**IJECA**
*International Journal of*
*Education & Curriculum Application*
http://journal.ummat.ac.id/index.php/IJECA
**ISSN 2614-3380 | Vol. 6, No. 3, December 2023**

# The Effect of Self-Efficacy and Math Anxiety on Students' Non-Routine Mathematics Problem Solving Ability

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**Keywords:**
Self-efficacy;
Math anxiety;
Non-routine mathematics problem solving abilities.

**ABSTRACT**

The lack of research on the impact of self-efficacy and mathematics anxiety on non-routine mathematics problem solving ability emphasizes the importance of this study. While previous studies have focused on psychological factors in the context of learning mathematics, limited attention has been paid to how these factors influence students' ability to solve non-routine mathematical problems. This study aims to fill this gap by identifying the role of self-efficacy and math anxiety in students' ability to cope with and solve non-routine math problems. The main objective of this study is to measure the impact of self-efficacy and math anxiety on students' ability to solve non-routine math problems. By exploring these psychological factors, this study aims to make a significant contribution to our understanding of the factors that influence student performance in the context of solving complex non-routine mathematical problems.

**Article History:**
Received: 17-10-2023
Revised : 01-12-2023
Accepted: 02-12-2023
Online : 04-12-2023



https://doi.org/10.31764/ijeca.v6i3.20124

## A. INTRODUCTION

One of the objectives of learning mathematics is to train students' ability to understand problems, design mathematical models, solve these models, and interpret the solutions that have been obtained (Kusumawati & Irwanto, 2016). In math lessons, students are taught how to solve problems logically and systematically using mathematical concepts that have been learned. To develop problem-solving skills, students can practice making decisions and making conclusions from existing problems based on logical, rational, critical, careful, honest, efficient, and effective thinking (Jatisunda, 2017). According to Yuliyani & Handayani (2017) problem-solving is defined as a process for solving problems in the form of story problems, non-routine problems, mathematical applications in everyday life, and developing or testing hypotheses. On the other hand, problem-solving skills can help students strategize and learn to find solutions that will guide students to be more creative and be able to bring students to the right way to achieve goals. Through problem-solving skills, students are expected to be able to solve math problems.

One form of problem-solving is non-routine problems. According to Altun cited Öztürk et al. (2019) states that solving non-routine problems requires the use of mathematical skills to analyze information, formulate plans and strategies, determine solutions, form relationships, look for patterns, and perform reasoning processes. According to Putri (2018) stated that deep thinking is needed to arrive at the correct procedure in working on non-routine problems. Non-routine problems have a higher level of complexity compared to routine problems. Because of this complexity, problem-solving strategies do not always appear immediately and require a high level of creativity and originality from problem solvers. In schools themselves, teachers rarely emphasize non-routine problem solving, because non-routine problems are rarely discussed in source books or texts (Mulyati, 2016). This further makes students less familiar with and understand non-routine problem-solving.

In addition to a lack of learning resources, problem-solving skills must also be accompanied by psychological aspects which also play an important role in one's success in completing tasks well (Kartika, 2017). One of the psychological aspects is self-efficacy and math anxiety. As for self-efficacy, quoting from the statement of Bandura et al., (1980) states that self-efficacy, or students' beliefs about their ability to do tasks is a strong indicator of achieving goals. Self-efficacy is a person's view of his ability to organize and determine a job (Hendriana & Kadarisma, 2019). Self-efficacy refers to an individual's belief in their ability to achieve desired outcomes. In the context of students and schoolwork, this refers to the extent to which students have confidence in their ability to succeed in completing school tasks (Sukma & Priatna, 2021). It can be concluded that self-efficacy is a belief that students have in their problem-solving abilities. Self-efficacy is also closely related to student motivation, namely that self-efficacy plays a role in motivation and achievement in learning mathematics (Núñez-Peña et al., 2013). So student self-efficacy is certainly very important to have. Self-efficacy also serves to measure a student's success in solving math problem-solving problems.

