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LITERACY OF MATHEMATICAL STORY PROBLEMS ON PROBLEM SOLVING SKILLS OF ELEMENTARY SCHOOL STUDENTS

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Abstract
In Indonesia, understanding math story problems is often a challenge for many students, especially in connecting the information given in the problem with relevant mathematical concepts. This suggests a need to improve students' literacy in understanding mathematical story problems in order to better solve problems. Therefore, this study aims to analyse and describe the relationship between literacy in math word problems and fourth-grade students' problem-solving skills. This research uses a quantitative approach with a correlational research design. The variables studied were literacy in understanding math word problems as the independent variable and problem-solving ability as the dependent variable. The research sample consisted of 25 fourth-grade students from SD Negeri Pelandakan I. Purposive sampling was employed in this study. The research instruments utilised were observation sheets to assess students' reading literacy on math word problems and tests to assess fourth-grade students' problem-solving abilities. The findings of this study is based on the value of r_count and r_table, it is known that r_count > r_table which shows that this study has proven a positive and significant correlation between literacy of math word problems with problem-solving skills of grade IV students of SDN Pelandakan I Cirebon. This is evidenced by the obtained r_count of 0.695. At a significance level of 1% (23), r_table is 0.413. The conclusion is concluded that enhanced literacy skills in reading math word problems correlate with improved problem-solving abilities among fourth-grade students, and conversely, reduced literacy skills align with diminished problem-solving abilities. The theoretical implication of the results of this study is that it confirms the belief in the importance of students' literacy skills and problem-solving abilities in addressing math word problems.
Keywords: *Literacy of Mathematical; Story Problems; Problem Solving Skills*

Abstrak
Di Indonesia, pemahaman terhadap soal cerita matematika sering menjadi tantangan bagi banyak siswa, terutama dalam menghubungkan informasi yang diberikan dalam soal dengan konsep matematika yang relevan. Hal ini menunjukkan adanya kebutuhan untuk meningkatkan literasi siswa dalam memahami soal cerita matematika agar dapat memecahkan masalah dengan lebih baik. Oleh karena itu, penelitian ini bertujuan untuk menganalisis dan mendeskripsikan hubungan antara literasi dalam soal cerita matematika dengan keterampilan pemecahan masalah siswa kelas IV. Penelitian ini menggunakan pendekatan kuantitatif dengan desain penelitian korelasional. Variabel yang diteliti adalah literasi dalam memahami soal cerita matematika sebagai variabel bebas dan kemampuan memecahkan masalah sebagai variabel terikat. Sampel penelitian terdiri dari 25 siswa kelas IV SD Negeri Pelandakan I. Pengambilan sampel dilakukan secara purposive sampling. Instrumen penelitian yang digunakan adalah lembar observasi untuk menilai literasi membaca siswa pada soal cerita matematika dan tes untuk menilai kemampuan pemecahan masalah siswa kelas IV. Temuan penelitian ini berdasarkan nilai r_hitung dan r_tabel, diketahui bahwa r_hitung > r_tabel yang menunjukkan bahwa penelitian ini telah membuktikan adanya korelasi positif dan signifikan antara literasi soal cerita matematika dengan keterampilan pemecahan masalah siswa kelas IV SDN Pelandakan I Cirebon. Hal ini dibuktikan dengan diperolehnya r_hitung sebesar 0,695. Pada taraf signifikansi 1% (23), r_tabel sebesar 0,413. Kesimpulannya, peningkatan kemampuan literasi dalam membaca soal matematika berkorelasi dengan peningkatan kemampuan pemecahan masalah di antara siswa kelas empat, dan sebaliknya, penurunan kemampuan literasi sejalan dengan penurunan kemampuan pemecahan masalah. Implikasi teoritis dari hasil penelitian ini adalah semakin mengukuhkan keyakinan akan pentingnya kemampuan literasi dan kemampuan pemecahan masalah siswa dalam menyelesaikan soal cerita matematika.
Kata Kunci: Literasi Matematika; Soal Cerita; Kemampuan Pemecahan Masalah

