

CONSTRUCTING THE BRIDGE OF UNDERSTANDING: THE ROLE OF HABIT OF MIND, RESILIENCE, AND MATHEMATICAL SELF-CONFIDENCE IN SOLVING HOTS PROBLEMS

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Abstract

This study aims to analyze the influence of Habit of Mind, Mathematical Resilience, and Self-Confidence on the ability of fifth-grade students at SDN Gugus Gajah Mungkur, Gajah Mungkur District, Semarang City, to solve HOTS mathematics problems. Employing a quantitative approach with a correlational design, the research sample consists of 110 students, selected through proportional random sampling from a population of 136 students across five elementary schools within the Gajah Mungkur cluster. The research instruments include a mathematical reasoning ability test and a questionnaire to measure the independent variables. Data collection techniques involve tests and questionnaires, while data analysis employs descriptive analysis using Microsoft Excel 2016 and inferential analysis using statistical software such as SPSS. This includes conducting correlation tests, and regression tests, after verifying analysis requirements like normality, linearity, homoscedasticity, and autocorrelation. The results reveal a positive and significant relationship between Habit of Mind, Mathematical Resilience, and Self-Confidence, and the students' ability to solve HOTS Mathematics problems. Thus, this study highlights the importance of developing these three psychological aspects to enhance high-level mathematical problem-solving skills. Consequently, Habit of Mind, Mathematical Resilience, and Self-Confidence significantly contribute to improving students' abilities in solving HOTS Mathematics problems.

Keywords: habit of mind, resilience, mathematical self-confidence, HOTS problems

Introduction

Education is a fundamental aspect of developing an individual's character and abilities (Boldureanu et al., 2020; Lövdén et al., 2020; Sancar et al., 2021). Through education, a person can develop their potential to become more skilled, independent, and virtuous (Arisoy & Aybek, 2021; Cappuccio et al., 2021). One important subject in the education curriculum is mathematics, which sharpens counting skills and trains logical and systematic thinking (Fauziyah et al., 2022; Yuriansa & Kurniawati, 2021). Mathematics learning in elementary schools now focuses on developing higher-order thinking Skills (HOTS), which aim to train students' critical and creative thinking abilities in problem-solving. Students' ability to solve HOTS problems is often a challenge (Ansari et al., 2021; Yayuk et al., 2020). Interest, self-confidence, and mathematical resilience are important in students' problem-solving abilities (Attami et al., 2020; Harsela & Asih, 2020). Interest or Habit of Mind can increase students' attention to mathematics, while self-confidence and resilience help students overcome difficulties and challenges in

How to cite: Sofitri, D. R., & Nugraheni, N. (2024). Constructing The Bridge of Understanding: The Role of Habit of Mind, Resilience, and Mathematical Self-Confidence in Solving HOTS Problems. *Syntax Literate*. (9)4. <http://dx.doi.org/10.36418/syntax-literate.v9i4>

E-ISSN: 2548-1398

Published by: [Ridwan Institute](#)

learning mathematics (Ahmad et al., 2023; Hendriana et al., 2022). Research has shown that students with a high interest in mathematics have better academic achievements (Samuel & Warner, 2021; Wang et al., 2020).

However, there are still many challenges in elementary school mathematics learning. Students often need more enthusiasm for learning mathematics, marked by their low interest in the subject (Deng et al., 2020; Oppermann & Lazarides, 2021). The lack of mastery of basic mathematics, especially in multiplication and division operations, results in less optimal learning of mathematical material (Mugnianingsih et al., 2022; Permata et al., 2021). Additionally, students' lack of confidence in solving mathematical problems makes them perceive mathematics as a difficult subject that requires memorization, such as mathematical formulas (Öztürk et al., 2020; Verschaffel et al., 2020). Based on pre-research activities conducted by the researcher at SDN Gugus Gajah Mungkur, Gajah Mungkur District, Semarang City, through interviews with fifth-grade teachers, the researcher found several problems. Among them, students are less enthusiastic about learning mathematics, which is marked by their low habit of mind towards mathematics. Furthermore, students' lack of basic counting skills, especially in multiplication and division of numbers, results in less optimal learning of material in mathematics subjects. Another problem is the lack of students' confidence in solving mathematical problems. They consider mathematics a difficult subject, and learning mathematics requires memorizing formulas to solve problems. This impacts students who have difficulty solving mathematical problems such as descriptive or story problems, especially HOTS problems. Other problems stem from students' family and environmental factors that could be more supportive, thus hindering their abilities. This is evidenced by the prerequisite test results from 155 students in SDN Gugus Gajah Mungkur, Gajah Mungkur District, Semarang City; there are 68 (44%) students who passed the Minimum Competency Standards (KKM) and 87 (56%) students who did not pass the KKM with a KKM value of 70. Reinforced by the assertion that 4 out of 6 fifth-grade teachers explained that mathematics learning outcomes are less than other subjects.

