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Students' mathematical literacy in number pattern material seen from initial mathematical abilities

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***Abstract*:**
Mathematical literacy skill is a persons' ability to identify, use, and interpret numbers by thinking and placing ideas in different contexts. Literacy is very important for a person has good reading and numeracy skills, he can solve problems and find solutions in daily life. Initial mathematical abilities also have an important role in a person's problem-solving. This research aims to describe the mathematical literacy abilities of class VIII students in terms of initial mathematical abilities. This research uses qualitative research with a case study of 16 students in class VIII.A LTI IGM Palembang Juniot High School. The data collection methods are students' initial mathematical skills assessment scores, mathematical literacy test instruments and interviews. The results of the research show that 4 students with high initial mathematical abilities are able to solve level 1, 2, 4, and 5 questions, students achieve 3 indicators of mathematical literacy: formulate, employ, and interpret. 9 students with moderate and 3 students with low initial mathematical abilities are able to answer level 1, 2, and 4 questions, write conclusions correctly but without explaining the work strategy so that students are said to be unble to perform the task or use the criteria. Students with low and medium initial abilities are the same, never been able to answer the problem. Thus, it can be said that if students can formulate and employ indicators well and correctly, they will also be able to access the interpretation indicators. On the other hand, if students cannot formulate and employ indicators well and correctly, then the students will not be able to access the interpreted indicators.

Keywords: Mathematical Literacy; Early Mathematical Abilities

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Introduction

Education has an important role in the development and growth of a country. Education is a way to create human resources who can think creatively, innovatively, critically and can solve problems that occur in life (Setyaningsih & Fatimah, 2022). The implementation of independent education is one of the efforts to improve the quality of education in Indonesia to create good and quality human resources with the Pancasila Student Profile. It focuses on strengthening the potential of student competence and

character. Pancasila student profile, lifelong learners, competent, and talented and possessing the six core characteristics of Pancasila it describe students who have the following values; respect for God Almighty, good character, diversity of the world, cooperation, independence and reflection, critism and creativity (Wiryatmo, Iriani, & Waruwu, 2023). Problems in everyday life can arise in various contexts that require mathematical skills that are not just arithmetic, but also require in-depth mathematical abilities or mathematical literacy skills (Setyaningsih & Fatimah, 2022).

Mathematical literacy is one aspect of high level abilities that is the main ocus in PISA research, which requies someone to have high mathematial literacy skills in order to compete globally (Novita & Hamimi, 2024). Mathematical literacy ability refers to the extent to which someone can apply their mathematical knowledge as a tool to help find solutions to problems to achieve good result (Indrawati, 2020). A person with good literacy will help him make decisions and improve his thinking (Setyaningsih & Fatimah, 2022). Apart from that, literacy is an important cognitive skill because it can help a person solve daily problems more effectively, and are useful for supporting other literacy skills (Danoebroto & Alviyah, 2021). Mathematical literacy focuses on an individual's ability to think mathematically when organizing, using, and interpreting numbers to solve problems in variety of real world contexts (OECD, PISA 2022 Result (Volume I): The State of Learning and Equity in Education, 2023). Someone with good mathematical literacy skills will be able to improve theirnowladge, understanding of mathematical concepts, and developing their ability to think critically (Hayati & Jannah, 2024).

The importance of mathematical literacy does not appear to be related to Indonesian students' mathematical literacy, which is still low and needs further improvement. The low level of literacy and numeracy skills is also reflected in the result of various national and international studies and surveys, including PISA (The Program for International Students Assessment). PISA itself is an international assessment program developed by the OECD to measure the literacy abilities of 15 year old students every 3 years (OECD, 2022). According to PISA assessment result in 2018, Indonesian students' mathematical literacy skills scored below standart, with ininternational average score of 379, placing Indonesia in 6th place out of 79 countries that took part in the assessment, only around 1% of students score at levels 5 and 6, while the OECD average is 11% (OECD, 2019). Furthermore, in 2022 Indonesia's PISA score will decline again, the score obtained is 366, reducing 13 points from last year's PISA score, around 0.1% of students who scored levels 5 and 6, around 59% of students who scored below level 2 (OECD, PISA 2022 Result (Volume I): The State of Learning and Equity in Education, 2023). Research result Efriani et al (2019) also showed that the number of students' was still low, students answered the questions without taking the calculation steps and did not explain the written answers, this shows that students were unable to argue the problems and conclusions given.

One of the reasons Indonesian students' have low mathematical literacy in solving PISA questions is due to the lack of application of mathematical concepts in everyday life (Fitri & Fuadah, 2020). In research, Fadillah and Munandar (2021) also stated that students' mathematical literacy skills in solving PISA problems are still low. The reason for this is that there are still many students who cannot achieve the three indicators of the mathematical literacy process. Students' interest in reading is still low, so that if the problems given are too long and contain a lot of meaning, then students will Difficulty in

interpreting the contextual problems presented in the questions into mathematical models or language.