Several studies have shown a positive correlation between self-efficacy and problem-solving ability. Yuliyani & Handayani (2017) and Somawati (2018) found that students with high self-efficacy had better problem-solving skills, which can be attributed to their increased confidence and perceived competence in solving problems. Similarly, a study conducted in Turkey by Öztürk et al. (2019) reported a significant positive relationship between self-efficacy and non-routine problem-solving ability. These findings suggest that self-efficacy is a key psychological factor that influences both routine and non-routine problem-solving abilities.

Mathematics anxiety is a psychological factor that can hinder non-routine problem-solving ability (Riski et al., 2019). It is an emotional state characterized by anxiety, fear, and excessive tension that can interfere with the learning of mathematics (Amalia et al., 2018). According to Saputra (2014), mathematics anxiety manifests as a feeling of insecurity about potential negative outcomes, resulting in unpleasant subjective experiences such as fear, tension, worry, confusion, and dislike. This anxiety can have a significant impact on students' ability to solve math problems. The complexity of

mathematics, with its abstract nature, logical structure, systematic approach, and use of numerous symbols, often makes it a challenging subject for students, contributing to their anxiety (Syafri, 2017).

According to Anita (2014), math anxiety is negatively correlated with the ability to connect mathematical concepts. Ratna & Yahya (2022), Lestari et al. (2020), Septiarini et al. (2020)conducted further research and found that math anxiety also negatively impacts problem-solving skills in math. This anxiety often arises from students feeling uncomfortable with math, which in turn hinders their problem-solving abilities and prevents them from reaching their full potential. Based on numerous studies, it can be concluded that math anxiety hurts various aspects of mathematical performance.

However, while there have been previous research efforts highlighting the importance of psychological factors such as self-efficacy and mathematics anxiety in the context of mathematics learning, particularly about problem-solving, there is a lack of in-depth understanding of their concrete impact on students' ability to deal with non-routine mathematical problems. This research is closely related to several important issues that it seeks to address. One of them is the lack of in-depth understanding of how self-efficacy and mathematics anxiety affect students' ability to solve non-routine mathematical problems. The lack of studies that focus on the specific relationship between self-efficacy, mathematics anxiety, and non-routine mathematics problem-solving ability forms the basis of the urgency of this research. The purpose of this study is to investigate more deeply the influence of self-efficacy and mathematics anxiety on students' ability to solve non-routine mathematics problems. By exploring these two factors, it is hoped that this study can provide a more detailed and relevant picture of how these psychological factors specifically influence students in facing complex and non-routine mathematical problem-solving challenges.

## B. METHOD

A quantitative descriptive research method was used in this study to examine the impact of self-efficacy (X1) and mathematics anxiety (X2) on non-routine mathematics problem-solving ability (Y). The study involved 72 grade XII senior high school students, and a validity-tested questionnaire was used to collect structured data. This method allowed for a detailed assessment of students' self-efficacy and mathematics anxiety levels as they related to non-routine mathematics problem-solving. The questionnaire captured important dimensions of these two variables, including magnitude, strength, and generality for self-efficacy, and cognitive, affective, and psychomotor dimensions for mathematics anxiety. Multiple linear regression was used to measure the simultaneous effect of self-efficacy and math anxiety on students' ability to solve non-routine math problems. The IBM SPSS analysis tool was selected for its ability to handle complex regression analysis, allowing control of other factors that may influence the results and ease of interpretation of the analysis results. This method was chosen to explore the complex relationship between the independent and dependent variables holistically. By using this method, the study aims to provide a more comprehensive and measurable

picture of the effect of self-efficacy and mathematics anxiety on students' non-routine mathematics problem-solving ability. The study subjects were 72 grade XII high school students, which is a strong representation of the analysis. General Self-Efficacy Scale (GSEC) and mathematics anxiety questionnaire were used to measure the relevant dimensions of these two variables. The researcher used the General Self-Efficacy Scale (GSEC) questionnaire, which consists of three dimensions divided into 15 items listed in Table 1.