This research has several aspects that are similar to those of previous studies. The study by Buckley & Sullivan (2023), like this research, emphasizes the importance of addressing anxiety and uncertainty in mathematics learning related to mathematical resilience. The study by Haerani et al. (2021) also highlights the importance of mathematical resilience in overcoming difficulties in mathematical problem-solving. Meanwhile, Hong et al. (2023) and this research both examine the influence of psychological aspects, in this case, self-confidence, on performance in mathematics or science tasks. The study by Lubis et al. (2021) and this research both explore the relationship between students' cognitive and affective characteristics, such as Habit of Mind, and mathematical problem-solving abilities. However, there are differences from previous studies. The study by Buckley & Sullivan (2023) focuses more on teaching strategies to reduce mathematical anxiety, while this research emphasizes the influence of habit of mind, resilience, and self-confidence on the ability to solve HOTS problems. The study by Haerani et al. (2021) analyzes students' errors in solving word problems based on mathematical resilience, while this research examines the influence of mathematical resilience more broadly on the ability to solve HOTS problems. The study by Hong et al. (2023) focuses on the influence of the iSTEAM contest on students' self-confidence, while this research more generally examines the influence of mathematical self-confidence on solving HOTS problems. The study by Lubis et al. (2021) analyzes students' errors in mathematical literacy based on the habit of mind, while this research

examines the influence of the habit of mind on the ability to solve HOTS problems as a whole. By integrating three psychological variables, namely Habit of Mind, Mathematical Resilience, and Mathematical Self-Confidence, this research provides a new perspective on solving HOTS mathematics problems. It shows how these factors can influence students' ability to overcome high-level mathematical problem-solving challenges.

Based on this background, this research aims to analyze the influence of Habit Of Mind, Mathematical Resilience, and Self-Confidence on the ability to solve HOTS mathematics problems of fifth-grade students at SDN Gugus Gajah Mungkur, Gajah Mungkur District, Semarang City. Thus, this research contributes to mathematics education, particularly in understanding and developing strategies to improve students' ability to solve HOTS problems. With a focus on the influence of Habit of Mind, Mathematical Resilience, and Mathematical Self-Confidence, this research offers new insights into how these psychological factors interact and influence students' mathematical problem-solving abilities. Educators can use the results of this research to design and implement more effective learning approaches, which not only enhance mathematical understanding but also develop students' critical and creative thinking skills. Additionally, this research provides recommendations for teachers to integrate these psychological aspects into the curriculum and teaching methods to prepare students better to face high-level mathematical problem-solving challenges. Overall, this research contributes to efforts to improve the quality of mathematics education in elementary schools and enriches the literature on effective mathematics teaching and learning strategies.

Research Method

This study is quantitative research with a correlational research design, intended to examine the influence of Habit Of Mind (X1), Mathematical Resilience (X2), and Self-Confidence (X3) as independent variables on the ability to solve HOTS (higher-order thinking Skills) mathematics problems (Y) as the dependent variable. The population in this study consists of 136 fifth-grade students from Gugus Gajah Mungkur, originating from five elementary schools: SDN Gajah Mungkur 01, SDN Gajah Mungkur 02, SDN Gajah Mungkur 03, and SDN Petompon 01. The sampling technique used in this study is proportional random sampling, with 110 students.