Isnawan et al. (2024) said that number patterns are one of the mathematical concepts studied in junior high school. This concepts is very useful but students often have difficulty learning it. Results of research conducted by Noviana and Murtiyasa (2020) shows that mathematical literacy skills in solving problems are relatively low on number pattern questions, at the employ stage the strategies or procedures used are not appropriate so that it affects the interpretation stage which causes the final results or answers obtained to be not correct or still wrong. Lindawati et al. (2021) Initial mathematical abilities also require attention because early math skills are one of the factors that contibute to students' success in solving math problems. Based on research results Miliyawati (2020) shows that initial abilities influence student learning outcomes, because in the learning process, initial abilities become provisions for understanding the next lesson material, initial mathematics abilities (high, medium and low) have an impact on students' mathematical literacy, because each stage influences the previous stage. Based on the above information, the researcher will analyze the mathematical literacy abilities of class VIII students on number pattern material in terms of initial mathematical abilities.

Research Methods

This study analyzed students' mathematics literacy skill in terms of initial mathematics abilities in number pattern material at LTI IGM Palembang Junior High School. The methods used in this study are survey method and qualitative method. Qualitative research aims to reval existing fact and understand the meaning these facts. The survey was an in-depth survey of individuals, groups, an organization, and programs, or a condition at a certain place and time to obtain a complete and in-depth description (Sani, 2022). This research involved 16 students of class VIII.A at LTI IGM Palembang Junior High Scoll as participants in this study. The data collection method assesses students' initial mathematical abilities, literacy test instruments and interviews. The data analysis technique used in this research was data analysis techniques used in this study is the data analysis method, which is based on Miles' and Hubemans' (2018) theory and includes three qualitative data analysis activities; (1) data integration; (2) view information; (3) making decisions.

This study used descriptive statistical analysis to analyze students' initial skulls. In Particular, the determination of the initial mathematical abilities of students in the high group, medium and low groups, according to the mean score ($\bar{x}$), and standard deviation (S) as follows.

Table 1. Grouping of Students Based on Initial Mathematics Ability

Criteria	Category
$KAM \geq \bar{x} + S$	Tall
$\bar{x} - S < KAM < \bar{x} + S$	Currently
$KAM \leq \bar{x} - S$	Low

(Lestari & Yudhanegara, 2015)

Analysis of students' mathematical literacy test results on number pattern material based on 3 process indicators (formulate, employ, and interpret). Table 2 explains the indicators for the mathematical literacy test questions regarding number patterns.

Table 2. PISA Mathematical Literacy

Mathematical Literacy Process	Test Question Indicators	Levels	Aspects of Mathematical Literacy Ability
Formulate (Formulate)	Students can formulate problems by identifying and defining problems in mathematical terms.	1	a. They can answer questions about the issue with all available information people were able to identify information based on instructions. b. They can make calculations according to the criteria used.
		2	a. They can collect data facts/information regarding the current situation. b. They can choose problem solving strategies from problems information. c. They can solve problems by using algorithms and formulas to solve problems. d. They can fill in the answer to the given question.
Employ (Use)	Students can use mathematical and logic to solve problems	3	a. They can make clear decisions when solving problems. b. They can choose and use strategies to solve problems. c. They can use different data bases. d. They can explain the result and their reasons.
		4	a. They can work through problems using steps and methods that involve ideas in some way. b. They can use the information normally. c. They can use knowledge and skills when making calculations. d. They can draw conclusions and reason based on existing practices.
Interpret (Interpret)	Students can summarize mathematical results in everyday language.	5	a. They can work with models to identify problems in complex situations. b. They can use logic and logic to make calculations. c. They can explain their research result and why they have them.

(OECD, 2023)

Results and Discussion

Students' initial mathematical abilities are processed from practice scores on number pattern material; this aims to determine how good students' prior mathematics skills are in these tools. Information regarding the processing of qualification scores can be found in Table 3 below.

Table 3. Criteria for Grouping Students' Initial Mathematical Ability Based on Number Pattern Daily Test Scores

Criteria	Initial Mathematical Ability Value	Category	The number of students	Percentage
$KAM \geq 46.25 + 30.35$ $KAM \geq 76.6$	80 ≤ X ≤100	Tall	4	25%
$46.25 - 30.35 < KAM < 46.25 + 30.35$ $15.8 < \text{KAM} < 76.6$	30 ≤ X ≤ 75	Currently	9	56%
$KAM \leq 46.25 - 30.35$ $KAM \leq 15.8$	0 ≤ X ≤ 10	Low	3	19%

In Table 3, the students' result regarding the number pattern material with high initial mathematical skills is 25%, the percentage for students with moderate initial mathematical skills is 56%, the percentage of students with high and low initial mathematical skills is 19%.