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Introduction

Literacy, particularly in the context of reading and interpreting information, is one of the abilities required in today's age of technological and information development. As mentioned by Ibda, literacy is now highly vital in addressing the increasingly advanced and developing technological era (Ibda, 2020). According to Law No. 3/2017 on the Book System, literacy is the ability to interpret information critically, enabling individuals to access and utilize science and technology to improve their quality of life. Literacy forms the foundation for problem-solving abilities and is crucial for progressing to the next level of education, preparing students to communicate and socialize effectively within their community. Furthermore, numeracy, which involves mathematical literacy and the ability to understand and apply mathematical concepts, is equally essential. Both literacy and numeracy are foundational skills that should be developed from a young age to help children engage with and enjoy learning, especially in the context of problem-solving (Sa'dia, 2021).

The literacy skills investigated in this study focus on reading literacy, which is vital in enhancing learner development. According to Herawan, literacy skills are defined as the capacity to read and write, and they play an important part in the process of increasing student development (Herawan, 2021). There are several benefits of literacy skills for primary school students: 1) it can increase knowledge and build students' vocabulary; 2) it can make the brain work optimally and ideally; 3) it adds insight and experience to students; 4) it cultivates students themselves and memory in capturing information data in reading; 5) it trains students' focus and concentration; 6) it prepares students' reasoning thinking skills and scientific abilities; 7) it develops verbal abilities (Herawan, 2021).

Literacy skills play a crucial role in students' academic development. According to the explanation of the benefits of literacy skills above, it can be concluded that students with strong literacy skills are able to increase their knowledge, build vocabulary, enhance their memory in capturing information, and prepare their reasoning and scientific abilities. These skills are fundamental for problem-solving, especially in mathematics. In the context of mathematics education, particularly in primary school, reading literacy is essential because it aids in understanding number concepts, thinking critically, and solving problems (Anis Fitria et al., 2022).

Reading comprehension, in particular, is crucial for solving math word problems. Students need reading literacy to decode information and identify the problem within math word problems, which is a necessary skill to find solutions. Studies show that reading comprehension enhances the ability to answer math word problems effectively (Anis Fitria et al., 2022). Furthermore, reading comprehension provides learners with a deep and comprehensive understanding of the math word problems presented, facilitating easier problem-solving (Almadiliana et al., 2021).

To successfully understand and solve math word problems, primary school learners need both patience and solid reading literacy skills (Dewi, 2022). In conclusion, it can be said that students with strong reading literacy skills are better able to comprehend and analyze reading

materials, which directly impacts their ability to solve mathematical word problems. Schools can support the development of these skills through programs such as daily literacy activities and monthly reading reviews. Teachers can also enhance students' literacy skills by incorporating case study questions or story problems in mathematics lessons. .

Despite the extensive research on mathematical problem-solving skills in elementary schools, there is still a gap in understanding how mathematical word problem literacy affects students' problem-solving abilities, especially in the VUCA (Volatility, Uncertainty, Complexity, Ambiguity) context. Recent studies have shown that in the VUCA era, students' ability to navigate through complex, unpredictable, and ambiguous situations is essential for success (Pasi, 2022). However, many studies focus on problem-solving techniques without considering how students' understanding of the problem context, such as reading and interpreting word problems, influences their critical thinking abilities. For instance, a study by Toh and Tan (2021) found that students with higher levels of mathematical literacy demonstrated greater adaptability and better problem-solving skills in unpredictable scenarios compared to their peers. Furthermore, the challenges students face in understanding word problems in a VUCA world are not just cognitive but also socio-emotional, as students are increasingly expected to apply mathematical concepts to solve real-world problems that involve uncertainty and ambiguity (National Council of Teachers of Mathematics, 2020). Therefore, it is crucial to explore the relationship between word problem literacy and the adaptive skills necessary to address these challenges. In line with recent educational frameworks, integrating mathematical literacy into learning is not only about enhancing students' ability to solve problems but also about fostering their capacity to understand and apply these concepts in dynamic and uncertain contexts (OECD, 2023). Further research is needed to find effective strategies for embedding mathematical literacy into the curriculum, so students can adapt to rapidly changing environments and thrive in the face of complexity and ambiguity.