Data collection techniques in this study include a test for the ability to solve HOTS mathematics problems and non-test techniques such as questionnaires or surveys, interviews, and documentation. In developing the instruments, a test was used to measure the mathematical reasoning ability of fifth-grade elementary students in the first semester, with questions covering seven essential competencies translated into 14 indicators and 14 descriptive problems. Meanwhile, questionnaires were used to measure the variables of Habit of Mind, Mathematical Resilience, and Self-Confidence. The Habit of Mind questionnaire consists of 48 statements measuring indicators such as the exploration of mathematical ideas and reflection on the correctness of mathematical problem answers. The Mathematical Resilience questionnaire consists of 64 statements measuring indicators such as perseverance and the ability to control oneself. Lastly, the Self-Confidence questionnaire consists of 56 statements measuring indicators such as the ability to hypothesize and perform mathematical manipulations.

This study employs both descriptive and inferential data analysis techniques. Descriptive analysis is used to describe the characteristics of the collected data. Using Microsoft Excel 2016, this analysis uses descriptive statistics to depict the characteristics

of the collected data, including Habit of Mind, Mathematical Resilience, and Mathematical Self-Confidence of fifth-grade students at SDN Gugus Gajah Mungkur. Below is a description of each variable along with its criteria:

Table 1. Criteria for Variables of Habit of Mind, Mathematical Resilience, Mathematical Self-Confidence

Score Interval	Criteria
113,403 - 139,869	Very Good
86,935 – 113,402	Good
60,468 – 86,934	Fair
34 – 60,467	Poor

Furthermore, tests for analysis requirements, including normality, linearity, heteroscedasticity, and autocorrelation tests, are conducted to ensure the data meets the assumptions required for inferential analysis. Inferential analysis involves the use of correlation, regression, and significance testing. All these analyses are performed with the help of statistical software such as SPSS.

Result and Discussion

Result

The research results on the influence of Habit of Mind, Mathematical Resilience, and Self-Confidence on the ability to solve HOTS (Higher Order Thinking Skills) mathematics problems for fifth-grade students at SD Gugus Gajah Mungkur include the following aspects:

Descriptive Statistical Analysis

Descriptive Data Analysis of Habit of Mind Variable

The Habit of Mind questionnaire consists of 50 statements. The results of the Habit of Mind questionnaire for fifth-grade students at SDN Gugus Gajah Mungkur can be seen in the following table:

Table 2. Percentage Distribution of Frequency of Habit of Mind Variable

Score Interval	Category	Frequency	Percentage
113,403 - 139,869	Very Good	16	22%
86,935 – 113,402	Good	80	70%
60,468 – 86,934	Fair	14	18%
34 – 60,467	Poor	0	0
Total		110	100%
Average		98,645	Good

Source: Data processed using Microsoft Excel, (2023)

Based on Table 2, out of 110 students, there are 16 students in the very good category, 80 students in the good category, 14 students in the fair category, and no students in the poor category. The average score obtained from the Habit of Mind questionnaire is 98.645, which means that the Habit of Mind of fifth-grade students at SDN Gugus Makukuhan Temanggung is categorized as good.

Descriptive Data Analysis of Mathematical Resilience Variable

The Mathematical Resilience questionnaire consists of 50 statements. The results of the Mathematical Resilience questionnaire for fifth-grade students at SDN Gugus Gajah Mungkur can be seen in the following table:

Table 3. Percentage Distribution of Frequency of Mathematical Resilience Variable

Score Interval	Category	Frequency	Percentage
113,403 – 139,869	Very Good	16	22%
86,935 – 113,402	Good	80	70%
60,468 – 86,934	Fair	14	18%
34 – 60,467	Poor	0	0
Total		110	100%
Average		98,645	Good

Source: Data processed using Microsoft Excel, (2023)

Based on Table 3, it can be seen that out of 110 students, there are 16 students in the very good category, 80 students in the good category, 14 students in the fair category, and no students in the poor category. The average score obtained from the Mathematical Resilience questionnaire is 98.645, which means that the Mathematical Resilience of fifth-grade students at SDN Gugus Makukuhan Temanggung is categorized as good.