The test questions used to measure students' mathematical literacy abilities were obtained by analysing previous research questions related to PISA-type development questions and mathematical literacy questions. Based on the results of this analysis, 6 descriptive questions were obtained with question categories, namely levels 1-5 with the theme of batik and typical woven cloth originating from several regions in Indonesia. The result of the original research question related to PISA type development question were analyzed and test question were used to measure students' mathematicalliteracy: (1) PISA Model Mathematical Literacy Instrument with Baduy Cultural Context at Middle School Level, research results (Monica, Pamungas, & Jaenudin, 2022); (2) Developing PISA-Like Mathematics Task with Indonesian Natural and Cultural Heritage as Context to Assess Students' Mathematical Literacy, research results (Oktiningrum, Zulkardi, & Hartono, 2016); (3) Students' Math Literacy in Solving PISA-Like Problems in Papuan Local Context, research results (Kholid & Nisa, 2022); (4) Development of PISA Model Mathematics Questions Using Palembang Cultural Context, research results (Rauf, Fitriasari, & Mulbasari, 2022); (5) Development of PISA Level 4, 5, 6 Model Mathematics Questions using the Lampung Context, research results (Putra, Zulkardi, & Hartono, 2016); (6) Developing the Sixth Level of PISA- Like Mathematics Problem for Secondary School Students, research results (Kamaliyah, Zulkardi, & Darmawijoyo, 2013).

Table 4. Students' Mathematical Literacy Test Achievement

Mathematical Literacy Process	Question Number	Levels	Number of Subjects Answered			
			Appropriate	Less precise	Inappropriate	No answer
Formulate	1	L1	6	8	2	0
	2	L2	7	7	2	0
Employ	3	L3	0	10	5	1
	4	L4	5	10	0	1
Interpret	5	L5	0	5	9	2
	6	L5	2	2	10	2

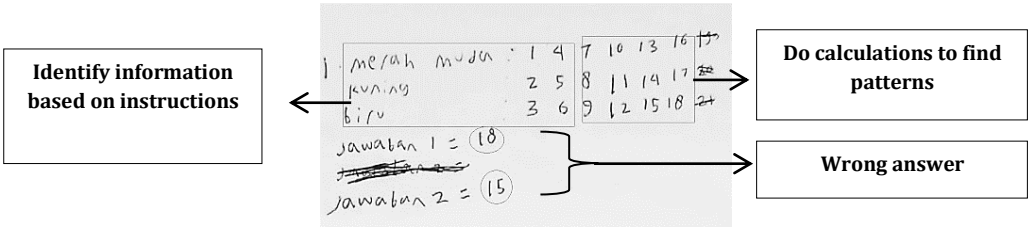
According to the analysis of result, in Table 4 it shows that 6 people were able to work on the mathematical literacy test questions out of 16 students in the question formulate indicator number 1 level 1, in the question formulate indicator number 2, level 2 there were 7 people, in the employ indicator category question number 4 level 4 only 5 people. In the interpret indicator for question number 6 level 5, 2 people answered correctly. Meanwhile, in the employ indicator question number 3 level 3 and in the interpret indicator question number 5 level 5, no subjects answered correctly.

Table 5. Data On Students' Mathematical Literacy Abilities in Terms of Initial Mathematical Abilities

Research Subject	Classification of Early Mathematical Abilities	Indicator of the Mathematical literacy process	Classification of Mathematical Literacy Abilities
S1	Tall	*Formulate, Employ, Interpret*	Tall
S8	Tall	*Formulate, Employ, Interpret*	Tall
S16	Tall	*Formulate, Employ, Interpret*	Tall
S14	Tall	*Formulate, Employ, Interpret*	Tall
S5	Currently	*Formulate, Employ*	Currently
S3	Currently	*Formulate, Employ*	Currently
S13	Currently	*Formulate, Employ*	Currently
S4	Currently	-	Low
S6	Currently	-	Low
S7	Currently	-	Low
S11	Currently	-	Low
S12	Currently	-	Low
S15	Currently	-	Low
S9	Low	-	Low
S2	Low	-	Low
S10	Low	-	Low

AS Subject Mathematical Literacy Test Results (Low Initial Mathematical Ability Students)