Based on the results of a preliminary study conducted at SDN Pelandakan 1, the results of interviews with grade IV teachers at SDN Pelandakan I in June 2024, that grade IV students tend to be less careful in reading problems, less motivated to read math word problems, and according to the homeroom teacher, grade IV students' reading comprehension skills are still low, for example, the low understanding of reading information text, only 40% of students have good reading comprehension skills. However, SD N Pelandakan I has a literacy movement programme called '*Pegiat Literasi Anak Negeri Pelandakan I*' (National Children's Literacy Activist Pelandakan I) or known as Pelangi Daku as a daily activity. In addition to the 'Pelangi Daku' activity, SDN Pelandakan I has a reading book review activity which is conducted once a month. The observation results revealed that the library facilities are complete, and the class IV room is literacy-rich. This phenomenon proves that training students' reading literacy must be done consistently and the learning process, especially mathematics, must be integrated with reading literacy activities, such as training students to understand sentences in story problems.

The problem of low reading literacy skills among primary school students is influenced by both internal and external factors. Internal factors are related to students' experience in reading story problems, which leads to difficulties in understanding the problems assigned by the teacher. These challenges in comprehension often arise from students' habit of struggling to understand the content of texts during Indonesian language lessons (Rombot et al., 2020). External factors, on the other hand, stem from outside the learners, particularly the lack of resources, such as books, which contributes to a poor reading culture (Hartati et al., 2021). Rahmawati (2021) also highlighted that external factors influencing students' limited numeracy literacy skills include a lack of habituation in the learning process.

The problem of students' lack of motivation to understand math word problems and the low comprehension of reading texts in grade IV students is a challenge for teachers and schools. Teachers and schools must maximise their efforts to develop the ability to understand story problems. To develop the ability to understand story problems and solve maths problems, students must be trained to read comprehensively and to strengthen their reading literacy skills. In addition, students must always be trained on how to understand story problems to be able to answer problems.

To improve literacy in mathematical story problems and problem-solving skills of elementary school students in the VUCA era, a context-based approach can be applied in mathematics teaching. By linking learning to real situations and relevant challenges, teachers can help students develop better understanding and adaptive skills. Strategies such as the use of problem-based projects, group discussions, and interactive digital tools can increase student engagement and facilitate collaborative problem solving. As stated by Rojas-Drummond et al. (2016), "collaboration in real contexts can develop critical thinking and problem-solving skills needed to deal with the complexities of modern times."

The reasons are related to research findings that indicate a positive correlation between reading literacy and the capacity to solve literacy questions. Based on the results of research conducted by Erlina and Wulandari in 2023, it is proven that reading literacy skills have a strong positive relationship with the ability to solve math word problems of fourth-grade students of SDN Buluh 1. According to the results of their research, when students have strong literacy skills, their understanding in reading is also strong so that they can solve literacy questions well (Arianti & Wulandari, 2023). In addition, research conducted by Aulia & Maksum (2024) proved that there is a significant positive relationship between reading literacy and the ability to solve math word problems in class IV SDN Mangga Besar 1 with a significance value of 0.047.

This research is expected to make a significant contribution to the development of mathematics education practices by emphasizing the importance of literacy towards story problems as a means to improve elementary school students' problem-solving skills in the VUCA era. By providing insight into the relationship between mathematical literacy and students' adaptive abilities, this research has the potential to encourage changes in curriculum and teaching methods, so that students are better prepared to face real-world challenges. As stated by Boaler (2015), "Mathematics is not just about numbers, but about developing critical thinking and the ability to solve problems in diverse situations."

According to those explanations, researchers are interested in proving the relationship between students' reading literacy skills and problem-solving skills in solving math word problems, as well as how much of a relationship exists. The novelty of this study lies in the integrative approach that combines mathematical story problem literacy with the development of problem-solving skills in the VUCA context, which has not been widely studied before. By adopting a context-based learning method that is relevant to the challenges of the times, this study not only explores students' understanding of mathematical problems but also measures its impact on their critical thinking and adaptation skills in complex situations. This is expected to provide a new framework for educators to design more effective and relevant learning, and encourage students to become more resilient problem solvers in a changing world.

Research Methods

The objects of this study consisted of fourth grade elementary school students in several schools located in urban and rural areas, with a focus on their ability to solve mathematical story problems and their level of mathematical literacy.

