

Self-Efficacy in Mathematics Learning and Efforts to Improve It

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Abstract

This research was conducted to determine the effect of self-efficacy on mathematics learning achievement of students in class XI IPA SMA in Riau and efforts to improve it. This research is a descriptive quantitative research combined with correlational research, with a research sample of 30 students from class XI IPA SMA in Riau who were selected using random sampling technique. Data collection techniques are filling out questionnaires, tests, and interviews. The data collection instruments are: (1) self-efficacy questionnaire, (2) mathematics learning achievement test, and (3) interview to increase self-efficacy. Data were analyzed by descriptive statistics and inferential statistics, namely simple regression analysis. The results showed that: (1) students' self-efficacy was in the medium category, (2) students' mathematics learning achievement was in the medium category, (3) self-efficacy had a positive and significant effect on students' mathematics learning achievement, (4) efforts that could be done in increasing student self-efficacy is (4.1) giving students opportunities to answer existing problems, (4.2) giving awards, (4.3) using models that make students play an active role in learning (4.4) providing positive reinforcements to students, (4.5) providing equal opportunities to all students, (4.6) using group learning and (4.7) using peer tutors.

Keywords: *self efficacy, student's mathematics learning achievement*

INTRODUCTION

Mastering mathematics is very necessary in life. It is an expression that we already know that mathematics is called the queen of science. Mathematics is the basis for developing other scientific fields. Taking into account the importance of mathematics, mathematics is one of the disciplines taught at all levels of education. Mathematics needs



to be taught at all levels of education because mathematics is a supporter of other disciplines, and mathematics is very closely related to everyday life. The purpose of learning mathematics in general, according to (DEPDIKNAS, 2006) that is: (1) Understand, explain and apply mathematical concepts flexibly, accurately, efficiently, and precisely in problem-solving, (2) Using reasoning and manipulating patterns and properties or explaining mathematical ideas and statements, (3) Solve problems, including the ability to understand the problem and interpret the solutions obtained, (4) Communicating ideas is a symbol of tables, diagrams, or other media to clarify a situation or problem, and (5) Instilling the nature of appreciating the use of mathematics in everyday life as a very important means of life because, in truth, we will never be separated from mathematics.

So far, some students consider mathematics a difficult and unpleasant subject. As a result, these assumptions make students anxious and unsure of their abilities. In addition to this situation, some factors influence students in learning mathematics, which consist of two factors, namely internal factors and external factors. Internal factors are factors that originate from within a person, while external factors are factors that originate from the environment. External factors that affect student achievement are family conditions, school conditions and community conditions.

One of the internal factors that affect learning achievement is self-efficacy. Self-efficacy is a belief in one's capabilities to organize and execute the courses of action required to manage prospective situations (Bandura, 1994). Another definition states that self-efficacy is a person's belief in estimating his ability to do tasks, activities or efforts to achieve the goals he wants in certain situations (Hidayat, 2016). According to him, self-efficacy can foster confidence to succeed in completing tasks. Thus, self-efficacy in this study is a person's belief in his ability to solve problems.

Self-efficacy has an important role in achieving achievement. The roles of self-efficacy include 1) determining behavior selection, in which individuals will tend to do tasks that they feel they have a higher ability to carry out than doing other tasks, 2) determine the amount of effort and fighting power against obstacles, which is self-efficacy, a high score will reduce anxiety about the ability to complete tasks so that individuals will be more resilient when experiencing obstacles, 3) determine ways of thinking and emotional reactions, where individuals with low self-efficacy tend to think

they will not be able to face the challenges of their work, tend to exaggerate problems that will arise, they often feel pessimistic, easily discouraged, and depressed, but people with high self-efficacy will perceive their difficult tasks as interesting challenges to overcome, their thoughts and feelings are more open to finding solutions to the problems they face, 4) predictive behavior that will appear, where people with high self-efficacy tend to be more interested in engaging in organizational activities, their interaction with the work environment is more intensive, more creative in finding various solutions in group work, willing to work hard because of high beliefs about their abilities, but individuals with low self-efficacy tend to be more introverted and less involved in teamwork because they perceive that problems and difficulties outweigh opportunities to change things (Lianto, 2019).