**Table 1.** Self-efficacy Instrument Grid

| Dimensions | Indicator | Question number |
|---|---|---|
| Level or degree of task difficulty | Able to understand the given math material | 1, 9 |
| | Believes the given problem is easy to do | 7 |
| | Have no difficulty in working on math problem solving problems | 15 |
| Generality or how broad the confidence is in completing the task | Able to solve math problems | 2 |
| | Always self-motivated to complete tasks | 3, 13 |
| | Does not feel hopeless when faced with math problems | 10 |
| Strength or the strength of one's belief in completing a task | Confident in your own abilities | 4, 5 |
| | Confident that the efforts made have been maximized | 8, 14 |
| | Confident that you are able to face obstacles and difficulties | 6 |
| | Failure in doing assignments or math problems will not discourage you from learning math. | 11, 12 |

The instrument to measure self-efficacy is divided into magnitude, strength, and generality indicators. The instrument to measure the level of mathematics anxiety also uses a questionnaire with a Likert scale that contains cognitive, affective, and psychomotor dimensions. The indicators are listed in Table 2.

**Table 2.** Mathematics Anxiety Instrument Grid

| Dimensions | Indicator | Question Number |
|---|---|---|
| Cognitive | Feeling confused when facing math tasks or problems. | 4, 6 |
| | Unable to concentrate when learning math. | 14 |
| | Not confident when doing math problems. | 15 |
| | Always think the math problems given are difficult | 10, 13 |
| Affective | Always anxious when doing math problems | 1 |
| | There is a feeling of nervousness and anxiety when given math assignments | 2 |
| | Fear of getting low grades | 8 |
| Psychomotor | Reluctant to complete assigned math tasks. | 9, 12 |
| | Feeling lazy to participate in math learning. | 5, 11 |
| | Trying to avoid learning math | 3, 7 |

There is a test used in this study to measure the dependent variable, namely non-routine problem-solving ability. This test is in the form of short fill-in questions totaling 4 items. This question is adapted from Olympic questions, where according to (Chandra et al., 2019). Olympic questions are one form of non-routine problems. With each score worth 5 if correct. Indicators that include aspects such as understanding the problem, planning a solution, implementing the plan, and interpreting the results obtained are listed in Table 3.

**Table 3.** Non-routine Mathematics Problem Solving Ability Instrument Grid

| Indicator | Question Number |
|---|---|
| Identifying known elements that are asked | 1,2,3,4 |
| Understanding the problem | 1,2,3,4 |
| Planning to solve the problem | 1,2,3,4 |
| Implementing the plan | 1,2,3,4 |
| Interpreting the results obtained | 1,2,3,4 |

In addition, multiple linear regression analysis was used for data analysis. Normality, linearity, multicollinearity, and heteroscedasticity tests were performed as prerequisites to interpret study results.

## C. RESULT AND DISCUSSION

The study aimed to investigate the impact of two independent variables on the Non-Routine Mathematics Problem Solving Ability, namely the level of self-efficacy (X1) and the level of mathematics anxiety (X2). The researchers conducted the research by first administering the non-routine math problem-solving ability test, followed by distributing the self-efficacy and math anxiety questionnaires. The descriptive data can be viewed in Table 4.

**Table 4.** Statistical Descriptive Result Data

| | X1 | X2 | Y |
|---|---|---|---|
| Valid | 72 | 72 | 72 |
| Missing | 0 | 0 | 0 |
| Mode | 4.313 | 4.239 | 4.007 |
| Median | 4.239 | 4.229 | 4.174 |
| Mean | 4.226 | 4.227 | 4.150 |
| Std. Deviation | 0.157 | 0.140 | 0.213 |
| Variance | 0.025 | 0.020 | 0.045 |
| Shapiro-Wilk | 0.987 | 0.976 | 0.970 |
| P-value of Shapiro-Wilk | 0.659 | 0.177 | 0.082 |
| Minimum | 3.784 | 3.784 | 3.689 |
| Maximum | 4.550 | 4.536 | 4.554 |