The research method used is quantitative with a correlational research design. A quantitative approach was chosen because this study aims to measure and analyze the relationship between two variables, namely reading literacy skills and problem-solving abilities, in a measurable way. Quantitative research is appropriate for this purpose as it allows for statistical analysis of data, providing clear, objective results that can be generalized to a larger population. According to Arikunto, correlation research is conducted to evaluate the degree of relationship between two or more variables without changing, adding, or manipulating existing data (Arikunto, 2012). This method is suitable for understanding how students' reading literacy skills correlate with their ability to solve mathematical word problems. Furthermore, Sugiyono defines correlational research as research that seeks to identify the relationship between two or more variables (Sugiyono, 2019). In this study, correlational research is ideal as it allows the researcher to determine whether and how reading literacy influences students' problem-solving abilities without manipulating variables. By using this method, the study aims to identify the strength and direction of the relationship between literacy and problem-solving skills, providing valuable insights into how literacy impacts mathematical performance in primary school students.

The purpose of this study is to determine the link between the research variables, specifically literacy in reading math word problems as an independent variable and metacognitive capacity as the dependent variable. Research variables are qualities, properties, or values of persons, things, or activities with certain variations chosen by researchers to analyze and make conclusions from (Sugiyono, 2017). There are two types of variables in research: independent variables (x) and dependent variables (y). Independent variables are typically referred to as such because they influence or induce changes in the dependent variables (bound). In this study, the independent variable is reading literacy in math word problems, defined as the ability to comprehend, interpret, and analyze mathematical problems presented in written form. This includes understanding key information, identifying relevant mathematical operations, and accurately solving the problems based on the provided text.

Meanwhile, the dependent variable is metacognitive capacity, which refers to the ability to plan, monitor, and evaluate one's own thinking and problem-solving strategies. In this context, metacognitive capacity is operationalized as the students' ability to use strategies such as self-reflection and self-regulation while solving math word problems. The dependent variable in this study, problem-solving abilities, is defined as the students' capacity to apply mathematical concepts and operations to solve word problems, including the accuracy, efficiency, and logical reasoning involved in arriving at the solution. Thus, the study aims to explore how students' literacy in reading math word problems influences their problem-solving skills and metacognitive abilities.

Figure 1. Correlation Research Design

The Figure 1 show about the analysis used to test the associative hypothesis is correlation analysis. Correlation analysis determines the direction and strength of the relationship between two or more variables. The following is the sequence for conducting statistical analyses.

Prerequisite Test

Before doing the correlation analysis, the analytical requirements test is performed, which includes the normality and linearity tests.

Normality Test

The normality test determines whether or not the independent and dependent variables exhibit a normal distribution. The normality test in this study was carried out by the One-Sample Kolmogorov-Smirnov Test using the SPSS programme. The normality test uses the criterion that if $p > 0.05$, the distribution is normal, and if $p < 0.05$, it is abnormal. If the significance value> 0.05, it can be concluded that the data is normally distributed.

Linearity Test

The linearity test determines whether or not the variables in this study have a significant linear connection. It is said to be linear if a rise in the score of the independent variable is followed by an increase in the score of the dependent variable. The linearity test was conducted using the test of linearity at a significance level of 0.05 using the SPSS computer programme. The linearity test uses the rule that $p > 0.05$ indicates linearity and $p < 0.05$ indicates non-linearity.

Data validation in the quantitative method of this study was carried out through reliability and validity tests of the questionnaire used to measure students' story problem literacy and problem-solving skills. Reliability testing will be carried out by calculating the Cronbach's alpha value, which indicates the internal consistency of the instrument, while content validity will be assessed through expert judgment to ensure that the items in the questionnaire are relevant and cover the aspects to be measured. In addition, exploratory factor analysis will be applied to ensure that the questionnaire reflects the expected structure, as explained by Field (2018) that "validity and reliability are key to ensuring data quality and valid research results."