According to Bandura and according to Robbins and Judge, sources of self-efficacy include mastery experiences, social modeling, social persuasion, and psychological response where empirical evidence shows that the first source, namely mastery experiences, produces the highest (large) self-efficacy. strong, and broad (general) (Lianto, 2019) with the following explanation: First, the experience of success in an organization is the most influential trigger for self-efficacy because it is based on personal experience. Small successes in past jobs make employees more confident and encourage individuals to strive for other successes. If the individual has experienced failure in the organization, self-confidence will decline. However, if failure can be overcome with belief, then self-confidence can be grown again. The second source is observation of other people's successful experiences. Individuals will compare themselves with people who are equal to them. If other people who are considered equal can easily carry out organizational tasks, then individuals are also confident in their abilities. Self-confidence arises or increases when you see other people succeed in doing something. When individuals see others who are considered equal experience failure, self-efficacy can decline. A person's self-confidence can increase or decrease by looking at the experiences of success or failure of others who are considered to have similar abilities. The third source comes from verbal (oral) persuasion. Individual self-efficacy can also appear or increase if there are influential people who believe that they are able to fulfill their duties in the organization. When a manager or supervisor convinces employees that they are capable, the employee's self-confidence can increase. Especially if the manager in

question is a person who has high credibility in the minds of employees. Verbal persuasion from a senior manager who already has high credibility is certainly different from the persuasion given by a new manager. The last source is psychological feedback in the form of emotions that arise from various events. People experience certain emotional sensations from the body and their perception of the emotions that arise will affect self-efficacy beliefs. Examples of psychological feedback that will evoke emotional sensations include: the experience of speaking in front of a crowd, delivering material presentations in front of important people, job interviews, and taking exams. These activities can arouse anxiety, fear, cold sweat, nervousness, panic, and others. Although this fourth source is the smallest triggering factor, people who can overcome various triggers of emotional sensations generally have high self-efficacy.

Student self-efficacy is very important in learning because when students have positive beliefs in learning mathematics, students will be more confident in participating in learning. This is in line with Baihaki et al., (2022); Pratiwi, (2022) Stating that self-efficacy plays an important role in learning, especially mathematics learning. According to Bandura (Sunaryo, 2017), the dimensions of self-efficacy are "1. Magnitude is related to the level (level) of task difficulty a person faces. A person's belief in a task varies. 2. Generality is a feeling of ability shown by individuals in different task contexts. 3. Strength is the strength of a person's belief regarding his abilities. Ivancevich as Bandura stated that individual self-efficacy in organizations is generally measured through three basic scales (dimensions), namely magnitude, strength, and generality, where individual self-efficacy can differ from one another in the dimensions of magnitude, namely the level of task difficulty assigned to them. believed to be manageable, self-efficacy also differs in terms of its strength which refers to the extent to which the strength (strong or weak) of the beliefs one has, self-efficacy also differs in terms of generality, namely how broad the situation can be covered by the belief in one's own abilities (Lianto, 2019).

Students with high self-efficacy will have good mathematical achievements because they have sharpness in mathematical calculations. However, students who have low self-efficacy will have a low level of calculation sharpness, which will affect their learning achievement. So, self-efficacy has a positive influence on students' mathematics learning achievement. This is in line with previous research, which states that self-efficacy positively affects student academic achievement (Ahmad, 2016; Damrongpanit,

2019; Wulanningtyas & Ate, 2012). Therefore, teachers must assist students in improving student self-efficacy so that student learning achievement can be better. Teachers need to make efforts to improve students' self-efficacy. This is done to support the achievement of better learning achievement. Teachers need to make efforts to improve students' self-efficacy. This is done to support the achievement of better learning achievement.

One of the internal factors in students is self-efficacy, which supports learning achievement; it is necessary to pay attention to the effect of student self-efficacy on students' mathematics learning achievement and efforts to improve it. According to Montcalmm, self-efficacy can be applied in education to develop teaching techniques and according to Zimmerman, Bandura, and Martinez-Pons self-efficacy can be applied in order to achieve academic results (Lianto, 2019). This study aims to determine the effect of self-efficacy on learning achievement and efforts to increase it. The results of the study are expected to be a reference in the world of mathematics education, especially regarding the effect of self-efficacy on learning achievement and efforts to increase self-efficacy.