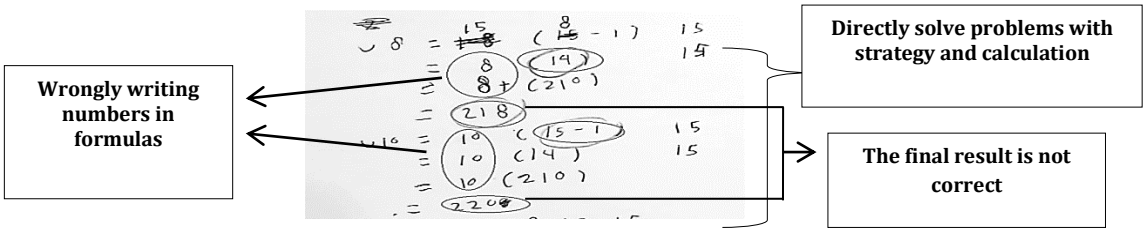
The following is one of the results of a mathematical literacy test for students with low initial mathematical skills in formulating and employing indicators.



Picture 1. US Subject Answers to Question No. 1 Formulate Indicator

Picture 1 showed that Subject AS was able to write down and find the pattern asked about in the question, namely the pattern of pairs of blue triangles on Baduy woven cloth, but AS was wrong in drawing the final conclusion, so the answer he wrote was not correct, AS also had difficulty understanding the second problem. AS had difficulty identifying the information in the problem, so AS was confused about applying the right strategy and calculations to solve the problem. The following is part of AS response to question number 1.

P : "Why immediately answer number 2?"
AS : "Because for me number 1 is a bit difficult too."
P : "Where is it difficult?"
AS : "The difficulty is the 5 meters, I'm confused about what that means."



Picture 2. Answers to AS Subject No. 4 Employ Indicator

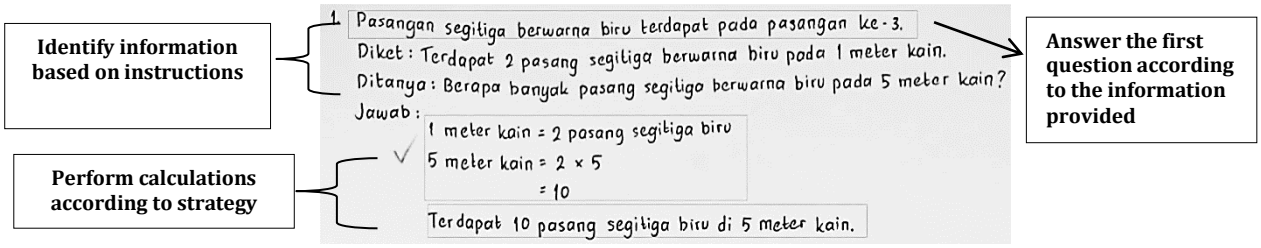
In Picture 2 shows that subject AS Research, the subject can solve the problem presented towards a mathematical solution, but AS experienced an error in the procedural work, namely the subject made a mistake in writing the value and score into the formula used, AS should have written $U_{10} = 15 + (10 - 1)\ x\ 15$ but AS wrote $U_{10} = 10(15 - 1)\ x\ 15$. This was because AS was confused in applying the formula, so the calculations and results obtained in the problem were not precise, AS was also not careful in writing mathematical symbols, it can be seen on the answer sheet that AS did not write the addition symbol (+). The following is part of AS response to question number 4.

P : "Is number 4 easy?"
AS : "Erm, easy."
P : "Try explaining number 4."
AS : "Actually, I forgot the formula for number 4, so that's why it's wrong."
P : "On your answer sheet the number 15 is written, what does this number indicate?"
AS : "The first motive, so he is a."

According to the analysis results, it is known that students with low initial mathematical ability cannot solve problems level 1-5 accurately and correctly, which mean that students cannot provide the three parameters that indicate good mathematical literacy and accuracy. In the formulating, students could transform the ideas in the story questions into correct answers, but students with low basic math skills often made mistakes in their answers, and only wrote short answers. When asked to explain again the procedures used in answering problems, students become confused and confused when asked to re-explain the procedures used to answer question. In the employ indicator, students can solve the questions presented towards mathematical solutions by applying formulas or by using concepts they understand, however there are many errors in the work process so that the final results given are not correct and students can be said they have not reached the indicators employ to the maximum, on the interpreting indicator students may not be able to solve the given problems at all.

Mathematical Literacy Test Results for Subject AZ (Students with Medium Initial Mathematical Ability

The following is one of the results of a mathematics literacy test for students with moderate initial mathematical skills in formulating and employing indicators.