Hypothesis Test

A hypothesis test using the Correlation Coefficient (r) value is used to examine whether there is a relationship between literacy in reading math word problems and the problem-solving abilities of fourth-grade students at SD Negeri Pelandakan I Cirebon City. Algifari explained that the correlation coefficient value can be used to determine the closeness of a relationship between two variables (Dewi & Nugroho, 2022). The correlation coefficient value is used to determine both the closeness and the direction of the relationship between two or more variables. The direction is stated as a positive or negative association, and the strength is expressed as the value of the correlation coefficient.

In this study, purposive sampling was employed to select participants from SD Negeri Pelandakan I Cirebon City. Purposive sampling is a non-probability sampling technique in which the researcher selects participants based on specific characteristics that are relevant to the study. The choice of purposive sampling allows for the inclusion of students who have a particular level of reading literacy in math word problems, as well as those who are actively engaged in the learning process. The selection of 25 students was based on the availability of students who met these criteria and were willing to participate in the study. This number is considered sufficient for conducting a correlation analysis, as it provides enough data for reliable statistical testing while maintaining a manageable sample size. Moreover, selecting 25 students from the same grade level ensures homogeneity in the sample, minimizing external variability and making the findings more relevant to the target population.

The correlation coefficient (r) can be determined using the product-moment correlation coefficient formula as follows:

$$r_{xy} = \frac{n\sum XY - (\sum X)(\sum Y)}{\sqrt{\sum X^2 - (\sum X)^2}\sqrt{n\sum Y^2 - (\sum Y^2)}}$$

Description

r_{xy} : Correlation coefficient between X and Y
$\sum X$: Number of scores for each item
$\sum Y$: Total number of scores
$\sum XY$: Sum of X score with Y score
$\sum X^2$: Total X
$\sum Y^2$: Total Y
N : Number of subjects
Algifari (Maryuningsih, 2014:60)

Statistical Hypothesis:

H_o : There is no positive and significant relationship between literacy comprehension of reading story problems and problem-solving skills of fourth-grade students of Pelandakan I State Elementary School, Cirebon City.

H_a : There is a positive and significant relationship between literacy comprehension of reading story problems and problem-solving ability of fourth-grade students of Pelandakan I State Elementary School, Cirebon City

If $r_{count} \geq r_{table}$, then H_o is rejected and Ha is accepted. If $r_{count} < r_{table}$, then H_o is accepted and Ha is rejected.

Meanwhile, the level of relationship between variables can be determined by interpreting the derived coefficient or the value of r. The interpretation goes as follows:

Table 1. Correlation Coefficient Interpretation Index

Coefficient Interval	Degree of Relationship
0.00 – 0.199	Very Low
0.20 – 0.399	Low
0.40 – 0.599	Moderate
0.60 – 0.799	Strong
0.80 – 1.000	Very Strong

Source: Sugiyono (Maryuningsih, 2014:61).

Result and Discussion

The results of the description between literacy in reading story problems and the problem-solving ability of fourth grade students of SD Negeri Pelandakan 1 Cirebon City can be seen in table 2.

Table 2. Result of The Description

	N	Range	Min	Max	Mean		Std. Deviation	Variance
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic
Literacy in reading math word problem	25	21,00	70,00	91,00	77,04	1,24	5,96	35,58
Problem-solving ability	25	15,00	80,00	95,00	85,43	1,03	4,98	24,80
Valid N (listwise)	25							

Based on table 2, it can be seen that the minimum value of literacy in reading math word problems is 70 and the maximum is 91, while in problem-solving ability the minimum value is 80 and the maximum value is 95. The average value on the results of student

observations in literacy in reading math word problems is 77.04 and on student scores on problem-solving ability is 85.43.

The normality test is used to determine whether the data in the study is normally distributed or not. The normality test was carried out using the one-sample Komlogorov-Smirnov test with the IBM SPSS statistics 20 for Windows using a significance level of 5%. Research data is said to be normally distributed if p> 0.05. Based on these calculations, the following results were obtained.

Table 3. Normality Test Result

One-Sample Kolmogorov-Smirnov Test			
		Literacy in reading math word problem	Problem-solving ability
N		25	25
Normal Parameters[a,b]	Mean	77,04	85,43
	Std. Deviation	5,97	4,98
Most Extreme Differences	Absolute	,243	,210
	Positive	,243	,210
	Negative	-,189	-,168
Kolmogorov-Smirnov Z		1,164	1,008
Asymp. Sig. (2-tailed)		,133	,261
a. Test distribution is Normal.			
b. Calculated from data.			

