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Junior high school students' mathematical literacy in terms of mathematical self-efficacy

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Abstract

Mathematical literacy and self-efficacy are critical in learning, especially mathematics. In contrast to previous studies, which only describe mathematical literacy and self-efficacy, this study aims to describe the ability of mathematical literacy in terms of mathematical self-efficacy. This research was a survey research qualitative and quantitative approaches. The results of this study indicate that the mathematical literacy abilities of grade VIII students in junior high school in Yogyakarta with sample 436 students are in a low category and the mathematical self-efficacy in the medium category. The higher the students' mathematical self-efficacy, the higher their mathematical literacy. Students with high mathematical self-efficacy also tend to keep their maximum effort because they have the confidence to solve math literacy questions. Students with medium mathematical self-efficacy tend to doubt their abilities when facing difficult mathematical literacy questions. Students with low mathematical self-efficacy tend not to be confident in solving them because they think they lack mathematical abilities. This research is expected to map the mathematical literacy abilities of junior high school students in Yogyakarta. Besides, it can make material for reflection in world education to improve it.

Keywords: mathematics; mathematical literacy; mathematical self-efficacy

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Introduction

Literacy in mathematics is essential (Sumirattana et al., 2017). One of the life skills is mathematical literacy, which occupies a significant position. One of the primary goals of school instruction was mathematical literacy (Sumirattana et al., 2017). The goal of teaching mathematics in schools was to allow students to use and observe mathematical knowledge in real-world situations outside of school.

According to the Organization for Economic Cooperation and Development (OECD, 2013), 'mathematical literacy' refers to a person's capacity to identify and comprehend the role that mathematics plays in the world, to make sound judgments, and to engage mathematics in a manner that meets the needs of the individual's current and future life as constructive, caring, compassionate citizens. A person's mathematical literacy, as defined by the Organization for Economic Cooperation and Development (OECD, 2014), is their capacity to formulate, apply, and interpret mathematical concepts in various contexts. Mathematical modeling, precisely the capacity to formulate mathematical models, employ knowledge and skills to work on models, and interpret and evaluate results, is closely related to mathematical literacy (Stacey & Turner, 2015).

The components of the assessment in mathematical literacy are referred to as the domain of mathematical literacy. Mathematical literacy has three domains, namely: context domain includes personal, education/occupational, societal, and scientific; the content domain is quantity, space & shape, change & relationships, and uncertainty; and domain processes include formulate, employ, and interpret (OECD, 2003).

Solving mathematical literacy problems requires a mathematization process to formulate, employ, and interpret (OECD, 2013). PISA views the mathematization process as translating real everyday problems into mathematical models until solving the problem (Maslihah et al., 2020). The mathematization process begins with: problems that exist in the real world, (1) the problem is formulated into a mathematical problem in the form of a mathematical model, (2) the mathematical model that has been formed is then solved using a mathematical formula and produces a solution or problem-solving mathematics, and (3) the solutions that have been found are reinterpreted into real problems (Maslihah et al., 2020). The mathematization process is used as a reference in solving mathematical literacy problems. It can make it easier for students to solve mathematical literacy problems because it is structured and systematic (OECD, 2013).

Although the importance of mathematical instructional organizations has been recognized, there are several problems found in learning mathematics about the results of math literacy tests, both nationally and internationally. Some national problems are the world of education to realize the importance of increasing student competence in the world of education. One of the competencies of students has become a national problem and even internationally is literacy skills (Jailani et al., 2020). In addition, students can face the challenges of the 21st century by having literacy competence (Drew, 2012). At this time, literacy not only developed to be able to read but also to be intellectual and know how to research and solve the problem

complex (Jailani et al., 2020). Therefore, literacy is fundamental for individuals to participate in society and achieve their goals in work and life (UNESCO, 2015).

The international issue, namely the achievement of Indonesian student mathematical scores, was far below the international average (score 500). To the results of the 2018 PISA, Indonesia has decreased, which tends to fluctuate since 2000 (OECD, 2019a). Based on the order, Indonesia is ranked 72 out of 78 countries that participated, with an average score OECD state is 489 (OECD, 2019b). The results of the OECD survey in 2015 showed a significant increase in Indonesian students' mathematical literacy scores only for students who were at high levels (OECD, 2016). Even so, Indonesian students classified as having a high mathematical literacy score are still relatively low compared to students from other participating countries (Muhazir et al., 2021). Indonesia is included in 24 countries whose students are dominated by level 2 down (28% level 2 or above and 1% level 5 or above) (OECD, 2019a).

