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The Influence of Self-Efficacy and Adversity Quotient on Students' Mathematical Problem Solving Ability in Solving Culturally Contextualized Word Problems in NTB

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ABSTRACT

This research is motivated by the importance of mathematical problem-solving skills, especially in solving students' mathematical problems, as well as the role of students' psychological factors in solving culturally based contextual problems. This is based on findings stating that students' ability to solve a problem cannot be categorized as satisfactory. This study aims to determine the effect of self-efficacy and adversity quotient on students' mathematical problem-solving skills in solving story problems with West Nusa Tenggara (NTB) cultural nuances. This study used an ex post facto quantitative approach with a correlational design. The research subjects were 176 grade IX MTsN students. The research instrument used a questionnaire (self-efficacy and adversity quotient questionnaires), and a mathematical problem-solving ability test, then analyzed using multiple linear regression. The results of the study showed that self-efficacy and adversity quotient, individually or simultaneously, significantly influenced students' mathematical problem-solving abilities. Self-efficacy and adversity quotient influenced the variance of students' mathematical problem-solving ability scores by 54%. The regression equation obtained was $Y = -150{,}071 + 0{,}925X_1 + 2{,}436X_2$. This finding indicates that increasing self-efficacy and adversity quotient can support the improvement of students' mathematical problem-solving abilities.

Keywords: Self Efficacy, Adversity Quotient, Mathematical Solving Ability, NTB Culture.

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1. INTRODUCTION

The National Council of Teachers of Mathematics (NCTM, 2000) states that, in mathematics learning, students are required to possess five basic mathematical competencies: problem solving, reasoning and proof, communication, connections, and representation. Based on this NCTM statement, one of the mathematical skills that students must possess and develop is problem solving.

Mathematical problem solving is a crucial skill that students need to master in mathematics learning. Several things that underlie this truth are that mathematical solving is an ability listed in the curriculum and learning objectives of both the 2006 Mathematics KTSP, the 2013 Mathematics Curriculum, the 1995 NCTM (Hendriana et al., 2018), and the independent curriculum currently widely implemented in Indonesia, which focuses on strengthening the character and critical thinking competencies of students in solving contextual mathematical problems (Herwandi & Tudjuka, 2025). Students' mathematical solving helps individual students to think more analytically, in essence, mathematical solving is thinking, reasoning and applying

the knowledge that students have, and mathematical solving also greatly helps students in thinking critically, creatively and developing other students' mathematical abilities (Hendriana et al., 2018). Therefore, one of the students' mathematical abilities that must be possessed and developed by students is the ability to solve mathematical problems.

Students' problem-solving abilities cannot be considered satisfactory. Indonesia's PISA scores remain very low (Jumiati et al., 2021). World Bank research data indicates that Indonesian students' problem-solving skills are still relatively low, with an average percentage of 20%, negatively impacting their problem-solving abilities (Vera et al., 2021). The low mathematical problem-solving skills of Indonesian students are unavoidable, as evidenced by the 2022 PISA test results, which showed a decline in Indonesia's average PISA score in mathematics compared to 2018, from 379 in 2018 to 366 in 2022 (Wulandari et al., 2024). This decline in Indonesia's PISA scores suggests, especially to educators, that students' mathematical problem-solving skills are still relatively low.

This fact is supported by preliminary observations made by researchers. After assessing 32 students at a junior high school in Mataram, researchers confirmed these findings. The test results showed that most students did not understand the problem, resulting in incorrect solutions. The test questions and some of the students' responses can be seen in Figure 1 and Figure2.

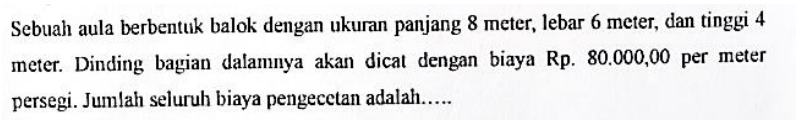
Sebuah aula berbentuk balok dengan ukuran panjang 8 meter, lebar 6 meter, dan tinggi 4 meter. Dinding bagian dalamnya akan dicat dengan biaya Rp. 80.000,00 per meter persegi. Jumlah seluruh biaya pengecetan adalah.....