Based on Table 3, the summary of hypothesis testing indicates that, in the distribution of students' story problem reading literacy, the mean score is 77.04, with a standard deviation of 5.97. The level of significance for students' math word problem reading literacy is 0.133. Considering the significance level of 0.05, it follows that 0.133 > 0.05, thereby suggesting that the data for students' math word problem reading literacy is normally distributed, supporting the retention of the null hypothesis. In the context of students' problem-solving abilities, the mean score is 85.43, accompanied by a standard deviation of 4.98. The significance level for students' problem-solving abilities is 0.261, and since 0.261 > 0.05, it can likewise be concluded that the data for students' problem-solving abilities is normally distributed, thereby retaining the null hypothesis.

The objective of the linearity test is to ascertain whether the relationship between the independent variable and the dependent variable is linear. The assessment of linearity in the relationship between the two variables is conducted utilizing the IBM SPSS Statistics 20 for Windows program, employing the deviation from linearity of the linear F test. A relationship between two or more variables is deemed linear if $F_{count} < F_{table}$ critical value at a significance level of 5%. The subsequent section presents the results of the linearity test.

Table 4. Results of the Linearity Test

			Sum of Squares	df	Mean Square	F	Sig.
Problem-solving ability *Literacy in reading math word problem	Between Groups	(Combined)	289,849	4	72,462	5,099	,006
		Linearity	263,909	1	263,909	18,570	,000
		Deviation from Linearity	25,939	3	8,646	,608	,618
	Within Groups		255,804	17	14,211		
	Total		545,652	25			

Based on Table 4, the significance value of 0.618 exceeds the threshold of 0.05, indicating the presence of a significant linear relationship between the independent variable, namely literacy in reading math word problems, and the dependent variable,

which is problem-solving ability. Furthermore, the F_{table} value at a significance level of 5% is 3.16. When comparing the test results of the F with the F_{table} value, it becomes evident that the F_{count} value is smaller than the F_{table} value. This finding suggests that the relationship between literacy in reading math word problems and students' problem-solving abilities is indeed linear.

The purpose of hypothesis submission is to determine the acceptance or rejection of the proposed hypothesis. In this study, hypothesis testing employs the Product Moment Correlation technique, utilizing IBM SPSS Statistics 20 for Windows. The selection of the Product Moment Correlation technique is appropriate due to the interval nature of the data on both variables.

The hypotheses formulated for the correlation test are as follows:

H_o: There is no positive and significant relationship between literacy in reading math word problems and the problem-solving abilities of fourth-grade students at Pelandakan I Elementary School, Cirebon City.

H_a: There is a positive and significant relationship between literacy in reading math word problems and the problem-solving abilities of fourth-grade students at Pelandakan I Elementary School, Cirebon City.

The subsequent calculations were conducted using IBM SPSS Statistics 20 for Windows.

Tabel 5. The Correlation of The Data

		Literacy in reading story problem	Problem-solving ability
Literacy in reading math word problem	Pearson Correlation	1	,695**
	Sig. (2-tailed)		,000
	Sum of Squares and Cross-products	782,95	454,56
	Covariance	35,589	20,662
	N	25	25
Problem-solving ability	Pearson Correlation	,695**	1
	Sig. (2-tailed)	,000	
	Sum of Squares and Cross-products	454,56	545,65
	Covariance	20,66	24,80
	N	25	25

**. Correlation is significant at the 0.01 level (2-tailed).

Based on Table 5, it can be inferred that a significant relationship exists between the reading literacy of mathematics word problems and the problem-solving abilities of fourth-grade elementary school students, as evidenced by a significance value of 0.000, which is less than 0.05. This indicates a substantial correlation. Furthermore, the Coefficient of Correlation (r) or r_{count} value is reported as 0.695. A significance test is subsequently conducted by comparing the correlation coefficient value with the r_{table} value. If r_{count} is less than r_{table}, then the null hypothesis (H_o) is accepted and the alternative hypothesis (H_a) is rejected; conversely, if r_{count} exceeds r_{table}, then H_a is accepted and H_o is rejected.