Picture 3. Subject AZ Answers to Question No. 1 Formulate Indicator

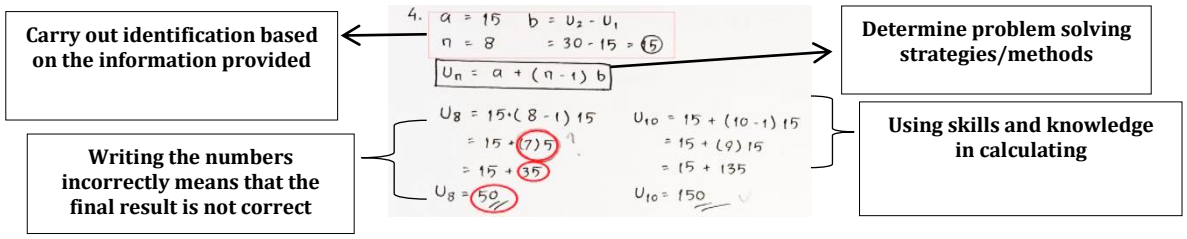
In Picture 3, subject AZ was able to identify and write down information obtained from questions regarding triangular patterns on pieces of Baduy woven cloth. AZ was also able to transform the ideas presented in the story questions into mathematical sentences and answer questions through the information given in the questions. The subject who can write down and find patterns in a given problem describes the problems using a formal expression to represent it in a calculation. See the the answer sheet, the subject explains and writes down the steps systematically, properly, and correctly. Below is part of AZ answer the question number 1.

P : "On question number 1, is the question given difficult?"

AZ : "Emmm, not really."

P : "Explain again the steps used to solve the second problem to obtain 10 pairs of blue triangles on Baduy woven cloth."

AZ : "Because of that fabric, you have 6 pairs of triangles, but in 6 pairs there are 2 pairs of blue triangles, so because that's 1 meter, so make a pair of blue triangles 2 x 5 = 10, so the blue triangle is 10 if it's 5 meters."



Picture 4. Subject AZ Answers to Question No. 4 Employ Indicators

In Picture 4, Subject AZ can correctly solve the problems presented in number sentences leading to mathematical solutions using appropriate methods. It can be seen on the answer sheet that AZ wrote down the information he knew about this problem and used his knowledge and skills to make a good analysis so that the subject could determine the value a, n, b, u_1 and u_2 In the story question, AZ was able to solve the problem and calculate systematically, but only AZ experienced an error in carrying out the procedure. it is not quite right because it is not careful in writing the results of the subtraction operation 30 – 15 = 15, but when applying it in the AZ formula, it is wrong to write the number 15 as 5, so the conclusion obtained on this problem is not correct. The following is a fragment of an interview with AZ on issue number 4.

P : "Number 4, are the questions given classified as difficult?"

AZ : "No, there's just a little mistake here, the 7 x 5 should be 7 x 15" (AZ knows where he made a mistake in solving the problem)

P : "Where did you get the number 15?"

AZ : "From the first tribe."

P : "Where did you get the other 15 points?"

AZ : "Oo, that's what you get from the second term, subtract the first term, so you get 15."

P : "Why do you write numbers wrong?"

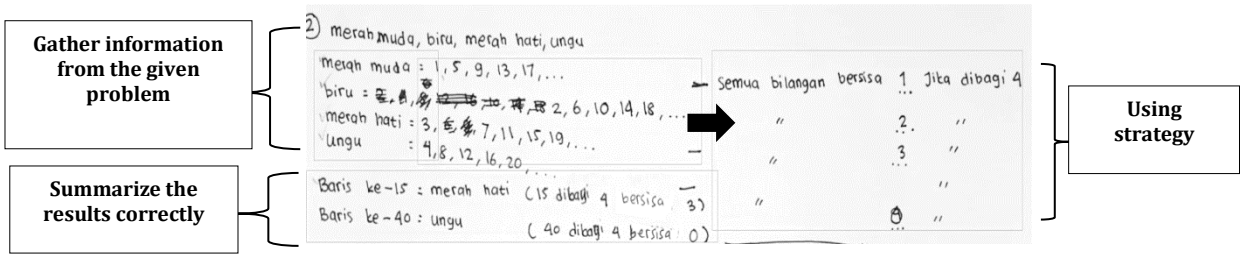
AZ : "Because I wasn't careful enough."

According to the analysis results, students with moderate initial mathematicis skills could not achieve all three indicators of mathematicas literacy, students could not solve the 1st, 2nd, 3th and 4th level problems, on average students just wrote the final answer straight away, without writing down the steps. In the completion steps, there were only 3 students who were able to achieve the formulate and employ indicators because these three students can solve 1st, 2nd and 4th level problems. In the formulate

indicator some students were able to transform the ideas presented in the story problems into mathematical sentences, while in the employ indicator some students with basic mathematical skills were able to solve the problems shown in the mathematical solutions using formulas, however, in working on the activity line there are errors in writing and calculations. In the interpreting indicator, students with moderate initial mathematical abilities immediately write down the final result without writing down a complete solution strategy, students cannot translate the ideas in the story problem into mathematical sentences and cannot provide the conclusions appropriate to the real world context.