Figure 1. Pre-Study Test Questions

(a) (b)

Figure 2. Students Answers

The results of the students' answers in Figure 2 with the questions in Figure 1, based on Polya's problem solving, show that the students did not take steps to understand the problem, which is indicated by the students not writing what is known and asked, such as writing $p = 8\ m, l = 6\ m$, and $t = 4\ m$ and the cost of painting per square meter. This means that the students have not been able to understand the problem correctly. Furthermore, in the step of planning a solution, the students wrote the formula incorrectly $V = p \times l \times t$ (Answer (a)). Meanwhile, the students were able to write the formula correctly $L_p = 2 \times (p \times l + p \times t + l \times t)$ (Answer (b)), but the answer did not reach what was asked. In the step of implementing the plan, the students did not carry out the plan correctly. The two student answers resulted in 15,260,000.00 and 15,040,000, respectively. Both student answers did not show the correct result which should be Rp. 15,360,000.00. Although students are able to write the formula correctly, they are unable to complete the answer correctly. Finally, in the review step, students do not carry out the process of checking back by not providing conclusions from the process of completing the plan. Therefore, students are unable to solve mathematical problems based on Polya's steps. The results of interviews with mathematics teachers stated that "one of the weaknesses of students in solving mathematical problems is, if given a problem in the form of a story problem, and the question is reversed, students have difficulty in understanding the problem and applying the correct formula." Students still have weaknesses in solving mathematical problems.

The factors that weaken students' problem-solving abilities can be seen from several influencing aspects, namely: cognitive, affective, and psychomotor aspects. These three aspects are interrelated. Students' cognitive and affective aspects play an active role in supporting

students' success in learning mathematics (Rizki, 2023). Students' success in learning mathematics does not only depend on their cognitive abilities, but is also greatly influenced by the emotions and feelings they have while learning, such as self-confidence and resilience in overcoming problems. This explains that in addition to cognitive aspects, affective aspects also influence weak factors in students' problem-solving abilities. Affective aspects consist of students' emotional aspects, such as motivation, feelings, values, interests, appreciation, concern, and attitudes (Qadar et al., 2015). How students view mathematics learning is one of the important factors in improving their mathematical problem-solving abilities, perspectives such as independence (included in the categories of attitude, motivation, and self-confidence) and difficulty (included in the categories of attitude, strength/self-perseverance) are needed.

One factor that can influence student success in learning mathematics is self-efficacy. Fariatus Sa'adah et al. stated that self-efficacy is a cognitive process in the form of decisions and self-confidence in making decisions and carrying out tasks to achieve desired results (Sa'adah et al., 2021). This aspect of self-knowledge has an influence in daily life. This is because the self-efficacy possessed by each individual influences the individual himself in taking the actions he will take, including determining the estimated actions he will take in various events he will face (Kholivah et al., 2020). The results of research (Umaroh et al., 2020) show that students with a high self-efficacy attitude tend to be more persistent, hardworking, do not give up easily, and are successful compared to students with a low self-efficacy attitude. Therefore, to improve students' ability to solve mathematical problems, a high level of self-confidence is needed.

Another factor that can influence students' problem-solving abilities is the adversity quotient (Umaroh et al., 2020). According to Stoltz (Stoltz, 2000), Adversity quotient is an individual's intelligence in overcoming difficulties that arise, where Adversity quotient is identical to an individual's fighting power in fighting difficulties, adversity quotient tells how far a person can survive facing difficulties and a person's ability to overcome them, adversity quotient also tells who is capable and will stop, who is able to exceed expectations for their performance and potential and who fails, and adversity quotient can tell who gives up and who will persist in facing the situation. Adversity quotient can influence students' attitudes, motivations, and beliefs in facing learning difficulties, one of which is in solving mathematical problems. Thus, to get maximum results in students' mathematical problem-solving abilities, an Adversity quotient attitude is needed, such as confidence in facing learning challenges and mathematical problems.

In solving mathematical problems, students need to have self-confidence in facing challenges and persevere in solving them. Students need to have good self-efficacy and an adversity quotient, which aims to enable them to solve mathematical problems. The mathematical problems faced are not only simple but also challenging, complex and intricate, whether they are related to everyday life or the surrounding culture (Jumiati et al., 2021). Mathematical problems with real-world contexts, such as culture or local wisdom, are crucial to provide students with experiences connecting mathematical concepts to real-life situations in a concrete way.