Self-efficacy in mathematics is another factor that affects how well one learns mathematics. *Mathematical self-efficacy* is defined as the belief in one's ability to complete mathematical tasks (Schulz, 2005). As defined by Bandura (1997), self-efficacy is the belief that one is capable of planning and carrying out the actions required to achieve specific goals. Pajares and Miller (1995) define mathematical self-efficacy as a person's belief in his or her capacity to complete or perform mathematical tasks or problems. Mathematical self-efficacy is one of the essential factors in learning mathematics, particularly mathematical literacy. A person's high mathematical self-efficacy can encourage learning success. Students with high levels of self-efficacy are more likely to set higher goals, have less fear of failing, and develop new strategies when they fail (Woolflok, 2016).

The study's findings explain the connection between mathematical literacy and mathematical self-efficacy (Kurniawati & Mahmudi, 2019). The students' mathematical self-efficacy in solving mathematical literacy problems is defined as students' self-confidence in solving mathematical literacy problems without comparing with the abilities of others to achieve success in mathematics learning achievements accompanied by a sense of confidence in the efforts made, the choices that have been determined, and having perseverance (Schulz, 2005).

Mathematical self-efficacy has dimensions that affect a person's performance. Bandura (1997) divides self-efficacy into three dimensions: level/magnitude, generality, and strength. Each of these self-efficacy dimensions is made indicator. The indicator for the level/magnitude dimension is the belief in the ability to be able to solve mathematical literacy problems with different levels of difficulty; the indicator for the generality dimension is the belief in solving mathematical literacy problems in various situations; and indicators for strength are persistent, diligent, and tenacious in solving the given mathematical literacy questions, and believe that the efforts that have been made have a positive impact (Muhazir et al., 2021).

Mapping literacy skills in Indonesia has been carried out in several areas, in various junior high schools and senior high schools. Like the mapping of mathematical literacy skills carried out by Mahdiansyah and Rahmawati (2014) in senior high schools in several areas and by Muhazir et al. (2021) in senior high schools in Banjarmasin. Meanwhile, research on mapping mathematical literacy skills throughout Yogyakarta is mostly carried out at the senior high

school level. It is similar to the study by Sari and Wijaya (2017), which mapped senior high school mathematical literacy in Yogyakarta and found that senior high school students fell into the shallow category for mathematical literacy. Meanwhile, there needs to be a mapping of mathematical literacy in all junior high schools in Yogyakarta. Considering starting in 2022 at the junior high school level, there will be an Assessment Literacy and Numeracy (ALN) held in all public junior high schools in Yogyakarta from grades VII-IX of junior high school regularly every year. The assessment was conducted to determine students' abilities from each state junior high school in Yogyakarta, which would be averaged for each school.

Several researchers have researched mathematical literacy and mathematical self-efficacy. However, there needs to be a mapping of students' mathematical literacy in terms of mathematical self-efficacy, especially in all junior high schools in Yogyakarta. Therefore, this study aims to describe the student's mathematical literacy in terms of the mathematical self-efficacy of grade VIII students of Junior High School in Yogyakarta.

Methods

This research was survey research with qualitative and quantitative approaches. The qualitative approach is used to determine the level of students' mathematical literacy skills. The quantitative approach is used because the data obtained includes students' mathematical literacy scores and a mathematical self-efficacy questionnaire. To clarify students' mathematical literacy skills, in-depth interviews were conducted with the research subjects.

First, the researcher prepared an instrument for a test, a scoring guide, a questionnaire, and an interview guide. The test instrument used to measure students' mathematical literacy skills is in the form of multiple choice questions with a total of 24 questions that include three process components used as indicators of mathematical literacy: formulate, employ, and interpret. The mathematical literacy questions, with a total of 24 questions, are made in several contexts: personal, societal, scientific, and occupational. In addition, the distribution of mathematical content used in the 24 questions is space & shape, uncertainty & data, change & relationship, and quantity.