Descriptive Data Analysis of Self-Confidence Variable

The Self-Confidence questionnaire consists of 50 statements. The results of the Self-Confidence questionnaire for fifth-grade students at SDN Gugus Gajah Mungkur can be seen in the following table:

Table 4. Percentage Distribution of Frequency of Self-Confidence Variable

Score Interval	Category	Frequency	Percentage
113,403 – 139,869	Very Good	16	22%
86,935 – 113,402	Good	80	70%
60,468 – 86,934	Fair	14	18%
34 – 60,467	Poor	0	0
Total		110	100%
Average		98,645	Good

Source: Data processed using Microsoft Excel, (2023)

Based on Table 4, it can be seen that out of 110 students, there are 16 students in the very good category, 80 students in the good category, 14 students in the fair category, and no students in the poor category. The average score obtained from the Self-Confidence questionnaire is 98.645, which means that the Self-Confidence of fifth-grade students at SDN Gugus Makukuhan Temanggung is categorized as good.

Descriptive Data Analysis of Ability to Solve HOTS Problems Variable

The test for the ability to solve HOTS mathematics problems consists of 9 questions. The results of the responses to the test for the ability to solve HOTS mathematics problems for fifth-grade students at SDN Gugus Gajah Mungkur can be seen in the following table:

Table 5. Percentage Distribution of Frequency of Ability to Solve HOTS Mathematics Problems Variable

Category	Score	Frequency	Percentage
High	64,790 – 100	20	18%
Medium	29,145 – 64,789	73	64%
Low	0 – 29,144	21	18%
Total		114	100%
Average		46,966	(Medium)

Source: Data processed using Microsoft Excel, (2023)

Based on Table 5, it can be seen that out of 110 students, there are 20 students in the high category, 42 students in the medium category, and 22 students in the low category. The average score obtained is 46.966, which means that the ability to solve HOTS problems of fifth-grade students at SDN Gugus Gajah Mungkur is categorized as medium.

Prerequisite Test Analysis

Normality Test

To determine whether the data in the study are normally distributed or not, a normality test of the data must be conducted (Knief & Forstmeier, 2021). The normality test is used for independent variables, including Habit of Mind (X1), Mathematical Resilience (X2), and Self-Confidence (X3), as well as the dependent variable, which is the ability to solve HOTS mathematics problems (Y). The type of normality test used is the chi-square test assisted by Microsoft Excel 2013. The results of the chi-square test for the variables Habit of Mind, Mathematical Resilience, and Self-Confidence are 3.248, and for the variable ability to solve HOTS mathematics problems, it is 9.074. Referring to the comparison criteria, the chi-square table value is 14.067, so it can be concluded that the data on Habit of Mind, Mathematical Resilience, and Self-Confidence in relation to the ability to solve HOTS mathematics problems are normally distributed.

Linearity Test

To determine whether the independent variables and the dependent variable have a linear relationship or not, a linearity test is conducted. The linearity test aims to evaluate whether the regression line connecting variables X (Habit of Mind, Mathematical Resilience, Self-Confidence) and Y (ability to solve HOTS) has linear properties or not. If the relationship is linear, then regression analysis can be further processed (Sugiyono, 2019). The type of linearity test used is the Test for Linearity assisted by SPSS. The test results show a significance value for Deviation from Linearity of 0.141. Based on the obtained comparison criteria, it can be concluded that there is a linear relationship between Habit of Mind, Mathematical Resilience, and Self-Confidence in relation to the ability to solve HOTS mathematics problems.

Heteroscedasticity Test

The heteroscedasticity test is used to assess the presence of non-uniform variance of residuals within the regression model framework (Astivia & Zumbo, 2019). The heteroscedasticity test applied in this study uses Spearman's Rho test with the help of SPSS, which involves the correlation between the residual values (Unstandardized Residual) of the independent variables. The test results show a significance value for the variables Habit of Mind, Mathematical Resilience, and Self-Confidence of 0.719. Based on these results, it can be concluded that the significance value is > 0.05 , which means there is no heteroscedasticity in the variables studied.

Autocorrelation Test

The autocorrelation test is conducted as one of the requirements for the regression equation, so that if the data is tested, it does not have autocorrelation problems (Harris, 2019). The autocorrelation test applied in this study uses the Durbin-Watson (DW Test) with the help of SPSS. The test results show a Durbin-Watson value of 1.898. When compared with the value of $dU = 1.7122$ and $4 - dU = 2.2878$, it is obtained that $1.7122 < 1.898 < 2.2878$ or $dU < DW < 4 - dU$. Thus, it can be concluded that there is no autocorrelation problem in the regression model.