Much research has been conducted on the influence of self-efficacy and adversity quotient on mathematical problem-solving ability. However, most previous studies have focused on general mathematics problems and have not linked them to cultural context. Furthermore, research examining self-efficacy and adversity quotient simultaneously is still limited, especially at the madrasah level. Yet, mathematical problem-solving ability is influenced not only by cognitive abilities but also by students' confidence in solving problems and their resilience in the face of difficulties. Furthermore, the use of word problems with local cultural nuances is still rarely implemented, so mathematics learning tends to lack contextualization and is not fully connected to students' lives.

Students' mathematical problem-solving abilities will be further developed if learning is linked to contexts close to their daily lives. One context that can be used is the local culture of West Nusa Tenggara (NTB), which includes various activities, customs, and values that can be integrated into mathematical story problems. The use of story problems with NTB cultural nuances not only helps students understand problems more concretely and contextually, but also makes mathematics learning more interesting, meaningful, and relevant to the students'

environment. Furthermore, integrating local culture into mathematics learning can be an effort to introduce and preserve regional culture to the younger generation through the educational process. Based on these conditions, this study integrates the psychological aspects of students with the context of ethnomathematics based on local culture in West Nusa Tenggara (NTB), so it is expected to provide a more contextual picture of students' abilities in solving mathematics problems. In addition, the use of NTB culture as a question context presents new value because it is still rarely used in mathematics research, especially at the madrasah level. Therefore, this study was conducted to determine the effect of self-efficacy and adversity quotient on students' mathematical problem-solving abilities in solving word problems with NTB cultural nuances. This is expected to contribute to the development of contextual and culturally-based mathematics learning.

2. METHODS

This research approach uses a quantitative approach, with a research design designed as a correlational study by not conducting treatment or controlling independent variables because they have occurred previously. 176 MTsN students were used as research subjects with a nonprobability sampling technique, namely a saturated sample. The research instruments used: 1) a self-efficacy questionnaire; 2) an adversity quotient questionnaire and 3) a mathematical problem-solving ability test. The self-efficacy questionnaire consisted of 23 statements and the adversity quotient consisted of 27 statements using a Likert scale of 1 to 4. The self-efficacy questionnaire consists of 3 dimensions according to Bandura, namely: magnitude/level (level of task difficulty), strength (strength of belief), and generality (generality) (Ghufron & S, 2010). The adversity quotient questionnaire consists of 3 dimensions according to Stoltz, namely: climbers (high adversity quotient), campers (moderate adversity quotient), and quitters (low adversity quotient) (Ramadhani & Hadi, 2023). The mathematical problem-solving ability test in the form of a description of 3 questions with Geometry material based on NTB culture can be seen in Table 1. The questions used to measure problem-solving ability according to Polya (Subaidi, 2016),

Table 1. Mathematical Problem-Solving Ability Test Instrument

Test Instrument
1. The people of Sumbawa regularly replace the layers of palm fiber on the roof of their Uma Lengge (rice storage area) to maintain the quality of their rice storage. This is because this part of the roof is crucial for protecting the harvest from rain.  **Figure.** Uma Lengge The roof of the Uma Lengge is shaped like an isosceles triangular prism, consisting of two isosceles triangles and two opposite rectangles. The triangles have a base of 8 m and a height of 3 m, and the rectangles are 10 m long and 5 m wide. People want to know how much of the roof surface needs to be re-covered before purchasing new palm fiber. What is the area of the four sides of the Uma Lengge roof?
2. Look at the picture below!  **Figure.** Kekete Pottery The large kekete pottery shown in the picture is used by the Sasak people for cooking during begibung (shared meals) during traditional ceremonies. The kekete pottery is hemispherical with a diameter of 42 cm and is typically used to cook large quantities of rice.