METHOD

The type of research used is descriptive quantitative research combined with correlational research. It is called quantitative descriptive research because this research describes the variables quantitatively, which is indicated by numbers. This research is also a correlational study because it intends to determine the relationship between variables. The relationship that will be tested in this study is specific to the effect of the independent variable on the dependent variable. The independent variable in this study is students' self-efficacy, while the dependent variable is students' mathematics learning achievement. The research questions to be answered in this study include 1) how is the level of student self-efficacy, 2) how is the level of student learning achievement in mathematics, 3) whether self-efficacy has a positive and significant effect on students' mathematics learning achievement, and (4) what efforts can be made by the teacher to improve student self-efficacy.

This research was conducted in one of the senior high schools in Riau. Sampling in this study used a random sampling technique, namely, taking one class at random. The population in this study were students of class X IPA in one of the senior high schools in Riau. The samples in this study were 30 students and a teacher. The instruments used in this study are mathematics learning achievement tests, questionnaires to measure self-

efficacy and interview instruments. The test questions are done by students to obtain data on mathematics learning achievement. The self-efficacy questionnaire was filled out by students to obtain data on the level of students' self-efficacy. The interviews were conducted with teachers in order to find out the efforts made by teachers to improve students' self-efficacy.

This study uses a design as shown in the following chart:

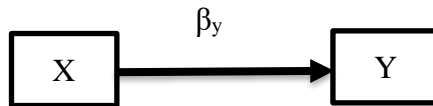


Figure.1 Research Design

Information:

X : Self-efficacy

Y : Mathematics learning achievement

β_y : Regression coefficient X_1 against Y

X is the independent variable, namely students' self-efficacy. Meanwhile, Y is the dependent variable, namely students' mathematics learning achievement. y represents the regression coefficient of X with respect to Y.

Based on the diagram in Figure 1. the structural equation model can be written as follows:

$$Y = \beta_0 + \beta_y X + \varepsilon \quad (1)$$

The data that has been collected is then processed using statistical analysis techniques, namely descriptive statistical analysis and inferential statistical analysis. Descriptive statistical analysis was used to describe the characteristics of the research respondents' scores for each variable, including the mean, median, variance, minimum, maximum, and categorization. Inferential statistical analysis was used to test the research hypotheses. In this study, simple linear regression analysis was used. After seeing the effect of self-efficacy on student achievement, the next step is to conduct interviews with subject teachers to find out the efforts that have been made to improve student self-efficacy.

RESULTS AND DISCUSSION

Descriptive Statistical Analysis Results

The following are the results of descriptive statistical analysis that explain the level of student self-efficacy, and the level of student learning achievement in mathematics.

Learning achievement

Table 1. Statistics of Mathematics Learning Achievement Score

| Statistics | Statistical Value |
|------------------------------|-------------------|
| Sample Size (n) | 30 |
| Highest score (X_{\max}) | 98 |
| Lowest score (X_{\min}) | 58 |
| Average score (x) | 81,367 |
| Standard deviation(s) | 7,549 |
| Variance (s^2) | 56,999 |

Table 1 illustrates that from several existing samples, namely 30 students, the average score of students' mathematics learning achievement is 81,367 from the ideal score of 100. The highest score is 98 and the lowest score is 58. It is also seen that the standard deviation of 7,549 means that the student achievement score is not too large, meaning that the data is only around the average value.

Table 2. Distribution of Frequency and Percentage of Mathematics Learning Achievement Scores

| Value Interval | Category | Frequency | Percentage (%) |
|------------------------------|----------|-----------|----------------|
| score < 73,82 | Low | 4 | 13,3% |
| 73,82 ≤ score < 88,92 | Medium | 21 | 70% |
| score ≥ 88,92 | Height | 5 | 16,7% |
| Sum | | 30 | 100 |

Table 2 illustrates that the student achievement score is in the medium category, with a relatively large presentation of 70%. It can also be seen that students who have a low achievement category are 13.3% of the 30 students who need to pay attention to their learning achievement.