FMH Subject Mathematical Literacy Test Results (Students with High Initial Mathematical Ability)

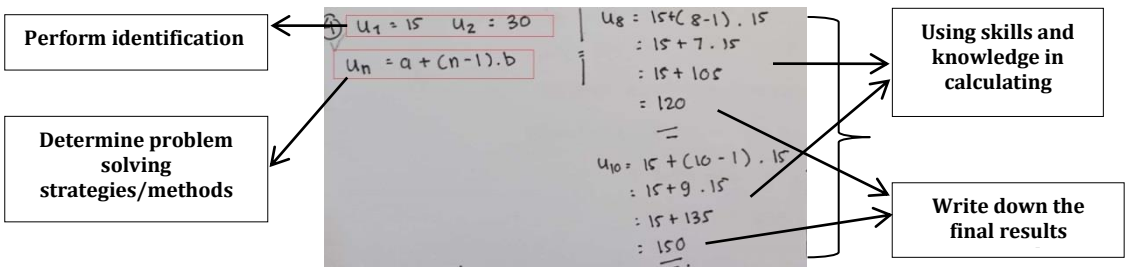
The following is one of the results of a literacy test for students with the high initial mathematical skills in the formulating, employing and interpreting indicators.



Picture 5. Answers of FMH Subjects to Question No. 2 Formulate Indicators

Picture 5 shows that the FMH subject was able to transform ideas presented in the form of story problems into numerical sentences. The subject was able to choose a simple strategy in finding color row patterns on Cirebon batik cloth through the problems and pictures that had been presented, when in the interview the subject was also able to explain and provide a good explanation of the steps used in the process of finding answers to the problems asked. and correct, and the conclusions written are also correct. The following is a fragment of an interview with FMH on problem number 2.

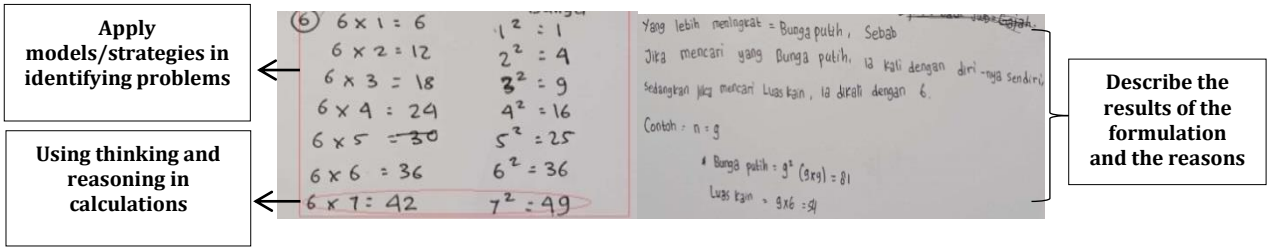
P : "Try to explain again why row 40 is purple!"
FMH : "Because for example 40 : 4 sthe remainder is 0, whereas here, for example, if we have analyzed it, the purple ones all have a remainder of 0 if divided by 4."



Picture 6. Answers of FMH Subjects to Question No. 4 Employ Indicators

Picture 6 shows that the FMH subject was able to recognize the concept of number patterns in the problem, solve the problem presented in a number sentence leaing to mathematical solution, the subject designed and implemented a strategy to find a mathematical solution. The subject uses his skills and knowledge by carrying out an analysis first by paying attention to the number of Chinese woven flower motifs on each piece, so that the subject can find the value u_1 and and can find out u_2 differences in the pattern formed on the piece of woven fabric and applying the appropriate formula to find the solution. Below is a section of question number 4 of the FMH survey.

P : "For number 4, is it necessary to write known and asked at the beginning before answering?
FMH : "I don't do it often, because I want to go fast."
P : "Explain your reasons for using arithmetic formulas?"
FMH : "Because he asked, the 8th and 10th pieces of songket cloth, in the 1st piece there were 15, in the 2nd piece there were 30 and the difference remained so we used an arithmetic formula."



Picture 7. Answers of FMH Subjects to Question No. 6 Interpretation Indicators

Picture 7 show that FMH Subjects can use numbers and calculations to make predictions, provide arguments, test and compare given results. The subjects worked with model to solve difficult situations such as problems related to the number of flower motifs and the number of pieces of Kawung Yogyakarta batik cloth. Seen on the answer sheet, FMH applies strategies in solving problems through the information obtained in the questions, the subject also uses good thinking and reasoning in carrying out calculations and considering the solutions obtained with accuracy in real situations. The following is a fragment of an interview with FMH on problem number 6.