Test Instrument
Before use, residents want to know the internal volume of the pottery so they can estimate the amount of rice needed. What is the volume of the pottery? (Use $\pi = \frac{22}{7}$)?
3. A musical instrument craftsman in Poto Village, Sumbawa, is making a Samawa drum (genang) to order for a school arts group practice.  **Figure.** Genang Before attaching the cover, he needs to know the volume of the drum's interior because he will be cleaning the inside with a special liquid. This liquid must be enough to fill the entire chamber. The body of the genang is cylindrical with a diameter of 28 cm and a height of 50 cm. What is the volume of the genang? (Use $\pi = \frac{22}{7}$)

Self-efficacy and mathematical problem-solving ability data are grouped into three categories: low, medium, and high. Meanwhile, adversity quotient data are grouped into three categories: climbers, campers, and quitters. The data are categorized to make it easier for researchers to describe students' ability levels more clearly and systematically. This grouping helps show differences in students' abilities in solving mathematical problems, thus allowing researchers to determine the overall tendency of student abilities. The self-efficacy category interval (Negara et al., 2021) and the mathematical problem-solving ability test interval (N. A. S. Putri et al., 2023) can be seen in Table 2, and the adversity quotient category interval (Purwanto, 2016) can be seen in Table 3.

Table 2. Self-Efficacy and Mathematical Problem-Solving Ability Test Category Intervals

Interval	Category
$(\mu + 0{,}5\sigma) \leq X$	High
$(\mu - 0{,}5\sigma) \leq X < (\mu + 0{,}5\sigma)$	Moderate
$X < (\mu - 0{,}5\sigma)$	Low

Table 3. Adversity Quotient Category Intervals

Interval	Category
$(\mu + 0{,}5\sigma) \leq X$	Climbers
$(\mu - 0{,}5\sigma) \leq X < (\mu + 0{,}5\sigma)$	Campers
$X < (\mu - 0{,}5\sigma)$	Quitters

Data analysis used descriptive statistics and inferential statistics. Descriptive statistics to categorize data from self-efficacy; adversity quotient and mathematical problem-solving ability. Inferential statistics used multiple linear regression tests using SPSS software version 27.0 to answer the research objectives. All statistical tests were conducted at a significance level of 0,05 ($\alpha = 0{,}05$), which indicates that the results are considered significant if the sig. value is lower than 0,05.

3. RESULT AND DISCUSSION

3.1 Results

Based on the results of filling out the questionnaire (self-efficacy and adversity quotient) and problem-solving ability tests from 176 participants with the aim of seeing the influence of students' self-efficacy and adversity quotient on students' mathematical problem-solving abilities, it can be seen in Table 4.

Table 4. Research Data

Variable / Statistics Descriptive	Self efficacy Questionnaire	Adversity quotient Questionnaire	Problem solving Ability Test
N Statistic	176	176	176
Minimum Statistic	47,83	39,82	25,00
Maximum Statistic	85,87	73,15	100,00
Mean	67,645	60,001	58,677
Std. Deviation Statistic	7,80846	6,22119	23,68276
Variance Statistic	60.972	38,703	560,873

Table 4 shows that the average values for self-efficacy (67,645) and adversity quotient (60,001) are higher than for problem-solving ability (58,677). Meanwhile, the standard deviation for problem-solving ability (23,683) is higher than for self-efficacy (7,808) and adversity quotient (6,221). These results indicate that the average values for self-efficacy and adversity quotient are higher than for problem-solving ability. However, problem-solving ability has the highest standard deviation, indicating greater diversity of abilities among respondents compared to the self-efficacy and adversity quotient variables, which tend to be more homogeneous.

The self-efficacy data categories are shown in Table 5, and the adversity quotient data categories are shown in Table 6. Furthermore, the problem-solving ability data are shown in Table 7.

Table 5. Student Data Based on Self-Efficacy Category

Interval	frequency	Percentage	Category
$71{,}55 \leq X$	23	13,07%	Tinggi
$63{,}74 \leq X < 71{,}55$	121	68,75%	Sedang
$X < 63{,}74$	32	18,18%	Rendah

Table 5 shows that the highest percentage was in the medium self-efficacy category, namely 121 students with a percentage of 68,75%. Meanwhile, the lowest percentage was in the high self-efficacy category, namely 23 students with a percentage of 13,07%.