Hypothesis Test Results

The Relationship and Influence of Habit of Mind on the Ability to Solve HOTS Mathematics Problems

Based on the research data results with the assistance of the IBM SPSS Statistics 26 program, the calculated correlation coefficient (r) is 0.717, which is greater than the table value of 0.185, with a significance value of α ($0.000 < 0.05$). According to these results, there is a positive relationship between Habit of Mind and the ability to solve HOTS Mathematics problems. The size of the correlation coefficient falls into the strong category, ranging from 0.600 to 0.799. The simple regression equation between Habit of Mind and the ability to solve HOTS Mathematics problems is obtained as $\hat{Y} = 46.542 + 0.389X_1$. The constant value (b_0) is 46.542, meaning that if the Habit of Mind score is 0, the ability to solve HOTS Mathematics problems is negatively valued at 46.542. The coefficient value (b) is 0.389, meaning that every one-point change in the Habit of Mind score will cause an increase of 0.389 points in the ability to solve HOTS Mathematics problems. The coefficient of determination (R square) is obtained as 0.520, meaning that Habit of Mind has a positive impact of 52.0% on the ability to solve HOTS Mathematics problems. In comparison, the remaining 48% is influenced by other factors not examined in this study.

The Relationship and Influence of Mathematical Resilience on the Ability to Solve HOTS Mathematics Problems

Based on the research data results with the assistance of the IBM SPSS Statistics 26 program, the calculated correlation coefficient (r) is 0.630, which is greater than the table value of 0.185, with a significance value of α ($0.000 < 0.05$). According to these results, there is a positive relationship between Mathematical Resilience and the ability to solve HOTS Mathematics problems. The size of the correlation coefficient falls into the strong category, ranging from 0.600 to 0.799. The simple regression equation between Mathematical Resilience and the ability to solve HOTS Mathematics problems is obtained as $\hat{Y} = 46.741 + 0.358X_2$. The constant value (b_0) is 46.741, meaning that if the Mathematical Resilience score is 0, the ability to solve HOTS Mathematics problems is positively valued at 46.741. The coefficient value (b) is 0.358, meaning that every one-point change in the Mathematical Resilience score will cause an increase of 0.757 points in the ability to solve HOTS Mathematics problems. The coefficient of determination (R square) is obtained as 0.367, meaning that Mathematical Resilience has a positive impact of 36.7% on the ability to solve HOTS Mathematics problems. In comparison, the remaining 63.3% is influenced by other factors not examined in this study.

The Relationship and Influence of Self-Confidence on the Ability to Solve HOTS Mathematics Problems

Based on the research data results with the assistance of the IBM SPSS Statistics 26 program, the calculated correlation coefficient (r) is 0.731, which is greater than the table value of 0.185, with a significance value of α ($0.000 < 0.05$). According to these results, there is a positive relationship between Self-Confidence and the ability to solve HOTS Mathematics problems. The size of the correlation coefficient falls into the strong category, ranging from 0.600 to 0.799. The simple regression equation between Self-Confidence and the ability to solve HOTS Mathematics problems is obtained as $\hat{Y} = 47.309 + 0.366X_3$. The constant value (b_0) is 47.309, meaning that if the Self-Confidence score is 0, the ability to solve HOTS Mathematics problems is positively valued at 47.309. The coefficient value (b) is 0.366, meaning that every one-point change in the Self-Confidence score will cause an increase of 0.366 points in the ability to solve HOTS Mathematics problems. The coefficient of determination (R square) is obtained as 0.492, meaning that Self-Confidence has a positive impact of 49.2% on the ability to solve HOTS Mathematics problems. In comparison, the remaining 50.8% is influenced by other factors not examined in this study.