P : "For number 6, try explaining again, is the final conclusion reached appropriate if more white flowers develop?"
FMH : "Yes, white flowers. because if you look at the comparison, there are more flowers, if for example you multiply the same by 1 to 6 it still looks like there is still a lot of fabric area, but if for example we multiply it by more than 6, you will definitely see that the white flowers are more developed. than the area of the cloth."

According to the research of the results, it is seen shows that students with high initial mathematical abilities can reach three indicators of the mathematical literacy process, while students can solve problems at 1st, 2nd, 4th, and 5th , at level 3rd students cannot answer correctly, students do not know the strategy. The correct way to solve a

particular problem. In the formulating indicator allow students to transform the ideas in the story problems into numerical sentences, while in the employing indicator allow students to solve problems presented by numerical solutions using formulas, and the interpreting indicator allow students to apply strategies to solve problems from complex situations and can communicate well, formulate actions appropriately, carry out interpretations and arguments.

According to the analysis results, it was determinated that there were students with moderate initial mathematical abilities, that is DZA, these students were able to demonstrate their abilities in reasoning and giving reasons that they used in solving the problems given, one of which was when answering level 4 questions, DZA used the concept of multiplication calculation operations and not using the formula for rows and arithmetic series, the answer given by the student is also correct, this proves that the student already understands the concept of arithmetic rows and series so that in solving the problem given the student is able to use his own method. The following is a fragment of an interview which is part of the supporting data.

P : "Number 4, on the answer sheet the answer on the eighth line is 120, and on the tenth line 150 but the strategy is not written down, please explain!"
S6 : "So each motif, each piece has 15 motifs, so what is asked is 8 and 10, so 15x8 and the result is 120, while then 15x10 which results in 150."
P : "Why not write down the steps? Is the time given not enough?"
S6 : "Lazy."

The results of further analysis on students with low initial abilities, namely SY, also found that SY answered correctly on level 4 questions without writing down the process of finding the answer. But SY was able to explain the mathematical concept in question using his own language and understanding. So, these students can have the opportunity to have good mathematical literacy. The following is a fragment of an interview which is part of the supporting data.

P : "Try explaining number 4, why not write down the strategy?"
S10 : "Erm, just a few times."
P : "Try explaining again?"
S10 : "Um, this is a multiple, right? It keeps increasing with each piece, if you do the math, that's 15 counts each time, so the count keeps multiplying, this increases by 15 and 30, then add 15 and keep adding, the 8th gets 120 and the 10th gets 150 ."

The Program for International Sudent Assessment (OECD, 2022) states that mathematical literacy can be defined as an individual's ability to think mathematically and plan, use and interpret mathematics to solve problems in different parts of the world. Only students can meet these 3 literacy criteria to declare students' as having advance literacy skills. Based on the findings, it was found that initial mathematical abilities affected the learning of students, that is the higher mathematical ability of the students, and when students' initial mathematical abilities are low then mathematical literacy abilities will also be low. Based on research results (Muzaki & Masjudin, 2019) it is said that the only people who can solve PISA related problems are students' with high skills, and it is also supported by (Muslimah & Pujiastuti, 2020) the results of his

research concluded that the higher a person's mathematical ability category, the higher the person's mathematical skills, the higher ability in mathematical literacy, and the higher the desire to answer questions correctly, the lower a person's mathematical skills, the lower ability in mathematical literacy to answer questions correctly also low. The results of this research show that students who do not have achieve to formulate and employ indicators well will experience difficulties in achieving the next indicator, namely interpreting, and vice versa, if students are able to achieve the formulate and employ indicators well, then these students can work on or achieve the next indicator, namely interpreting. This happens because these three indicators are a unified procedure for solving mathematical problems.

According to Winkel in (Wahyono, 2013) in research Aprilia and Sutiarso (2023) states that initial abilities include an intermediary or bridge for students to reach maximum abilities. The learning process certainly has its foundation or starting point which stems from the student's initial abilities and can later be developed into new abilities. Mathematical literacy is a part of learning that teaches students can solve or find solutions to contextual problems with the mathematics provided. Mathematics is included in basic knowledge closely related to everyday life. So solving mathematical problems will be very necessary and emphasized in learning. Students with the good understanding of mathematics will influence their thinking process in solving their problems. Students' initial abilities will influence their mathematical literacy, students who have low initial skill tend to produce low levels of mathematical literacy. Vice versa, students with good initial skills also tend to produce good literacy levels. This is because these initial abilities are part of understanding basic mathematical concepts which will influence the students' mathematical literacy results. Students with low initial abilities do not have sufficient understanding of mathematical concepts, so when faced with contextual problems with mathematics, these students tend to experience confusion in solving and resolving the mathematical problems presented.