Table 6. Student Data by Adversity Quotient Category

Interval	frequency	Percentage	Category
$63{,}11 \leq X$	20	11,36%	*Climbers*
$56{,}89 \leq X < 63{,}11$	120	68,18%	*Campers*
$X < 56{,}89$	36	20,45%	*Quitters*

Table 6 shows that the highest percentage is in the medium adversity quotient category, namely 120 students with a percentage of 68,18%. Meanwhile, the lowest percentage is in the high adversity quotient category, namely 20 students with a percentage of 11,36%.

Table 7. Student Data Based on Mathematical Problem-Solving Ability Categories

Interval	frequency	Percentage	Category
$69{,}84 \leq X$	31	17,61%	Tinggi
$46{,}84 \leq X < 69{,}84$	102	57,95%	Sedang
$X < 46{,}86$	43	24,43%	Rendah

Table 7 shows that the highest percentage of students with moderate mathematical problem-solving ability (57,95%) had 102 students, while the lowest percentage was in the high mathematical problem-solving ability (31 students, 17,61%). Hypothesis testing will be conducted, but classical assumption tests will be conducted first, such as normality, linearity, heteroscedasticity, and multicollinearity.

Test of Classical Assumptions

This study conducted a normality test to determine whether the data were normally distributed. This was done using the Kolmogorov-Smirnov method and the IBM SPSS application. The results of the normality test are shown in Table 8.

Table 8. Regression Normality Test

			Unstandardiz ed Residual
N			176
Normal Parameters	*Mean*		0,000
	Std. Deviation		16,065
Most Extreme Differences	*Absolute*		0,037
	Positive		0,026
	Negative		-0,037
Test Statistic			0,037
Asymp. Sig. (2-tailed)			0,200
Monte Carlo Sig. (2-Tailed)	*Sig.*		0,802
	99% confidence Interval	*Lower Bound*	0,793
		Upper Bound	0,813

Based on the results of the Kolmogorov-Smirnov normality test, the asymp. Sig. (2-tailed) value is 0,200, greater than the significance level of 0,05. As a result, it can be said that the data is normally distributed. Furthermore, the linearity test aims to assess whether the independent and dependent variables have a linear relationship. The linearity test looks at the deviation value from linearity in the Anova table generated by IBM SPSS. The results of the linearity test can be seen in Table 9.

Table 9. Linearity Test

Dependent variable	**Independent variable**	***Deviation from Linierity***		***Liniearity***	
		F	**Sig.**	**F**	**Sig.**
Problem solving ability (*Y*)	*Self efficacy* (X_1)	1,218	0,221	27,981	<0,001
	Adversity quotient (X_2)	1,411	0,102	150,004	<0,001

Table 9 shows that the relationship between mathematical problem-solving ability and self-efficacy is linear, with a significant deviation value from linearity of 0,221 greater than 0,05. In addition, the relationship between adversity quotient and mathematical problem-solving ability is linear, with a significant deviation value from linearity of 0,102 greater than 0,05. Therefore, it can be concluded that the relationship between the dependent and independent variables in this study is linear. Furthermore, a multicollinearity test was used to determine whether there is a correlation between the independent variables in the regression model. The multicollinearity test

in this study refers to the Variance Inflation Factor (VIF) value generated by the IBM SPSS program. The results of the multicollinearity test data can be seen in Table 10.

Table 10. Multicollinearity Test

Model	Collinearity Statistics	
	Tolerance	VIF
Self efficacy (X_1)	0,991	1,009
Adversity quotient (X_2)	0,991	1,009

Based on Table 10, the VIF value between self-efficacy (X_1) and adversity quotient (X_2) is 1,009, meaning the VIF is < 10,00. Meanwhile, the tolerance value between self-efficacy (X_1) and adversity quotient (X_2) is 0,991, meaning the tolerance value is > 0,10. Therefore, it can be concluded that there is no multicollinearity in the regression model used in this study.

Finally, the classical assumption test is the heteroscedasticity test. The heteroscedasticity test in this study refers to scatterplots from the IBM SPSS application output. The scatterplots can be seen in Figure 4.