The information presented in Table 4 reveals some interesting insights. The self-efficacy variable (X1) has 72 data points, ranging from 3,784 to 4,550. On average, self-efficacy is rated at 4.226, with a standard deviation of 0.199. Meanwhile, the math anxiety

variable (X2) also includes 72 data points, with a minimum value of 3.784 and a maximum value of 4.536. The average math anxiety is about 4.227, with a standard deviation of 0.140. Finally, the non-routine math problem solving ability variable (Y) has a total of 72 data points, with a minimum value of 3.689 and a maximum value of 4.554. The average non-routine math problem solving ability is about 4.150, with a standard deviation of 0.213. This data provides an overview of the distribution and basic statistics for the self-efficacy, math anxiety, and non-routine math problem solving ability variables in this study.

**1. Hypothesis Prerequisite Test**

a. Normality Test

The normality test aims to determine whether the data in this study follows a normal distribution. The Shapiro-Wilk method was used to conduct the data normality test, which was applied using the IBM SPSS. The results of the data normality test are presented in Table 4. Based n the results of the Shapiro-Wilk method, it can be observed that the P-value of Shapiro-Wilk on X1 is 0.659, and for X2 and Y it is 0.177 and 0.082 respectively. All of these values exceed the significance level set at 0.05. Therefore, we can conclude that all variables in the study follow a normal distribution.

b. Linearity Test

The linearity test is intended to evaluate whether there is a linear relationship between the independent variable and the dependent variable. This linearity assessment is achieved by observing the deviation from the linearity value in the ANOVA output table in IBM SPSS. Information regarding the results of the linearity test can be found in Table 5.

**Table 5.** Linearity Test

| Dependent Variable | Independent Variable | Deviation From Linearity | |
|---|---|---|---|
| | | **F** | **Sig** |
| Non-routine mathematics problem-solving ability | Self-Efficacy | 0.597 | 0.925 |
| | Math Anxiety | 0.719 | 0.806 |

The analysis of Table 5 shows that there is a linear correlation between Self-efficacy and Non-Routine Mathematics Problem Solving Ability. The significance value of Deviation from Linearity is 0.925, which is above the threshold of 0.05. Similarly, the relationship between mathematics anxiety and Non-Routine Mathematics Problem Solving Ability is also linear with a Deviation from Linearity significance value of 0.806, greater than 0.05. Therefore, it can be concluded that the relationship between the independent and dependent variables in this study is linear.

c. Multicollinearity Test

In regression analysis, the multicollinearity test is used to determine if there is a correlation between the independent variables. The Variance Inflation Factor (VIF) generated by IBM SPSS software is used to assess multicollinearity and it forms the basis of this study's assessment. The results of the multicollinearity test are presented in Table 6.

**Table 6.** Multicollinearity Test

| Coefficients[a] | | | |
|---|---|---|---|
| Z | | Collinearity Statistics | |
| | | Tolerance | VIF |
| 1 | (Constant) | | |
| | Self-Efficacy | .621 | 1.609 |
| | Math Anxiety | .621 | 1.609 |

a. Dependent Variable: Non-routine mathematics problem-solving ability

Based on Table 6, it is evident that the VIF score between variables $X1$ and $X2$ is 1.609, which is below the threshold of 10.00. Furthermore, the tolerance value between these variables is 0.621, indicating that it is above the minimum value of 0.10. Therefore, it can be concluded that the regression model employed in this study does not face any issues related to multicollinearity.

d. Heteroscedasticity Test

Conducting a heteroscedasticity test helps to determine if there are any significant differences in the variance and residuals between the observations in a regression model. In this study, the heteroscedasticity assessment is based on the scatterplots generated by the IBM SPSS application. You can view these scatterplots in Figure 1.