The critical value of r_{table} at a significance level of 5% was determined to be 0.413. A comparison with the calculated r value reveals that r_{count} exceeds r_{table} ($0.695 > 0.413$). Therefore, the correlation coefficient of 0.695 is deemed significant. The calculations indicate the acceptance of the alternative hypothesis (H_a) and the rejection of the null hypothesis (H_o), thereby suggesting a positive and significant relationship between literacy

in reading math word problem and the problem-solving abilities of fourth-grade students at SD Negeri Pelandakan I, Cirebon City.

Based on Table 5, there is a significant relationship between literacy in reading mathematical story problems and problem-solving abilities of fourth-grade elementary school students, with a significance value of 0.000 which is less than 0.05. The Correlation Coefficient (rcount) is reported at 0.695. The significance test was conducted by comparing rcount with the rtable value, which at a significance level of 5% is 0.413. Because rcount (0.695) is greater than rtable (0.413), the alternative hypothesis (Ha) is accepted and the null hypothesis (Ho) is rejected. This indicates a positive and significant relationship between literacy in reading mathematical story problems and problem-solving abilities of fourth-grade students at SD Negeri Pelandakan I, Cirebon City.

This study found a significant positive correlation between literacy in reading math word problems and problem-solving abilities among fourth-grade students at SD Negeri Pelandakan I, Cirebon City. The correlation coefficient ($r = 0.695$) indicates a moderate yet meaningful relationship between students' ability to understand written math problems and their ability to solve them effectively. This finding aligns with previous research that suggests literacy skills, including reading comprehension, play a critical role in solving mathematical word problems (Arianti & Wulandari, 2023; Anis Fitria et al., 2022).

The positive correlation observed in this study can be explained by the cognitive processes involved in both reading comprehension and problem-solving. Strong reading literacy allows students to better decode the language of math word problems, which is essential for identifying relevant mathematical concepts and operations. When students possess solid literacy skills, they are more adept at interpreting key information from the text, organizing the information, and applying appropriate strategies to solve the problem. The ability to make inferences, recognize patterns in the text, and connect this understanding to mathematical concepts directly enhances their problem-solving abilities. Thus, improving reading comprehension is not only essential for literacy but also for boosting problem-solving skills in mathematics.

The findings of this study are consistent with existing literature on the relationship between literacy and numeracy. Previous research has demonstrated that students who excel in reading comprehension are more likely to perform better in mathematics, particularly in solving word problems (Anis Fitria et al., 2022). However, this study contributes a new perspective by highlighting the role of reading literacy specifically in the context of mathematical word problems, which requires both understanding the problem and translating that understanding into mathematical actions.

The practical implications of this study for teaching practices are significant. Teachers can integrate reading literacy strategies into their mathematics instruction to improve students' problem-solving abilities. This could involve teaching students how to break down math word problems into smaller, more manageable parts, identifying key terms, and using context clues to decipher the meaning of complex terms. Additionally, teachers can encourage students to practice reading comprehension skills that focus on interpreting mathematical language, thereby helping students to become more confident problem solvers.

Despite the strength of the findings, some limitations must be considered. For example, other factors such as socio-economic status, teacher qualifications, or curriculum differences could influence students' literacy and problem-solving skills, potentially impacting the results. Further research could explore these variables to better understand the broader context in which literacy and problem-solving skills develop. Additionally, future studies could involve larger and

more diverse samples, and examine the relationship across different age groups or educational settings to enhance the generalizability of the results.

In conclusion, this study contributes to our understanding of the complex relationship between literacy and problem-solving skills in mathematics. The findings underscore the importance of fostering strong literacy skills to improve students' mathematical abilities. Future research should delve deeper into the cognitive mechanisms at play and explore how these skills interact in different contexts to better inform educational strategies and theoretical models of learning.

A person's attempt to find a solution to the difficulty they are facing is a form of problem-solving (Fazzilah & Effendi, 2020). Students' problem-solving skills can be developed through learning mathematics. This aligns with the elementary school math objectives. According to the Ministry of Education and Culture of the Republic of Indonesia Regulation No. 37 of 2018, one of the aims of mathematics is the capacity to solve mathematical issues, which includes understanding problems, designing mathematical models, solving models, and interpreting the results.