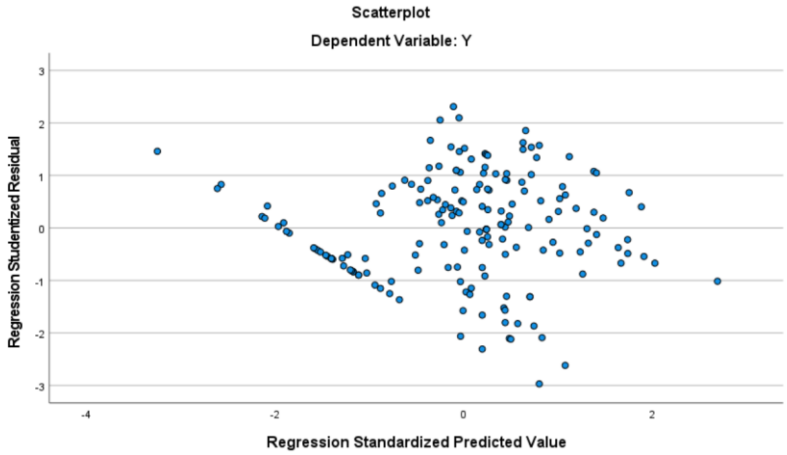

Figure 4. Heteroscedasticity Test

Figure 4 shows that the regression model does not show heteroscedasticity, where the regression model has unequal variance and residuals from one observation to another (Ghozali, 2011), where the data points are spread above and below the number 0 on the Y axis, and there is no clear pattern.

Hypothesis Testing

Furthermore, data analysis to see how much the independent variable contributes to the dependent variable can be seen based on the simultaneous determination coefficient in Table 11.

Table 11. Coefficients of Determination (R^2)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0,735	0,540	0,535	16,15729

Based on Table 11, the coefficient of determination (R^2) is 0,540, and it can be concluded that self-efficacy and adversity quotient influence students' mathematical problem-solving abilities by 54%. Meanwhile, problem-solving abilities are influenced by other factors by 46%.

Table 12. Simultaneous Hypothesis Testing (*F*-Test)

Model	Sum of Squares	df	Mean Square	*F*	Sig.
Regression	52989,718	2	26494,859	101,490	<0,001
Residual	45163,060	173	261,058		
Total	98152,778	175			

Table 12 shows that the calculated F_{value} = 101,490 is greater than F_{table} = 3,048 at a significance level of 0,05, and the sig. value = <0,001 is less than the significance level of 0,05, which means that both self-efficacy and adversity quotient factors simultaneously influence mathematical problem-solving ability. Furthermore, a *t*-test was conducted to determine the partial influence of self-efficacy and adversity quotient on mathematical problem-solving ability.

Table 13. Partial Hypothesis Testing (*t*-Test)

Model	Koefisien regresi (B)	Coefficients Std. Error	Standardized Coefficients Beta	*t*	Sig.
Constant	-150,071	15,180		-9,886	<0,001
Self efficacy (X_1)	0,925	0,157	0,305	5,889	<0,001
Adversity quotient (X_2)	2,436	0,197	0,640	12,350	<0,001

Table 13 shows that partially, self-efficacy influences students' ability to solve mathematical problems. This can be seen from the calculated t_{value} = 5,889 which is greater than the t_{table} = 1,974 and the sig. value = <0,001 which is smaller than 0,05. Based on the standardized beta coefficients value of 0,305, it shows that the partial contribution for the Self-efficacy variable is 30,5%. The adversity quotient variable influences students' mathematical problem-solving abilities based on the calculated t_{value} = 12,350 which is greater than the t_{table} = 1,974 and the sig. value = <0,001 which is smaller than 0,05. Based on the standardized beta coefficients value of 0,640, it shows that the partial contribution for the Adversity quotient variable is 64%.

Based on Table 13, it shows the results of the multiple regression equation estimation of the self-efficacy and adversity quotient variables on mathematical problem-solving ability, namely:

$$\boldsymbol{Y = -150,071 + 0,925X_1 + 2,436X_2} \quad (1)$$

The regression coefficient for the self-efficacy variable (X_1) is 0,925, which means that if the independent variable X_1 (self-efficacy) changes by one unit, then the Y variable (students' mathematical problem-solving ability) will change by 0,925 units, assuming that other independent variables are constant. The regression coefficient for the adversity quotient variable (X_2) is 2,436, indicating that the variable (Y) of students' mathematical problem-solving ability will change by 2,436 units if the independent variable adversity quotient (X_2) changes by one unit, assuming that other independent variables are constant. The constant value of −150,071 in equation 1 shows the predicted value of students' mathematical problem-solving ability (Y) when the variables self-efficacy (X_1) and adversity quotient (X_2) are considered to have a value of 0. This means that if students do not have self-efficacy and adversity quotient at all, then their mathematical problem-solving ability is predicted to have a value of −150,071.