The following instrument is a mathematical self-efficacy questionnaire used to measure a student's confidence level in solving mathematical literacy questions. Positive and negative statements are included in the instrument. The Likert scale with five points is the scale model used in this study. According to Kurniawati and Mahmudi (2019), self-efficacy is broken down into three dimensions: strength, generality, and level/magnitude. The Bandura (1997) dimension organizes the indicators used in this instrument to measure mathematical self-efficacy. The mathematical self-efficacy indicators used are belief in the ability to solve mathematical literacy questions with different levels of difficulty; persistent, diligence, and tenacity in solving mathematical literacy problems given and belief that the efforts that have been made have a positive impact; and confidence to able to solve mathematical literacy problems in various situations.

The last instrument is the interview guide. Interviews were conducted to learn more about students' mathematical literacy abilities in terms of mathematical self-efficacy. The students

interviewed were representatives of students with high, medium, or low mathematical self-efficacy. The form of interview questions is also directed to confirm the results of the answers to the completion of students' mathematical literacy tests on students with high, medium, and low mathematical self-efficacy.

In the second step, we calculated the number of students for testing research instruments and samples. The subjects of this research were Junior High Schools in Yogyakarta. There are 213 state-run junior high schools in Yogyakarta. This study's population comprised VIII-grade students attending state junior high schools in Yogyakarta. Classifying schools into A (high), B (medium), and C (low) according to the ASPD (*Assessmen Standar Pendidikan Daerah*) value for junior high schools in Yogyakarta in 2021, a sample was taken using stratified random sampling. The criteria for determining the school sample adhere to Frisbie and Ebel (1991).

Table 1. Criteria for determining school strata

Intervals	Category
$x_i \geq x + 0{,}5s$	High (A)
$x - 0{,}5\ s\ \leq x_i < x + 0{,}5\ s$	Medium (B)
$x_i < x - 0{,}5\ s$	Low (C)

From calculations based on Table 1, there are 46 state schools in Yogyakarta with category A, 75 schools with category B, and 92 schools with category C. Totall of 15 public schools in DIY are taken from each category in each district in Yogyakarta from 5 districts, with one pilot school, and 14 sample schools. Based on the calculations obtained, three samples of category A schools (91 students), five samples from schools of category B (160 students), and six samples of schools from category C (185 students).

The third step is to try out the instrument at one pilot school with 180 students. The fourth step was calculating the validity and reliability of research instruments that have been tested. Hasil validitas dan reliabilitas instrumen tes literasi matematika yaitu semua soal valid dan hasil reliabilitasnya 0.677 so that the mathematical literacy test instrument is said to be valid and reliable, and can be used to collect data. Furthermore, the validity and reliability of the mathematical self-efficacy questionnaire instrument are all valid questionnaires. In addition, their reliability results are 0.847, so the mathematical self-efficacy questionnaire instrument is valid and reliable and can be used to collect data.

After the instrument is tested for validity and reliability and the results of the instrument are valid and reliable. Then the fifth step is collecting research data from 14 sample schools. The first data collection was the student's mathematical literacy test, followed by a mathematical self-efficacy questionnaire, then correcting the results of solving students' mathematical literacy questions. Student representatives carried out a new student mathematical self-efficacy questionnaire for in-depth interviews. After completing research in 14 sample schools, the last step is data analysis. This study uses quantitative data analysis with descriptive statistics as the method of data analysis. Quantitative data analysis was carried out using SPSS Statistics 24. When converting quantitative data into qualitative data, the ideal average and standard deviation were used to determine the criteria for the measurement results. Descriptive statistics were used to describe the data, such as the mean, standard deviation, and maximum and minimum scores. By triangulation of the mathematical self-efficacy questionnaire, the

mathematical literacy test, and the results of student interviews, mathematical literacy skills can be achieved in terms of students' mathematical self-efficacy.

Results

Students' mathematical literacy

The results of the analysis of mathematical literacy of Junior High School grade VIII at Yogyakarta have an average score of 34.53, a standard deviation of 14.08, and only 1% of the total achieved the KKM. In general, 99% are a low category, and 1% is a high category. The analysis results show that the mathematical literacy of students in Junior High School grade VIII at Yogyakarta is a low category. The results of the above analysis can be seen in Table 2 below.