The Relationship and Influence of Habit of Mind, Mathematical Resilience, and Self-Confidence on the Ability to Solve HOTS Mathematics Problems

Based on the research data results with the assistance of the SPSS version 26, with a significance level of 5%, the significance value is 0.000 ($0.000 < 0.05$), indicating that the correlation is significant. This means that there is a significant relationship between Habit of Mind, Mathematical Resilience, Self-Confidence, and the ability to solve HOTS Mathematics problems of fifth-grade students at SD Gugus Gajah Mungkur. The research also shows a correlation coefficient (r calculated) of 0.772, indicating a positive and strong relationship, as it falls within the range of 0.61 to 0.80. The simple regression equation between Habit of Mind, Mathematical Resilience, and Self-Confidence together on the ability to solve HOTS Mathematics problems is obtained as $\hat{Y} = 38.995 + 0.221X_1 + 0.098X_2 + 0.147X_3$. The constant value (b_0) is 38.995, meaning that if the scores of Habit of Mind, Mathematical Resilience, and Self-Confidence are all 0, the ability to solve HOTS Mathematics problems is positively valued at 38.995. The coefficient values are $b_1 = 0.221$, $b_2 = 0.098$, and $b_3 = 0.147$. The coefficient of determination (R square) is obtained as 0.592, meaning that Habit of Mind, Mathematical Resilience, and Self-Confidence together have a positive impact of 59.2% on the ability to solve HOTS Mathematics problems. In comparison, the remaining 40.8% is influenced by other factors not examined in this study. The F-test result (F calculated = 51.845, F table = 2.69) shows a significant influence of these variables on the ability to solve HOTS Mathematics problems. Therefore, Habit of Mind, Mathematical Resilience, and Self-Confidence have a positive and significant impact on the ability to solve HOTS Mathematics problems.

Discussion

This research demonstrates a positive and significant relationship between Habit of Mind and the ability to solve HOTS (Higher Order Thinking Skills) Mathematics problems among fifth-grade students at SDN Gugus Gajah Mungkur, Gajah Mungkur District, Semarang City. With a correlation coefficient of 0.717, which falls into the strong category, this study underscores the importance of developing Habit of Mind as one of the psychological factors that can enhance students' ability to solve high-level mathematics problems. This result is consistent with previous research that also found a

positive relationship between psychological factors such as mathematical self-confidence and mathematical resilience with the ability to solve HOTS problems (Aini & Andreansyah, 2023; Garak et al., 2020). Furthermore, this study supports Bandura's theory of self-efficacy in learning, which states that students' confidence in their ability to complete specific tasks, including HOTS problems, can influence their learning outcomes (Goik Leng et al., 2020; Syarifah et al., 2019). A strong Habit of Mind can enhance students' self-efficacy in mathematics, making them more confident and motivated to face the challenges of HOTS problems.

Moreover, there is a strong positive relationship between Mathematical Resilience and the ability to solve HOTS mathematics problems. This means that students with higher mathematical resilience tend to have a better ability to solve high-level mathematics problems. This finding highlights the importance of psychological factors, such as confidence and resilience, in academic achievement, especially in challenging subjects like mathematics. Understanding that mathematical resilience contributes 36.7% to the ability to solve HOTS problems, educators can develop strategies to enhance this aspect in students, thereby improving their overall mathematical problem-solving ability. The finding of a robust positive relationship between Mathematical Resilience and the ability to solve HOTS mathematics problems can be linked to the constructivist learning theory. This theory emphasizes that learning is an active process where students construct new knowledge based on their previous experiences and understanding (Dewi & Primayana, 2019). In the context of mathematics, mathematical resilience can be seen as students' ability to persevere and stay motivated in the face of difficulties or challenges when solving complex problems. Therefore, education focusing on the development of mathematical resilience can help students to be more active and effective in their learning process, which is in line with the constructivist view of learning as a continuous knowledge-construction process.

Furthermore, this study found a strong positive relationship between self-confidence and students' ability to solve HOTS mathematics problems. With a correlation coefficient of 0.731, this result indicates that an increase in students' self-confidence contributes to an improvement in their ability to solve high-level mathematics problems. This is in line with previous research that shows self-confidence plays a vital role in mathematical problem-solving ability (Suryatin & Sugiman, 2019; Wahyuningsih & Setiani, 2021). Another study confirms that self-confidence is closely related to mathematical performance, especially in handling challenging problems like HOTS (Ahmad et al., 2019; Syarifah et al., 2019). Thus, this study provides additional support for the importance of self-confidence in the context of mathematics learning, particularly in overcoming HOTS problems that require high-level thinking skills.