3.2 Discussion

Self-efficacy significantly influences students' mathematical problem-solving abilities. This indicates that self-efficacy influences how well students' mathematical problem-solving abilities are. When self-efficacy is increased, students' abilities will increase, and vice versa, in line with research results (A. A. Putri & Juandy, 2022). The percentage of students with moderate self-efficacy is higher than the percentage of students with high and low self-efficacy, in line with research results (Utami & Wutsqa, 2017) which stated that overall students' self-efficacy is in the moderate category with different averages. This means that students' abilities are still in the moderate category, reinforced by the percentage of students' mathematical problem-solving ability scores still in the moderate category.

Self-efficacy influences every stage in students' mathematical problem-solving process. (1) At the problem-solving stage, students with high self-efficacy are more confident in identifying known and requested information in questions and statements. (2) At the planning stage, students with high self-efficacy are more confident in determining the appropriate strategies and formulas

to use to answer questions. (3) At the stage of implementing the plan and re-checking, students do not easily doubt the steps they have determined. (4) The final stage is re-checking/re-checking the answers they have answered, students do not easily doubt the steps they have determined. If students find errors, they are willing to correct them. Research conducted by Nuryati Ismit found that students' ability to solve mathematical problems is proportional to their level of independence. This study also found that students with low levels of independence tend to give up, hesitate in making decisions, and avoid difficult questions (Ismit & Lukmana, 2023).

The results of this study align with Bandura's theory that self-efficacy is crucial for how a person thinks, acts, and perseveres when facing challenges (Bandura, 1997). These findings also reinforce the findings of previous studies (Subaidi, 2016) and (Sa'adah et al., 2021), which show that self-efficacy plays a significant role in students' abilities in learning mathematics. Thus, self-efficacy can be viewed as an internal factor that plays a crucial role in improving students' ability to solve mathematical problems. Therefore, teachers must strive to foster and strengthen students' self-efficacy through motivation, meaningful learning experiences, and constructive feedback, which play a crucial role in improving students' ability to solve mathematical problems.

Adversity quotient significantly influences students' mathematical problem-solving abilities. This indicates that adversity quotient influences how well students' mathematical problem-solving abilities improve, and vice versa, in line with research findings (Mustika & Hakim, 2018). The percentage of students with moderate adversity quotient scores was higher than those with low and high adversity quotients, indicating that students' abilities were still in the moderate category based on the adversity quotient category. This is supported by the percentage of students with moderate mathematical problem-solving abilities.

In mathematical problem-solving, students with a high adversity quotient are less likely to give up when encountering difficulties, such as calculation errors and inaccuracies in determining solution strategies. Students with a high adversity quotient tend to evaluate the steps they have taken, then check and retry to determine whether they were correct. Conversely, students with a low adversity quotient tend to quit and refuse to try again when they encounter difficulties and initial failures, and tend to view these difficulties as evidence of their own incompetence. This aligns with Stoltz's theory that adversity quotient determines how a person responds to the difficulties and pressures they face (Stoltz, 2000).

The results of this study align with previous research (Rahmi et al., 2021) and (Aini & Mukhlis, 2020), which stated that adversity quotient influences students' ability to solve mathematical problems. The greater the problem faced, the more optimistic and innovative a person is in solving it. This is because adversity quotient is a person's ability to transform and transform a problem into a challenge to be overcome (Nurlaelah et al., 2021). Therefore, teachers need to create a challenging yet supportive learning environment, providing opportunities for students to learn from their mistakes and encouraging them to persevere, ensuring that their mathematical problem-solving skills develop optimally.