Table 2. Description of students' mathematical literacy in general and based on schools strata

Descriptive Statistic	School Strata			General
	A	B	C	
Average	48.85	34.66	27.38	34.53
Standard Deviation	15.60	11.87	8.67	14.08
Score ≥ 75 (High)	5%	1%	0%	1%
Score < 75 (Low)	95%	99%	100%	99%
Total Students	91	160	185	436

Based on school strata, Table 2 shows that students in grade A schools have an average of 48.85, with 95% (low category) and 5% (high category). In addition, students in grade B schools have an average of 34.66, with 99% (low category) and 1% (high category); and students in grade C schools have an average of 27.38, with 100% of students in the low category. Apart from observing in tabular form, the data is in Table 1. When observed in the form of a bar chart, it can be seen in Figure 1 below.

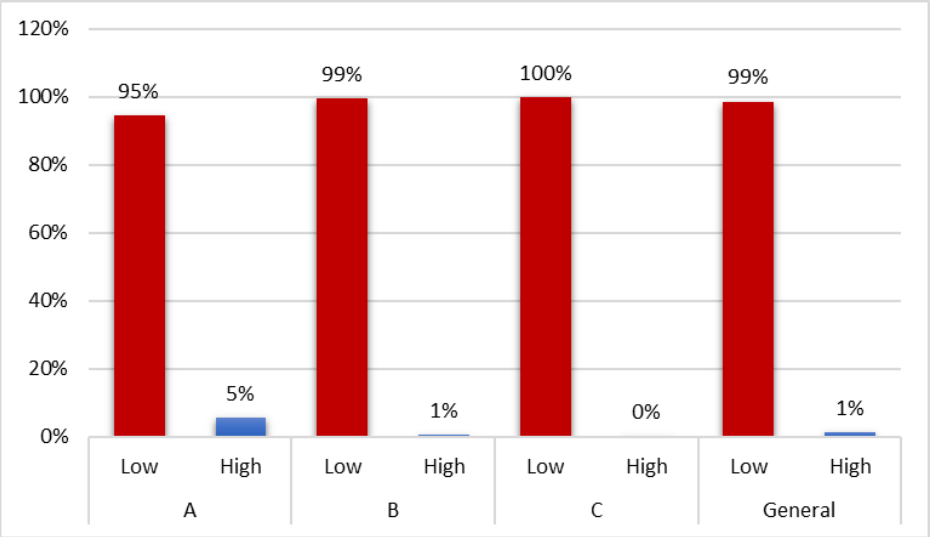

Figure 1. Percentage of students in school strata of mathematical literacy

Students' mathematical self-efficacy

The analysis of the mathematical self-efficacy of grade VIII students at Yogyakarta Junior High School revealed an average score of 75.74 and a standard deviation of 11.47 from the overall results for students. In general, 16% of students have a high level of mathematical self-efficacy, 11% have a low level, and 72% have a medium level. The analysis shows that the grade VIII students at Yogyakarta Junior High School have a medium level of mathematical self-efficacy. The results of the above analysis can be seen in Table 3 below.

Table 3. Description of students in general mathematical self-efficacy and based on school strata

Descriptive Statistics	School Strata			General
	A	B	C	
Average	80.23	72.79	76.09	75.74
Standard Deviation	9.83	11.51	11.48	11.47
Ideal Highest Score	120	120	120	120
Highest Score	105	120	115	120
Ideal Lowest Value	1	1	1	1
Lowest Score	60	48	45	45
Total Students	91	160	185	436

Based on school strata, from Table 3 and Figure 3, it can be observed that students in grade A schools have an average of 80.23 (medium category), with a medium percentage of 69%. In addition, students in grade B schools have an average of 72.79 (medium category), with a medium percentage of 71%; and students in grade C schools have an average of 76.09 (medium category), with a medium percentage of 75%. Based on these observations, students in strata A schools have the highest average level of mathematical self-efficacy compared to strata B and strata C schools. Apart from observing in tabular form, the data is in Table 3. When observed in the form of a bar chart, it can be seen in Figure 2 below.