Self-Efficacy

Table 3. Statistics of Self-Efficacy Score

| Statistics | Statistical Value |
|------------------------------|-------------------|
| Sample Size (n) | 30 |
| Highest score (X_{\max}) | 61 |
| Lowest score (X_{\min}) | 33 |
| Average score (x) | 45,77 |
| Standard deviation(s) | 6,55 |
| Variance (s^2) | 42,944 |

Table 3 shows that from several samples, namely 30 students, the average student self-efficacy score is 45.77 from the ideal score of 65. The highest score is 61 and the lowest score is 33. It is also seen that the standard deviation of 6.55 means that the student self-efficacy score is not too large. Data is only around the average value.

Table 4. Distribution of Frequency and Percentage of Self-Efficacy Score

| Value Interval | Category | Frequency | Percentage (%) |
|------------------------------|----------|-----------|----------------|
| $score < 39,237$ | Low | 4 | 13,3% |
| $39,237 \leq score < 52,303$ | Medium | 21 | 70% |
| $score \geq 52,303$ | Height | 5 | 16,7% |
| Sum | | 30 | 100 |

Table 4 shows that the students' self-efficacy scores belong to the medium category, with a relatively large presentation of 70%. It is also seen that students who have a low self-efficacy category are 13.3% of 30.

Inferential Statistical Analysis Results

A simple regression test was carried out to test the effect of self-efficacy as an independent variable on the dependent variable, namely mathematics learning achievement. The following are the results of the inferential statistical analysis that has been carried out.

Hypothesis test

Hipotesis yang digunakan dalam uji regresi sederhana antara self-efficacy dan mathematics learning achievement adalah sebagai berikut:

$$H_0: \beta_{Y1} = 0; H_1: \beta_{Y1} > 0 \quad (2)$$

Based on the regression test, the results are shown in Table 5:

Table 5. Test results

| Independent Variable | Regression Coefficient | T | Sig. Coefficient |
|----------------------|------------------------|-------|------------------|
| | 36,070 | | |
| X | 0,99 | 8,881 | 0,00 |

Based on table 5, It is recognized that $\beta_0=36,070$, $\beta_y=0,99$. $\beta_0=36,070$ shows that the constant of the simple regression equation is 36,070. The $\beta_y=0,99$ shows that $\beta_{Y1}>0$ so that H_1 is accepted which means that there is a positive linear relationship between X, namely self efficacy and Y, namely student math learning achievement.

This decision can also be seen from the t value. Table 5 shows that the t-count value is 8.881 and based on the t-table value with a sample of 30 and variable 2, it is

obtained $t\text{-table} = 3.674$, because the $t\text{-count} > t\text{ table}$, self-efficacy affects students' mathematics learning achievement (H_0 is rejected).

In addition, the significance value of X is 0.00. Thus, the significance value of X is less than 0.05, which means that H_0 is rejected. Thus, the self-efficacy variable has a significant effect on students' mathematics learning achievement.

Based on the table, we get a simple linear regression equation:

$$Y = 36,070 + 0.99 X + \varepsilon \quad (3)$$

This means that an increase of 1 unit of X will increase Y by 0.99. An increase of 1 unit of self-efficacy will increase students' mathematics learning achievement by 0.99. On the other hand, a decrease of 1 unit of self-efficacy will reduce students' mathematics learning achievement by 0.99. This shows that self-efficacy is directly proportional to student learning achievement in mathematics. This is the meaning of the positive influence of self-efficacy on students' mathematics learning achievement. The positive effect is indicated by the value of $y > 0$ or shows a positive value, namely 0.99 in this case. If $y < 0$ it is said that self efficacy is inversely proportional to students' mathematics learning achievement, namely when there is an increase in self efficacy it will actually decrease students' mathematics learning achievement.

Based on the overall results and interpretation of the results of a simple linear regression test between variable X, namely self-efficacy and variable Y, namely learning achievement in mathematics, it can be concluded that there is a significant positive effect of self-efficacy on students' mathematics learning achievement.

Discussion

Self-Efficacy in Learning Mathematics

Based on Table 4, it was found that the majority of students' self-efficacy scores were moderate, but four students were classified as low. This needs to be considered so that students whose self-efficacy is classified as low can be increased. Students whose self-efficacy is classified as moderate also need to be considered so that they do not decrease but increase.