Therefore, this study provides strong evidence of the positive and significant influence of Habit of Mind, Mathematical Resilience, and Self-Confidence on the ability to solve HOTS mathematics problems among fifth-grade students at SDN Gugus Gajah Mungkur, Gajah Mungkur District, Semarang City. With strong correlation coefficients (0.772) and a coefficient of determination (0.592), this study shows that these three psychological variables collectively have a significant contribution to enhancing students' ability to solve high-level mathematics problems. Habit of Mind, as a cognitive ability, plays a role in shaping students' critical and creative thinking (Salmon & Barrera, 2021; Tashtoush et al., 2022). Mathematical Resilience, as emotional resilience, helps students overcome difficulties and challenges in learning mathematics (Cousins et al., 2019; Nahdi et al., 2021). Meanwhile, Self-Confidence, as confidence in oneself, strengthens students'

belief in their ability to solve complex problems (Akbari & Sahibzada, 2020; Hamzah et al., 2020). This study affirms that the development of these three psychological aspects can be an effective strategy for improving students' ability to solve HOTS mathematics problems, which ultimately can contribute to an overall improvement in mathematics learning achievement.

The main difference between this study and previous research lies in its focus on the combined influence of Habit of Mind, Mathematical Resilience, and Self-Confidence on the ability to solve HOTS Mathematics problems. While previous research generally focuses on one psychological aspect, such as the influence of anxiety and uncertainty (Buckley & Sullivan, 2023), students' errors in solving story problems based on mathematical resilience (Haerani et al., 2021), the influence of the iSTEAM contest on self-confidence (Hong et al., 2023), and the analysis of students' errors in mathematical literacy from the perspective of Habits of Mind (Lubis et al., 2021), this study integrates three psychological variables. It evaluates their influence simultaneously on the ability to solve high-level mathematical problems. The advantage of previous studies is their focus on specific aspects of mathematics learning, such as the influence of emotions and mathematical resilience, which provide deep insights into factors affecting students' performance in mathematics. However, this study expands that understanding by showing how the combination of these psychological factors collectively affects students' ability to solve HOTS Mathematics problems, providing more comprehensive guidance for educators to improve mathematics learning achievement.

The limitation of this study lies in the limited sample of only fifth-grade students at SDN Gugus Gajah Mungkur, so the results may not be generalizable to a broader population. Additionally, this study only focuses on three psychological variables, so there may be other factors affecting the ability to solve HOTS Mathematics problems that are not covered in this study. However, this study implies that educators can develop learning strategies that consider the development of Habit of Mind, Mathematical Resilience, and Self-Confidence to enhance students' ability to solve HOTS Mathematics problems. Moreover, the results of this study can be used as a basis for further research exploring the influence of other psychological factors on the ability to solve high-level mathematical problems.

Conclusion

This study concludes that there is a positive and significant relationship between Habit of Mind, Mathematical Resilience, and Self-Confidence and the ability to solve HOTS (Higher Order Thinking Skills) Mathematics problems among fifth-grade students at SDN Gugus Gajah Mungkur, Kecamatan Gajah Mungkur, Semarang city. Together, these three variables make a significant contribution to enhancing students' ability to solve high-level mathematics problems. Habit of Mind plays a role in shaping students' critical and creative thinking, Mathematical Resilience helps students overcome difficulties and challenges in learning mathematics, and Self-Confidence strengthens students' belief in their ability to solve complex problems. Given that this study is limited to a sample of fifth-grade students at SDN Gugus Gajah Mungkur and focuses solely on three psychological variables, there is a possibility that other factors affecting the ability to solve HOTS (Higher Order Thinking Skills) problems have not been explored. Therefore, it is recommended for future research to broaden the sample and the variables studied in order to gain a more comprehensive understanding of the factors that influence students' abilities to solve advanced mathematical problems. Future studies could include

additional psychological variables and examine their impact on HOTS problem-solving abilities, as well as develop teaching strategies that consider the development of Habit of Mind, Mathematical Resilience, and Self-Confidence to enhance students' abilities in solving HOTS Mathematics problems.

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First publication right:

Syntax Literate: Jurnal Ilmiah Indonesia

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