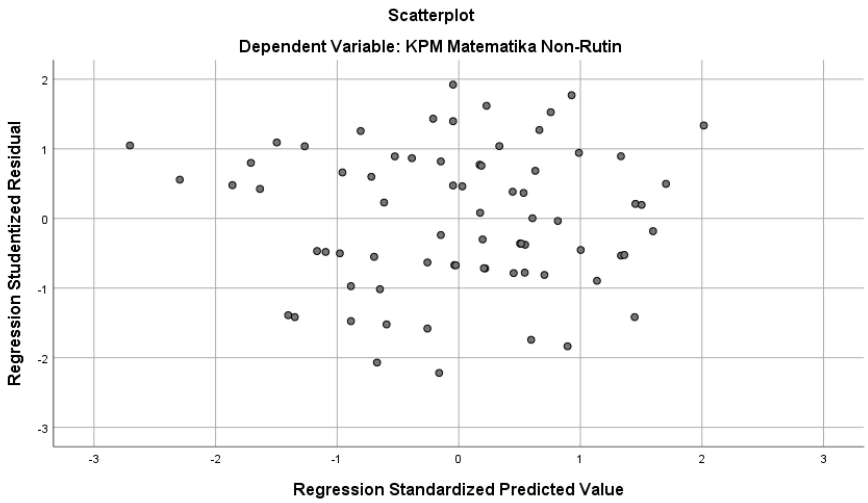


**Figure 1.** Heteroscedasticity Test

Based on the illustration, it is evident that the data points are randomly distributed above and below the 0 mark on the Y-axis, with no clear pattern. This implies that there is no evidence of heteroscedasticity in the regression model.

**2. Hypothesis Test**

In this study, hypothesis testing was carried out using multiple linear regression analysis, using IBM SPSS Statistics software to test the statistical hypotheses that have been proposed.

$H_a1$ : There is an effect of self-efficacy on non-routine problem solving ability.
$H_0 1$ : There is no an effect of self-efficacy on non-routine problem solving ability.
$H_a2$ : There is an effect of mathematics anxiety on non-routine problem solving ability.
$H_0 2$ : There is no an effect of mathematics anxiety on non-routine problem solving ability.
$H_a3$ : There is an effect of self-efficacy and mathematics anxiety on non-routine problem solving ability.
$H_0 3$ : There is no an effect of self-efficacy and mathematics anxiety on non-routine problem solving ability

To test alternative Hypotheses 1 and 2 ($Ha1$ and $Ha2$), the t statistical test was used to determine whether there is self-efficacy and mathematics anxiety separately on students' non-routine problem solving ability.

**Table 7.** Partial Hypothesis Test

| Models | Regression Coefficient (B) | t | Sig. | r | $r^2$ |
|---|---|---|---|---|---|
| *Constant* | 3.147 | 3.901 | 0.000 | | |
| *Self-efficacy*(X1) | 0.259 | 1.267 | 0.210 | 0.182 | 0,033 |
| Math Anxiety (X2) | -0.021 | -0.094 | 0.926 | 0.103 | 0.011 |

Based on Table 7 provides test results which include the regression coefficient value, t-count, and sig. value of each variable, which is then explained as follows: (1) The Self-efficacy variable (X1) has a regression coefficient of 0.259. The t-count test result shows a value of 1.267, which is smaller than the t-table value of 1.994, and the significance value (sig.) is 0.210, greater than the commonly used significance level of 0.05. Therefore, based on these values, the hypothesis $H_0 1$ which states that there is no significant effect of Self-efficacy on non-routine mathematics problem solving ability $H_0 1$ is accepted. In other words, the Self-efficacy variable has no significant effect on non-routine mathematics problem solving ability; and (2) The math anxiety variable (X2) has a regression coefficient of -0.021. The t-count test results show a value of -0.094, which is smaller than the t-table value of 1.994, and the significance value (sig.) is 0.926, which is much greater than the 0.05 significance level. Therefore, based on these results, the hypothesis $H_0 2$

which states that there is no significant effect of mathematics anxiety on non-routine mathematics problem solving ability $H_0 2$ is accepted. Thus, it can be concluded that the mathematics anxiety variable does not have a significant effect on non-routine mathematics problem solving ability. To prove the Alternative Hypothesis $H_0 3$, the next step is to use the F statistical test. This test determines whether there is a significant effect between the level of self-efficacy and mathematics anxiety on students' ability to solve non-routine mathematical problems.