In addition, based on data analysis, it was found that self-efficacy significantly affected students' mathematics learning achievement. This is in line with what was expressed by (Akuba et al., 2020; Kaya & Bozdağ, 2016; Liu & Koirala, 2009; Suryadi

& Santoso, 2017). stated that the self-efficacy variable significantly influenced students' mathematics learning achievement. This means that self-efficacy contributes to increasing student learning achievement in mathematics. Therefore, students with high self-efficacy will have good mathematical skills, especially in solving mathematical problems (Somawati, 2018), because they strongly believe in the answers to the problems given. This is in line with what was stated by Aswin et al., (2019);Seto et al., (2020); Hartati et al., (2021) , that the self-efficacy of students who eat well would have good learning achievements. In addition, students who have high self-efficacy will appear more confident in doing questions in front of the class.

Efforts to Increase Self-Efficacy

Based on the explanation above, as a result of the importance of self-efficacy in learning mathematics, teachers need to pay attention to student self-efficacy to improve student's learning achievement in mathematics. Furthermore, based on an interview with one of the mathematics teachers at the school, things that have been done to increase student self-efficacy include the following:

Provide opportunities for students to answer/deliver answers to problems given in front of the class. According to him, the teacher gave this treatment because students who were allowed to work on questions and convey their answers would increase their trust and confidence in their abilities. This is in line with Alfiah & Musbhikin, (2022) research, which states that students who have the opportunity to play ways can increase students self-efficacy. An increase indicates this before and before the actions taken by researchers.

Give awards to students who dare to work on the given math problems. The award teachers usually use value points for students who dare to work, even though, in the process, students still make mistakes. Furthermore, the teacher stated that the most important thing in learning is that students can be confident and dare to come up with their answers. Regarding correct or incorrect answers will be redirected.

They are applying a learning model that involves students more actively in learning so that students' self-efficacy can increase. Many models can be used in learning that can improve students' self-efficacy, including the numbered head-together model. This is in line with the results of research conducted by Yasa et al., (2020), which states

that the use of the Numbered Head Together (NHT) learning model positively influences students' self-efficacy. The Numbered Head Together (NHT) learning model can improve students' self-efficacy. Thus, Yasa et al. recommend using the model to increase students' self-efficacy. In addition, the core learning model with a scientific approach. This is in line with research conducted by Deswita, (2020), which states that the increase in mathematical self-efficacy of students who receive CORE model learning with a scientific approach is better than students who receive ordinary learning. In addition to these two models, many other models can increase students' self-efficacy.

Reinforce students in learning. The reinforcement teachers usually do in learning is through positive suggestions. If the student chosen by the teacher does not want to work on the problem in front of the class, the teacher reinforces the form of "You can", "Your answer is correct", and so on. It is hoped that students will be more courageous and confident with their answers.

Provide equal opportunities to all students. This means that every student who has high, medium, or low self-efficacy must still be considered. Students with high self-efficacy are still allowed to answer questions in front of the class. Thus, his confidence and self-confidence do not decrease. In addition, to avoid social jealousy in other students, every student needs to get the same opportunity to solve problems.

Another effort is to form groups in learning. The division of groups in the learning carried out by the teacher is that students who are said to be capable of learning mathematics are distributed evenly in each group. Hopefully, there will be students who understand the material being discussed. Group learning is considered to foster students' confidence and self-confidence. Because in explaining the results of group discussions, the teacher randomly selects students who will display the results of their discussions. So far, when teachers carry out group learning like this, the selected students can explain with great confidence in delivering their answers. This is in line with research conducted by Puspaningtyas et al., (2021) which states that a group system or group guidance can increase students' self-efficacy.

In addition to the six methods above, peer tutoring can increase students' confidence and confidence in learning mathematics. Peer tutoring is usually done by teachers providing opportunities for students who do not understand to ask friends who already understand. Next, students who understand are asked to explain their

understanding. This peer tutoring activity can also increase students' confidence in learning mathematics because students who become tutors are believed to have good mathematical abilities. Therefore, it is expected that students who have low abilities can believe in their answers. This is in line with the research conducted by Firdaus et al., (2021) that peer tutors are very influential on increasing students' self-efficacy.