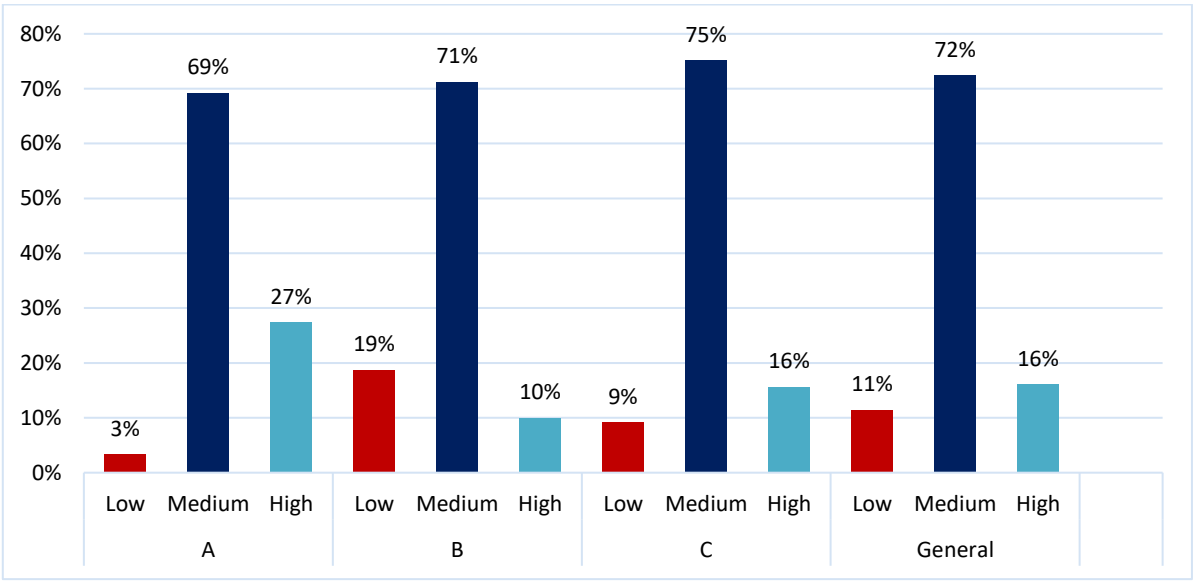

Figure 2. Percentage of students in each category of self-efficacy mathematics

Students' mathematical literacy in terms of students' mathematical self-efficacy

Students in grade VIII of the Junior High School in Yogyakarta have an average level of high mathematical self-efficacy (94.31), medium mathematical self-efficacy (74.57), and low mathematical self-efficacy (57.28) when it comes to solving problems related to mathematical literacy. Table 4 provides additional information about the average category of students' mathematical self-efficacy.

Table 4. Description of the average category of mathematical self-efficacy with mathematical literacy

Level of mathematical self-efficacy	Descriptive Statistics	Mathematical Self-efficacy	Mathematical Literacy
High mathematical self-efficacy	Average	94.31	42.20
	N	70	70
	Std. Deviation	6.74	16.68
Medium mathematical self-efficacy	Average	74.57	33.55
	N	316	316
	Std. Deviation	6.00	13.56
Low mathematical self-efficacy	Average	57.28	30.00
	N	50	50
	Std. Deviation	5.15	8.62

Based on Table 4, students with high mathematical self-efficacy have an average mathematical literacy of 42.40. Students with medium mathematical self-efficacy have an average mathematical literacy of 33.55, and students with low mathematical self-efficacy have an average mathematical literacy is 30.00. The higher the average mathematical self-efficacy of students, the higher the average mathematical literacy of students. From some of these things, the higher the students' mathematical self-efficacy, the higher the students' mathematical literacy.

It is supported by interviews with student representatives regarding the level of mathematical self-efficacy at each high, medium, and low school, in addition to the results of the mathematical literacy test. More information about students' mathematical literacy is gleaned from interviews with representatives of students with high, medium, and low mathematical self-efficacy. Data were obtained from the triangulation of the questionnaire, test results, and student interviews about students' mathematical literacy in terms of students' mathematical self-efficacy.

Discussion

Students' mathematical literacy

The study's findings revealed that grade VIII students' abilities of state junior high school in Yogyakarta in solving mathematical literacy questions were in a low category. Students who have the highest mathematical literacy ability, only 5% of the total students, are in high strata (A) schools. Only 1% of strata B schools are in the highest category of students' ability to solve math literacy problems. At C strata schools, students can only solve math literacy problems with a high category. School-level characteristics affect academic achievement (Bohlmann &

Pretorius, 2008; Chowa et al., 2015). It should get the attention of the government, teachers, and researchers. Students' mathematical literacy skills must be supported by the quality of mathematics instruction, which includes the process of planning, implementing, and evaluating learning outcomes. Students' abilities are influenced by school quality (Chowa et al., 2015).