According to the results of the research conducted by the researchers, students with low initial mathematical skilld are more likely to achieve the indicators. If seen from the results of interviews that have been conducted, students with low initial mathematical skills are able to provide arguments or answers to questions given by researchers but have not been able to follow the process stages of mathematical literacy, because they only provide final conclusions on solving contextual problems in mathematics that are given without explain in advance how these results can be obtained so that these students have the possibility of achieving a better literacy level. Meanwhile, students with moderate initial mathematical skills also have the opportunity to be able to achieve the formulate and employ indicators, students with moderate initial skills cannot explain the process of achieving the solution to the problem given separately from the results of the answers written. Meanwhile, students with high initial mathematical skills also have the opportunity to do better and achieve the three indicators of the mathematical literacy process. This is supported by research findings Farida et al (2021) that show that students with high initial skills, especially those who can complete the three aspect of mathematics, namely formulating, employing and interpreting. Students with moderate skils could only fulfill two indicators in the mathematics process aspect, namely formulating and employing. Low ability students cannot fulfill all indicators in the mathematics process aspect, students only fulfill one aspect of the mathematical process, namely formulating. This shows that students with

low and medium initial skills have the opportunity can achieve a better level of mathematical literacy.

Farida et al (2021) that show that students with high abilities showed good mathematics literacy performance, especially those who can complere the three aspects of mathetatics literacy, while students with medium skills were only able to fulfill indicators in the formulating and employing aspects, while students with low skills had poor mathematics literacy skills. Marzuki and Masjudin (2019) his research showed that the students with medium and low initial mathematical abilities had low mathematics literacy skills. According to Ghofur et al (2020) the results of his research say that the reason why students cannot learn some parts of the mathematics literacy process optimally is because students are not yet familiar with questions or problems that related to mathematics. It requirescareful thinking and practical solution. The difficulty faced by students in solving questions is that students cannot explain the problems and draw conclusions about the given problems (Muslimah & Pujiastuti, 2020). The reason of low literacy skills is that students' ability to find strategies to solve problem is still low (Natsir & Munfarikhatin, 2021), Putri et al (2020) as well as students' lack of understanding in formulating problems mathematically. The research result Sulfayanti (2023) concluded that thr low mathematical literacy skills of students can be classified into two categories, namely, the first factor is internal factors (initial abilities, self-confidence and interest), the second factor is external factors (learning models, teaching materials and environment. So that solutions can be used in Increasing students' mathematical literacy includes: (1) improving students' initial abilities; (2) increasing students' self-confidence; (3) increasing students' interest and motivation; (4) improving the quality of learning models; (5) developing quality teaching materials.

If we look at it based on initial mathematical abilities, these are 4 students with high initial mathematical skills, these 4 students can achieve all three indicators of mathematics literacy, although there are still a few errors in their work, then for students with medium initial mathematical abilities, namely of 9 students, only 3 of them were able to achieve the formulate and employ indicators, although in achieving the employ indicator there were still deficiencies so that these indicators could not be achieved optimally, while the other 6 people have not been fully achieve the three indicators of mathematical literacy, and the students with low initial mathematical skills category, that is 3 students, these 3 students cannot achieve the three of indicators of the mathematical literacy process, because the students can only do simple calculations so it cannot be said that the students are capable of literacy.

Conclusions and Recommendations

Based on the mathematical literacy skill results on number pattern material in terms of initial mathematical ability, which were attended by 3 students, research focuses in class VIII.A at LTI IGM Palembang Junior High School, the results were as follows: subject with high initial mathematical ability (FMH) able to achieve these three criteria of mathematical literacy skill at 1, 2, 4 and 5 questions, while most subject with moderate initial mathematical skill (AZ) filed to achieve the three indicators of the mathematics literacy, subject has not been able to achieve the interpret indicator. Meanwhile, subjects with low initial mathematical abilities (AS) were less able to achieve all three indicators of the mathematics literacy process, subject can answer level 1, 2, and 4 questions, write conclusions correctly but without explaining the work

strategy and when interviewed subject could not explain the result of their answers so that subject was said to be unble to perform the task or use the criteria, student can' to achieve the formulate and employ indicators mathematical literacy skill well and correctly.

It is recommended for future researchers to conduct research on mathematical literacy abilities in other materials or contests, as well as carry out further analysis of the factors that cause students' initial mathematical ability results to be high, medium and low, because in this study the researcher did not carry out further analysis regarding initial abilities mathematics due to time constraints.

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