Based on the presentation of the results of the interview, the teacher's efforts to improve student self-efficacy can use student-centred learning. This is because all of its activities prioritize students to be active in their learning. In line with this, previous research stated that student-centred learning, either in groups or individually, can increase students' self-efficacy (Aulia Nurani & Alsa, 2021; Maisaroh et al., 2017; Nugroho, 2019).

CONCLUSION

Self-efficacy has a positive effect on students' mathematics learning achievement. Students with good self-efficacy will have good mathematics learning achievements, and those with low self-efficacy will have poor learning achievement levels. Therefore, it is very important to pay attention to students' self-efficacy in learning mathematics so that students can succeed in their learning, especially in learning mathematics. Ways that teachers can do in improving student self-efficacy are (1) allowing students to answer existing problems, (2) giving awards, (3) using a model that makes students take an active role in learning (4) providing positive reinforcements for students, (5) providing equal opportunities to all students, (6) using learning and (7) using peer tutors.

REFERENCES

- Ahmad, S. R. S. (2016). Pengaruh math phobia, self-efficacy, adversity quotient dan motivasi berprestasi terhadap prestasi belajar matematika siswa SMP. *Jurnal Riset Pendidikan Matematika*, 3(2), 259. <https://doi.org/10.21831/jrpm.v3i2.6138>
- Akuba, S. F., Purnamasari, D., & Firdaus, R. (2020). Pengaruh Kemampuan Penalaran, Efikasi Diri dan Kemampuan Memecahkan Masalah Terhadap Penguasaan Konsep Matematika. *JNPM (Jurnal Nasional Pendidikan Matematika)*, 4(1), 44. <https://doi.org/10.33603/jnpm.v4i1.2827>
- Alfiah, S. rani, & Musbhikin. (2022). *Pengaruh Teknik Sociodrama Terhadap Efikasi Diri Siswa Kelas Xii Madrasah Aliyah Al-Islamiyah Ujung Pangkah*. 02(01), 66–76.
- Aswin, Djadir, & Rusli. (2019). Pengaruh Efikasi Diri , Kecerdasan Emosional , dan Motivasi Belajar. *Issues in Mathematics Education*, 3(2), 174–183.
- Aulia Nurani, G., & Alsa, A. (2021). Peningkatan Efikasi Diri Matematika melalui Metode Belajar Mind Map. *Psychopathic : Jurnal Ilmiah Psikologi*, 8(1), 57–68.