The quality of instruction is essential in raising student achievement in mathematical literacy (Retnawati et al., 2018). Literacy can be integrated into the mathematics learning process and other subjects to improve the quality of learning and learning assessment (Hillman, 2014). Jailani et al. (2017) suggest that the teaching and learning process should incorporate a variety of contexts. Apino and Retnawati (2017) also recommend that mathematics education programs be developed to assist students in making connections to real-world situations. Due to this, students may find it simpler to comprehend and solve real-world mathematical literacy problems.

Students' mathematical self-efficacy

According to the OECD (2017), mathematical self-efficacy aids students in developing their ability to solve mathematical problems. Also known as mathematical self-efficacy, problem-solving skills are a component of mathematical literacy. In addition, a student's mathematical self-efficacy is measured by how well they solve math problems or do well on math tests (Bracha & Nava, 2004). The students' mathematical self-efficacy in the mathematical literacy in grade VIII *SMP* in Yogyakarta was medium in this study. Overall, students have a fair amount of self-assurance, which includes being tough and tenacious when faced with challenges and having faith in their ability to learn mathematics.

In difficult situations, students with low self-efficacy tend to give up easily, while students with high self-efficacy will try harder to overcome existing challenges (Kurniawati & Mahmudi, 2019). Individuals with low self-efficacy abilities will stay away from complex tasks because they view these tasks as a threat to them (Bandura, 1997). Peggy (Kurniawati & Mahmudi, 2019) stated that students with higher mathematical self-efficacy show sharpness in mathematical calculations and show more remarkable persistence in working on challenging mathematical problems than students with low mathematical self-efficacy.

Students' mathematical literacy in terms of students' mathematical self-efficacy

Based on the research results on mathematical literacy in terms of students' mathematical self-efficacy, the research results can be discussed as follows:

Students who have high mathematical self-efficacy in mathematical literacy

Because they can involve the mathematization process, students whose mathematical self-efficacy in mathematical literacy-related problems is high can complete the stages of solving problems related to mathematical literacy, precisely the formulate, employ, and interpret stages. At the formulate stage, students can make mathematical models by connecting facts and concepts; able to determine the systematics of problem-solving, be aware of the process and results of thinking in identifying information that is known as a source for solving problems;

able to identify the real problem being asked. So that they are aware of the direction and purpose of solving the problem; and able to design problem-solving plans based on the basics in identifying possible ways, strategies, formulas, or other information that can be used to solve problems. At the employ stage, students can determine the relationship between concepts in solving problems, be aware of the process and results of their thinking in choosing and using strategies to solve mathematical literacy problems and monitor the correctness of the steps in solving these mathematical literacy problems. While at the interpretation stage, students can interpret real problems to solve problems.

In addition, students with high mathematical self-efficacy keep going even when facing difficult questions. Even though at first students experienced difficulties, they kept trying to think of ways to solve them. It is in line with research by Hikmah (2020) which states that students with high mathematical self-efficacy will try to solve problems even though they are difficult. The results of this study can be interpreted that subjects with high mathematical self-efficacy have high confidence that they can solve the problems given. It is because a person's strong belief in himself will make that person try seriously to achieve his goals and vice versa; when this belief weakens, it will reduce his efforts when faced with a particular problem (Zega, 2021).

This study's results align with Umbara et al. (2022) that high mathematical self-efficacy is related to better mathematical literacy related to problem-solving strategies, more efficient time management, maximal effort, and the ability to survive when obstacles or difficulties solve problems. Thus, students who have high mathematical self-efficacy can use the mathematical process optimally at the formulae, employ, and interpret stages to lead to success in solving the mathematical problems they face.

Students who have medium mathematical self-efficacy in mathematical literacy

Students with a medium level of mathematical self-efficacy in mathematical literacy can complete the stages of solving problems related to mathematical literacy, namely formulate, employ, and interpret strategies. However, they are not at their best because they are not fully involved in mathematicalization. At the formulation stage, students still need clarification and are incorrect in making mathematical models by connecting facts and concepts. The student can realize the process and results of his thinking in identifying information that is known as a source to solve the problem but has not been able to realize his thinking process in identifying the problem that is being asked so that it does not focus on the core of the problem; and unable to devise a plan or strategy for completion.

