometimes mention known information and directly asked questions about the problem. However, for certain questions, students with camper AQ require time to read repeatedly in order to comprehend the content.
b. Developing a problem-solving plan
   R-2 has not provided a detailed explanation on how to assess the sufficiency of the information. R-2 selected relevant information and determined the involved concepts, although not completely. R-2 also made connections between their knowledge and the given problem, as well as connections between the acquired information to develop a problem-solving plan, although not in a coherent and detailed manner. This is consistent with Laurillard (2016) research, which concluded that the majority of students do not optimally utilize their knowledge and experiences to seek solutions.
c. Implementing the problem-solving process
   R-2 described the calculation steps according to the previously developed plan. R-2 believed in the accuracy of the calculations, although they were unable to recognize the mistakes made. This condition aligns with the research by Phoolka dan Kaur (2012), which stated that students with camper AQ tend to have the desire to solve a problem but may lack attentiveness in the process and quickly feel satisfied with their findings.
d. Double checking
   R-2 stated that the answers obtained address the question in the problem. However, R-2 did not review the answers written down. R-2 also failed to accurately relate the answers to the problem's context due to unnoticed calculation errors. This condition aligns with the findings of Naimnule, Kehi, & Bone (2022) research, which concluded that camper AQ students do not double-check their written results and processes.

Overall, camper students have demonstrated reflective activity, although not optimally, in the stages of developing a problem-solving plan, implementing the problem-solving process, and double-checking. Camper students still strive to solve the given problems despite encountering difficulties. This is consistent with the research by Rosita dan Rochmad (2016), which stated that camper students always make an effort to solve their problems.

3. Respondent with Quitter AQ

Respondents with Quitter AQ The comparison of results from the first and second data collection in respondents with Quitter AQ can be seen in Table 5.

Table 5. Comparison of Reflective Thinking Process Data in Problem Solving for R-3

First Data Collection for R-3	Second Data Collection for R-3
Understanding the Problem Stage	
- Expressing the difficulty of the given question and their lack of prior experience in solving such a problem. - Providing an explanation of the identified information from the question, albeit incomplete. - Articulating the problem in the question as determining the type of wood chosen by Mr. Ammar within his available funds using their own wording.	- Conveying the difficulty of the given question and the lack of prior experience in solving such a problem. - Describing the identification of information derived from the question, although with some errors and incomplete details. - Articulating the problem in the question as determining the model that offers a more affordable cost, in their own words.
The stage of formulating a problem-solving plan.	
- Has not elaborated on how to assess the adequacy of information provided in the problem. - Only mentioned some of the concepts that will be used. - Has not explained the problem-solving approach that will be employed.	- Has not accurately described how to assess the adequacy of information in the problem. - Only mentions some of the concepts involved in the solution. - Has not explained the problem-solving approach that will be employed to determine the solution to the problem.
Stage of implementing the solution	
- Has not executed the problem-solving process and has not adequately explained the steps taken to solve the problem. - Lacks confidence in the accuracy of the solution and is unaware of any calculation errors.	- Has not carried out the problem-solving process and has not explained the steps taken to solve the problem effectively. - Lacks confidence in the accuracy of the solution and is unaware of any calculation errors made.
Rechecking stage	
- Lacks confidence in the accuracy of the obtained answers and their alignment with the questions in the problem. - Neglects to double-check the calculations and steps undertaken during the solution. - Fails to draw accurate conclusions from the conducted solution.	- Lacks confidence in the correctness of the obtained answers and their alignment with the question in the problem. - Fails to review the steps of the solution and the calculations that have been performed. - Fails to relate the calculation results back to the context of the problem in the question.

Based on Table 5, the reflective thinking process of respondents with camper AQ in problem-solving can be described as follows.

a. Understanding the problem

R-3 expressed their opinion that the questions given by the researcher were difficult. R-3 provided a partial explanation of the identified information. R-3 also did not analyze the problem in the questions properly. R-3 remained silent for a long time before answering the researcher's questions. This indicates that R-3 experienced confusion in understanding the given questions. This is consistent with the opinion of Irianti et al

(2016), who stated that when facing different or previously unseen questions, quitting students are unable to identify the information in the questions, thus unable to determine the steps leading to the correct answer.

b. Developing a problem-solving plan
   R-3 has not yet explained how to verify the sufficiency of information in the questions. R-3 struggles to select relevant information and can only mention one of the involved concepts. R-3 has not made the correct connection between their knowledge and the given problem. R-3 has also not made a proper connection between the acquired information to develop a problem-solving plan.
c. Implementing the problem-solving plan
   R-3 has not yet understood the calculation steps and has not accurately described the solution steps. R-3 lacks confidence in the correctness of the calculations performed and has not been able to recognize errors in formula selection and calculations made.
d. Reviewing and checking
   R-3 acknowledges that the answer they obtained does not address the question in the problem. However, R-3 fails to review the solution steps and the answers they have written. Furthermore, R-3 does not contextualize the answer to draw a correct conclusion because the calculations performed remain unfinished.

In a comprehensive assessment, it is evident that students with a quitting inclination have not demonstrated a commendable level of reflective engagement throughout all stages of Polya's problem-solving framework. Instead of persevering with utmost determination, they tend to give up easily when faced with difficulties. These students frequently resort to choosing the "I don't know" option, exhibit a lackluster enthusiasm in providing answers, and display a notable dearth of motivation in their learning endeavors. It can be concluded that individuals with a quitting attitude, as evidenced by their AQ (quitter) classification, possess a significantly diminished motivation. Consequently, even the slightest obstacles encountered during mathematical problem-solving prompt them to readily abandon their efforts and discontinue their pursuit (Suryaningrum et al., 2020).

D. CONCLUSION AND SUGGESTIONS

Based on the results and discussions, it is evident that the reflective thinking processes of students vary across different AQ types. Climber students exhibit high motivation to solve problems and actively seek solutions to the challenges they encounter. They demonstrate excellent reflective activity in each stage of Polya's problem-solving method, starting from understanding the problem, developing a problem-solving plan, implementing the solution, and reviewing the obtained results. Camper students consistently strive to overcome the difficulties they face. Although their reflective activity may not be optimal in the stages of developing a problem-solving plan, implementing the solution, and reviewing, they still demonstrate reflective engagement. On the other hand, quitting students tend to give up easily when faced with challenges. They have not shown any reflective thinking activity in all stages of Polya's problem-solving process.

Based on the conducted research, the researcher provides the following recommendations for students: increase practice with different types of problem sets that differ from the ones

already provided as examples, and enhance motivation in studying mathematics by observing and understanding the practical benefits of mathematics in everyday life. The researcher also provides the following recommendations for teachers: (1) implement more varied teaching models. Problem-based Learning (PBL) can be used by teachers as it helps students become accustomed to solving problems. PBL can also develop students' AQ as the difficulties in the given problems can be gradually increased from simple to more complex ones. This can motivate both camper and quitter students to make efforts to solve problems effectively; (2) Prepare contextual problem-based assessment questions to help students better understand the practical application of mathematics in everyday life; (3) Utilize diverse learning resources, not limited to a single textbook; and (4) Teachers can create or utilize interactive learning media to enhance students' interest and motivation in learning mathematics.

ACKNOWLEDGEMENT

The author realizes that this research cannot be separated from the support and guidance of various parties. The author would like to thank the principal of the school where the author conducted the research, the mathematics teacher who assisted the writer during this research, and the students who actively participated during this research. The author also thanks the expert validators who have verified these research instruments.

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