<https://doi.org/10.15575/psy.v8i1.11062>

- Baihaki, Maknun, L., & Nurmeidina, R. (2022). Self-Efficacy Siswa Dalam Pembelajaran Matematika. *EMTEKA: Jurnal Pendidikan Matematika*, 3(1), 1–9.
- Bandura, A. (1994). Source: <http://www.des.emory.edu/mfp/BanEncy.html>. *Encyclopedia of Human Behavior*, Vol. 4, 71–81.
- Damrongpanit, S. (2019). From modern teaching to mathematics achievement: The mediating role of mathematics attitude, achievement motivation, and self-efficacy. *European Journal of Educational Research*, 8(3), 713–727. <https://doi.org/10.12973/eu-jer.8.3.713>
- DEPDIKNAS. (2006). *Standar Kompetensi, Mata Pelajaran Matematika Sekolah Menengah Pertama dan Madrasah Tsanawiyah*.
- Deswita, R. (2020). Peningkatan Self Efficacy Matematis Siswa Melalui Model Pembelajaran Core dengan Pendekatan Scientific. *Jurnal Pythagoras*, 9(2), 173–181.
- Firdaus, D., Budiningsih, I., & Fauziah, S. (2021). The Effect Of Using Peer Tutor Methods And Self-Efficacy On Math Learning Outcomes. *Akademika: Jurnal Teknologi Pendidikan*, 10(02), 371-382.
- Hartati, I., Suciati, I., & Wahyuni, D. S. (2021). Pengaruh Efikasi Diri Terhadap Hasil Belajar Matematika Meta Analisis. *Guru Tua: Jurnal Pendidikan Dan Pembelajaran*, 4(2), 49–56. <https://doi.org/10.31970/gurutua.v4i2.74>
- Hidayat, A. (2016). Pengaruh Problem Based Learning Dengan Pendekatan Problem Solving Dan Self Efficacy Terhadap Hasil Belajar Matematika Siswa Smp Negeri 1 Rumbio Jaya. *Jurnal Cendekia: Jurnal Pendidikan Matematika*, 1(2), 1–10.
- Kaya, D., & Bozdağ, H. C. (2016). Resources of mathematics self-efficacy and perception of science self-efficacy as predictors of academic achievement. *European Journal of Contemporary Education*, 18(4), 438–451. <https://doi.org/10.13187/ejced.2016.18.438>
- Lianto, L. (2019). Self-Efficacy: A Brief Literature Review. *Jurnal Manajemen Motivasi*, 15(2). <https://doi.org/10.29406/jmm.v15i2.1409>
- Liu, X., & Koirala, H. (2009). The Effect of Mathematics Self-Efficacy on Mathematics Achievement of High School Students. *NERA Conference Proceedings 2009*, 10–22.
- Maisaroh, D., Rudibyani, R. B., & Sofya, E. (2017). Pembelajaran Discovery Learning untuk Meningkatkan Kemampuan Metakognisi dan Penguasaan Konsep Siswa. *Jurnal Pendidikan Dan Pembelajaran Kimia*, 6(2), 334–346.
- Nugroho, D. A. (2019). Pengembangan perangkat pembelajaran geometri dengan mengadaptasi model CORE untuk meningkatkan efikasi diri. *Jurnal Riset Pendidikan Matematika*, 6(1), 39–52. <https://doi.org/10.21831/jrpm.v6i1.11599>
- Pratiwi, I. W. (2022). Gambaran Efikasi Diri Mata Pelajaran Matematika pada Siswa Kelas VII Mts Al Mujahiddin, Cikarang Utara. *JP3SDM*, 11(1), 1–11.
- Puspaningtyas, N. D., Dewi, P. S., & Maskar, S. (2021). Penerapan Metode Bimbingan Kelompok Untuk Meningkatkan Self-Efficacy Dan Hasil Belajar

Matematika. *AKSIOMA: Jurnal Program Studi Pendidikan Matematika*, 10(4), 2330-2341.

- Seto, S. B., Suryani, L., & Bantas, M. G. D. (2020). Analisis Efikasi Diri Dan Hasil Belajar Berbasis E-Learning Pada Mahasiswa Program Studi Pendidikan Matematika. *Prima Magistra: Jurnal Ilmiah Kependidikan*, 1(2), 147–152. <https://doi.org/10.37478/jpm.v1i2.472>
- Somawati, S. (2018). Peran Efikasi Diri (Self Efficacy) terhadap Kemampuan Pemecahan Masalah Matematika. *Jurnal Konseling Dan Pendidikan*, 6(1), 39. <https://doi.org/10.29210/118800>
- Sunaryo, Y. (2017). Pengukuran Self-Efficacy Siswa dalam Pembelajaran Matematika di Mts N 2 Ciamis. *Teorema: Teori dan Riset Matematika*, 1(2), 39. <https://doi.org/10.25157/.v1i2.548>
- Suryadi, B., & Santoso, T. I. (2017). Self-Efficacy, Adversity Quotient, and Students' Achievement in Mathematics. *International Education Studies*, 10(10), 12. <https://doi.org/10.5539/ies.v10n10p12>
- Wulanningtyas, M. E., & Ate, H. M. (2012). Pengaruh Percaya Diri Siswa terhadap Prestasi Belajar Matematika Siswa. *Prosiding Konferensi Pendidikan Nasional*, 3(1), 83–110.
- Yasa, I. K. D., Pudjawan, K., & Agustiana, I. G. A. T. (2020). Peningkatan Efikasi Diri Siswa Pada Mata Pelajaran IPA Kelas IV SD Melalui Model Pembelajaran Numbered Head Together. *Mimbar PGSD Undiksha*, 8(3), 330–341.