**Table 8.** Simultaneous Hypothesis

**ANOVA[a]**

| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | .107 | 2 | .053 | 1.181 | .313[b] |
| | Residual | 3.121 | 69 | .045 | | |
| | Total | 3.228 | 71 | | | |

a. Dependent Variable: Non-routine mathematics problem-solving ability

b. Predictors: (Constant), Math Anxiety, Self-Efficacy

Based on the analysis of Table 8, it can be seen that the value of F count = 1.181 is smaller than F table = 3.13 at the real level = 0.05. While for the sig value. F = 0.313 is greater than the real level = 0.05, which means that $H_0 3$ is accepted. From these results, it can be concluded that the variables of self-efficacy and mathematics anxiety together do not significantly affect the ability to solve non-routine mathematical problems. The estimation results of the effect of self-efficacy and mathematics anxiety variables can be expressed as follows where the regression coefficient value of self-efficacy is positive (+) and the regression coefficient of mathematics anxiety (-), so it can be said that self-efficacy (X1) has a positive effect on non-routine math problem-solving ability and mathematics anxiety (X2) breaks non-routine math problem-solving ability. So the regression equation can be written as follows:

$$Y = 3{,}147 + 0{,}259X_1 - 0{,}021X_2 \quad (1)$$

The regression coefficient for the mathematical disposition variable (X1) is 0.259. This means that if self-efficacy (X1) increases by 1%, students' non-routine math problem-solving ability (Y) will increase by 0.259 units, assuming other independent variables remain constant. The partial determination coefficient ($\boldsymbol{r}^2$) of variable X1 is 0.033 or 3%. This indicates that the contribution of variable X1 to the variation of Y is 3%, with other independent variables held constant. The regression coefficient for the mathematics anxiety variable (X2) is -0.021. This means that if a student's mathematics anxiety (X2) increases by 1%, their non-routine math-solving ability (Y) will decrease by -0.021 units, assuming all other independent variables remain constant. Based on Table 7, the partial determination coefficient ($\boldsymbol{r}^2$) of the X2 variable is 0.011 or 1%. This indicates that the contribution of the X2 variable to the variation of Y is 1%, with all other

independent variables held constant. To assess the effect of both variables together, more information about the simultaneous coefficient of determination can be found in the Model Summary, as shown in Table 9.

**Table 9.** Coefficient of Determination ($R^2$)

| Model Summary[b] | | | | | |
|---|---|---|---|---|---|
| **Model** | **R** | **R Square** | **Adjusted R Square** | **Std. Error of the Estimate** | **Durbin-Watson** |
| 1 | .182[a] | .033 | .005 | .21268 | .094 |
| a. Predictors: (Constant), Math Anxiety, Self-Efficacy | | | | | |
| b. Dependent Variable: Non-routine mathematics problem-solving ability | | | | | |

According to Table 9, the coefficient of determination ($\boldsymbol{r^2}$) is 0.033. This means that self-efficacy and mathematics anxiety scores combined account for approximately 3% of the variance in students' non-routine mathematics problem-solving ability. Therefore, it can be concluded that self-efficacy and mathematics anxiety have a minimal impact on students' non-routine math problem-solving ability. The remaining 97% is influenced by other variables that were not discussed in this study.

Based on the results of the data analysis, we will discuss how self-efficacy (X1) and mathematics anxiety (X2) affect non-routine mathematics problem solving ability (Y). The results of the first hypothesis analysis indicate that $H_0 3$ is accepted. Therefore, it can be concluded that the self-efficacy variable has only a small impact on students' ability to solve non-routine mathematics problems, which is approximately 3%. This shows that self-efficacy does not affect the fluctuation of students' non-routine math problem-solving ability significantly. The contribution of the self-efficacy variable to students' non-routine math problem-solving ability is relatively small. On the other hand, the results of the second hypothesis analysis demonstrate that $H_0 2$ is accepted. It can be inferred that the mathematics anxiety variable also has only a minor effect on students' non-routine math problem-solving ability, which is approximately 1%. This indicates that mathematics anxiety does not significantly impact the enhancement or decrease of students' mathematical reasoning ability. The contribution of the self-efficacy variable to students' non-routine math problem-solving ability is relatively small.