Self-efficacy and adversity quotient simultaneously significantly influence students' mathematical problem-solving abilities. Together, self-efficacy and adversity quotient account for approximately 54% of the variation in students' mathematical problem-solving ability scores. Therefore, it can be concluded that self-efficacy and adversity quotient scores together have a significant influence of 54%. Other variables not discussed in this study influence the remaining 46%. Consequently, it can be said that students' mathematical problem-solving abilities will improve if their adversity quotient and self-efficacy are simultaneously increased, and vice versa. This is in line with the research findings of Saharudin et al., which showed that students' ability to solve mathematical problems is closely related to their level of success and their failure ratio (Saharuddin & Dewi, 2024).

The regression equation obtained by the researchers indicates that without the ability to face difficulties, a very high level of self-confidence is required to achieve minimal mathematical problem-solving ability. In other words, self-efficacy alone is not effective in improving mathematical problem-solving ability if it is not balanced by the adversity quotient. Therefore, these results indicate that the adversity quotient has a more dominant influence in the obtained

regression model. This is indicated by the lower value required to reach the neutral point compared to self-efficacy. Therefore, it can be concluded that students' resilience in the face of difficulties is a stronger factor in supporting mathematical problem-solving ability and therefore requires greater attention in the learning process.

Self-efficacy plays a role in building one's confidence in their ability to solve a mathematical problem, while the adversity quotient plays a role in responding to the challenges they face, maintaining perseverance and a fighting spirit when facing challenges throughout the process. Students with high self-efficacy but low adversity quotient tend to easily lose motivation when they experience failure. Conversely, if someone has a high adversity quotient but low self-efficacy, they will still try but lack confidence or be hesitant in the process. Therefore, a balance between the two variables is essential when facing a mathematical problem to achieve good results.

The results of this study reinforce the findings of previous studies which stated that student success in learning mathematics is influenced by several internal psychological factors, not only the learning method. These factors as a whole have a significant influence on students' ability to solve mathematical problems (Irawan et al., 2016). Consequently, adversity quotient and self-efficacy can be considered two important variables that work together to improve students' ability to solve mathematical problems. However, several studies have found that self-efficacy does not affect students' mathematical problem-solving abilities when viewed from several other factors, such as the environment (If someone has high self-confidence but is not competitive, then this will affect the individual's level of confidence so that the level of self-confidence decreases, because students feel they are not challenged and therefore do not try their best in completing their tasks) (Haqqul et al., 2022). Therefore, teachers are expected to not only focus on mastering mathematical concepts and procedures, but also on developing students' self-confidence and resilience through challenging, reflective learning and providing continuous positive support.

4. CONCLUSION

Based on the research results, it was concluded that: self-efficacy influences students' mathematical problem-solving abilities in solving story problems with NTB cultural nuances, although the percentage contribution is small, adversity quotient influences students' mathematical problem-solving abilities in solving story problems with NTB cultural nuances, and self-efficacy and adversity quotient simultaneously influence students' mathematical problem-solving abilities in solving story problems with NTB cultural nuances. This research shows that the use of story problems with NTB cultural nuances can be an alternative in creating mathematics learning that is more contextual, interesting, and close to students' lives, thereby helping to develop mathematical problem-solving skills. The results of this study also indicate that internal factors of students such as self-efficacy and adversity quotient need to be considered in the learning process because both influence students' abilities in solving mathematical problems.

This research is expected to benefit teachers in developing and considering learning approaches and strategies appropriate to the real world and training students in solving non-routine practice problems, ensuring a thorough understanding of the material and improving their mathematical problem-solving abilities. Furthermore, this research can serve as a reference for further studies on students' mathematical problem-solving abilities and the factors that influence them.

This research is limited to self-efficacy and adversity quotient; therefore, further research can consider other aspects and factors, such as learning styles, mathematical dispositions, math anxiety or self-confidence, and other factors that may influence students' mathematical problem-solving abilities. In addition, this study is limited to the number of samples taken from only one school, so the results of the study cannot be generalized widely, and also only looks at the influence of self-efficacy and adversity quotient factors in general on students' mathematical problem-solving abilities, so it has not discussed in more depth the influence of factors in each category of self-efficacy and adversity quotient. Therefore, it is hoped that future researchers can develop more in-depth research.

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