At the employ stage, students are not suitable for determining the relationship between concepts in solving problems; students are not able to realize the process and results of their thinking in choosing and using strategies to solve mathematical literacy problems, so they are not aware of mistakes made that cause the results to be inaccurate. It follows the research of Mukhtari et al. (2019) that in some questions, students with medium mathematical self-efficacy already know the known and asked but need help connecting these elements with the formula used. It happens because students need help understanding the problem and planning optimal

solutions. Meanwhile, at the interpretation stage, students need to be more precise in interpreting real problems to solve problems.

The results of this study show that students with medium mathematical self-efficacy also naturally have the potential for mathematical literacy to be developed. However, it can be better than the mathematical literacy abilities of students with high mathematical self-efficacy. It happens because students with medium mathematical self-efficacy always doubt their abilities when facing difficult math problems. It is in line with research by Mardiana et al. (2018) that students with medium mathematical self-efficacy are doubtful about their ability to complete the tasks given and consider the results of their work to be wrong. Therefore, students with medium mathematical self-efficacy are not optimal in using the mathematical process at the formula, employ, and interpret stages, so they cannot complete the task correctly.

Students who have low mathematical self-efficacy in mathematical literacy

Because they need to carry out the mathematization process better, students with low mathematical self-efficacy in mathematical literacy problems typically cannot complete the mathematical literacy problem-solving process stages, specifically at the formulate, employ, and interpret stages. At the formulation stage, students need help to make mathematical models by connecting facts and concepts; they are less able to identify known information and are less aware of their thinking processes in identifying the problems being asked.

Therefore, they are not able to design a strategy for solving the problem because they need to be made aware of the purpose of solving the problem. At the employ stage, students cannot determine the relationship between concepts in solving problems. In addition, students cannot realize the process and results of their thinking in choosing and using strategies and monitoring the correctness of the steps in solving mathematical literacy problems because they do not know well when formulas and procedures take place and have doubts about the calculations carried out. Meanwhile, at the interpretation stage, students need help interpreting real problems to solve problems.

Based on the research results, students with low mathematical self-efficacy are less able to identify known information and problems that are adequately asked, so they cannot plan a solution strategy. According to research by Mardiana et al. (2018), students with low mathematical self-efficacy are unable to solve complex problems and tend not to do them, and do not want to try to find answers to the questions given. It is also in line with the results of research by Subaidi (2016) and Zuya et al. (2016). They found that students with low mathematical self-efficacy tend to show behavior that gives up easily and does not have confidence that they can succeed in solving problems. Therefore, they will take little or no action and even prefer to give up on doing it.

The ability of students with low mathematical self-efficacy will affect their exertion and tenacity, so it impacts their low ability to solve problems or assignments given (Aurah, 2013; Chen et al., 2015). Therefore, students with low mathematical self-efficacy tend not to use the mathematization process well because it is not optimal in formulating, employing, and interpreting stages.

Conclusion

The mathematical literacy of grade VIII Junior High School students in Yogyakarta is in a low category. Students' ability to apply the mathematical literacy process is still lacking. Many students find it difficult when using mathematical concepts to solve internal problems in various contexts (employ) and interpret the meaning of mathematical solutions in the problem context (interpret). On the other hand, the mathematical self-efficacy of grade VIII Junior High School students in Yogyakarta is in the medium category. Students, as a whole, do not fully have good confidence in their abilities in mathematics.

The higher the average student's mathematical self-efficacy, the higher the average student's mathematical literacy. From these several things, it can be concluded that the higher the students' mathematical self-efficacy, the higher their mathematical literacy. Students with a high level of mathematical literacy are more likely to persist through challenging questions, manage their time effectively, and try their best because they are confident, they can solve mathematical literacy problems. Students with medium levels of mathematical self-efficacy are less likely to give up when faced with difficult mathematical literacy questions. However, they doubt their ability to solve them because they believe they do not have good enough math skills. On the other hand, students with low mathematical self-efficacy levels are more likely to give up when faced with difficult mathematical literacy questions.

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Conflicts of Interest

In relation to the publication of this manuscript, the authors declare that there is no conflict of interest. In addition, the ethical issues, including plagiarism, misconduct, data fabrication and/or falsification, double publication and/or submission, and redundancies, have been completed by the authors.

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Author Contributions

Fifi Khairun Nisa: Conceptualization, writing - original draft, editing, and visualization; **Elly Arliani:** Writing - review & editing, formal analysis, and methodology.

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