The study found that the combination of self-efficacy and mathematics anxiety only has a minimal effect of 3% on students' non-routine math problem-solving skills. This indicates that these two variables have insignificant influence on students' ability to solve complex math problems. There are several other unknown factors that have a greater impact on students' high and low non-routine math problem-solving skills. The small influence of self-efficacy and mathematics anxiety is due to various reasons that will be discussed in the following section.

Self-efficacy refers to an individual's belief in their ability to perform a specific task. However, having high self-efficacy does not necessarily mean that one can easily solve non-routine math problems. On the other hand, mathematics anxiety is the feeling of fear

or anxiousness that one experiences when confronted with a mathematical task or problem. While math anxiety may negatively impact one's performance in math in general, it doesn't necessarily affect their ability to solve non-routine math problems. Research suggests that the impact of self-efficacy and mathematics anxiety on math problem-solving ability is negligible due to the complexity of non-routine math problem solving. According to Putri (2018), non-routine math problems are more intricate as compared to routine problems. This is evident from the higher level of difficulty associated with non-routine problems.

Non-routine math problems often require specialized skills and a deeper understanding of mathematical concepts. This aligns with research conducted by Thamsir et al. (2019), which defines non-routine math problems as problems that stem from real-life situations and require mathematical skills to solve. While self-confidence (self-efficacy) can increase an individual's motivation to learn, it alone cannot develop these skills. Similarly, mathematical anxiety cannot enhance an individual's mathematical skills. According to research by Mulyati (2016), a lack of learning resources is an external factor that affects students' ability to solve non-routine problems. Teachers seldom emphasize non-routine problem-solving in schools, and such problems are rarely discussed in source books or texts. As a result, students become less familiar with and less able to comprehend non-routine problem-solving.

There are several reasons why math anxiety has a small effect on math performance. One of these reasons is that there are ways to treat and reduce math anxiety. Some of the effective strategies include seeking social support, practicing relaxation techniques, and getting accustomed to anxiety-inducing situations. A study conducted by Devine et al. (2012) showed that people who experienced math anxiety could improve their math performance through the use of anxiety management techniques. Therefore, math anxiety may affect math performance in situations that require outcomes and judgment, but it is not the primary factor that hinders an individual's ability to solve non-routine math problems.

This study suggests that self-efficacy and mathematics anxiety have a limited effect on non-routine mathematics problem-solving ability. However, the finding highlights the possibility of other factors playing a more substantial role in this context. Therefore, further research should explore other variables such as intrinsic motivation, concept comprehension, and problem-solving skills. The study confirms that numerous complex and deeper aspects influence students' ability to deal with difficult mathematics problems. As a result, the main contribution of this study is to provide a starting point for future research that can look into other factors that may have a more significant impact on students' ability to solve non-routine mathematical problems.

## D. CONCLUSION AND SUGGESTIONS

The study found that self-efficacy and mathematics anxiety have a relatively small influence on students' ability to solve non-routine mathematical problems. While self-efficacy has a positive effect, mathematics anxiety has a negative impact on the ability.

However, it is important to note that these two factors alone cannot significantly affect the ability unless they are supported by other factors like intrinsic motivation, perseverance, and intelligence. The study has some limitations as it mostly focuses on self-efficacy and mathematics anxiety and fails to consider other variables that could have a more significant impact. Future research can expand the scope of variables to understand the factors that influence students' ability to solve non-routine mathematical problems holistically.

In summary, the study emphasizes that self-efficacy and mathematics anxiety have a limited impact on non-routine mathematics problem-solving ability, and there is a need to explore additional factors that could play a stronger role in this context. This study provides new insights into the complexity of factors that influence students' ability to deal with complex mathematical problems.

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