This study found a significant positive correlation between literacy in reading math word problems and problem-solving abilities among fourth-grade students at SD Negeri Pelandakan I, Cirebon, with a correlation coefficient ($r = 0.695$). This indicates a moderate but meaningful relationship between students' ability to comprehend and decode written math problems and their ability to solve them effectively. The finding emphasizes the importance of literacy skills in enhancing problem-solving capabilities, which aligns with research indicating that reading comprehension directly influences students' mathematical performance, especially in solving word problems (Arianti & Wulandari, 2023; Anis Fitria et al., 2022).

The positive correlation observed in this study can be explained through the cognitive processes involved in both reading comprehension and problem-solving. When students engage with math word problems, they must understand the problem's context and accurately interpret the language used. Strong literacy skills enable students to break down complex texts, identify key information, and connect it to relevant mathematical concepts. For example, students who excel in reading comprehension are better able to extract mathematical data from a word problem and translate it into the appropriate mathematical operations. Therefore, a higher level of literacy skill contributes to a better understanding of the problem, leading to more effective problem-solving strategies.

These findings are consistent with existing literature on the relationship between literacy and numeracy. Research by Fajrika Ramadani et al. (2017) supports the idea that language proficiency significantly impacts students' ability to solve mathematical problems, particularly those involving addition and subtraction. Similarly, the work of Sumariwati (2013) underscores the role of literacy in math problem-solving, noting that literacy is not just a matter of understanding words but also of applying that understanding to resolve mathematical tasks.

The practical implications for teaching are significant. Teachers should integrate reading literacy strategies into mathematics instruction to improve problem-solving skills. For instance, educators can teach students how to identify key words or phrases in math word problems that signal the operations needed to solve them. They could also encourage students to read problems multiple times, underline important information, and discuss the meaning of terms before attempting to solve the problem. This approach would help students develop both their literacy and their problem-solving skills simultaneously.

However, there are several limitations in this study. First, the results are based on a sample from one school, which limits the generalizability of the findings to a broader population.

Additionally, factors such as socio-economic status, teaching methods, and variations in the curriculum may have influenced the results. These factors should be considered in future research. Expanding the sample size, including students from different regions, and considering these additional variables would provide a more comprehensive understanding of how literacy influences problem-solving abilities.

For future studies, it would be beneficial to explore this relationship in a broader context, including different age groups or grade levels, and to use longitudinal designs to track how literacy skills develop over time and their lasting impact on problem-solving abilities. Further research could also investigate the specific cognitive mechanisms at play during the problem-solving process and how they interact with reading comprehension skills.

In conclusion, this study adds to our understanding of the interplay between literacy and problem-solving skills in mathematics. It highlights the importance of integrating literacy instruction into math education, which can enhance students' problem-solving abilities and help them apply mathematical knowledge in real-world contexts. These findings contribute to educational theories that emphasize the interconnectedness of literacy and numeracy skills, suggesting that fostering both can lead to improved learning outcomes across subjects.

This study shows a significant positive relationship between literacy in reading mathematical story problems and problem-solving ability of fourth-grade students at SD Negeri Pelandakan I, Cirebon, with rcount of 0.695, but the results are limited to students in one school and cannot be generalized to a wider population. This study was limited to fourth-grade students in one elementary school, so the results may not be generalized to a wider population or to other grade levels.

Conclusion

This study found a significant positive correlation between literacy in reading math word problems and problem-solving abilities among fourth-grade students at SD Negeri Pelandakan I, Cirebon. Students with higher literacy skills in reading math problems demonstrated stronger problem-solving abilities. Specifically, the correlation coefficient ($r = 0.695$) indicates a strong relationship between these two variables. These findings suggest that improving students' reading comprehension in math word problems could enhance their problem-solving skills.

For future research, it is recommended to expand the study's population to include a larger and more diverse group of students from different regions or educational settings. Additionally, using different research methods, such as longitudinal studies or experimental designs, could provide deeper insights into the causal relationship between literacy and problem-solving abilities. This would help strengthen the generalizability and validity of the findings.

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