

INVESTIGATING MATHEMATICS ACHIEVEMENT: AN ANALYSIS OF EFFECT SELF-EFFICACY REGARDING DIFFERENCE GENDER OF CUT SCORES

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Abstrak

Prestasi belajar matematika dipengaruhi oleh penetapan kriteria ketuntasan minimal atau *cut score*. Penelitian ini bertujuan untuk mengetahui bagaimana peluang siswa mendapatkan prestasi belajar yang dipengaruhi self efficacy dan perbedaan gender berdasarkan *cut score*. Penelitian ini adalah penelitian kualitatif dengan menggunakan analisis statistika model log linier. Penelitian ini menggambarkan secara sistematis analisis hubungan self efficacy dengan hasil belajar matematika berdasarkan perbedaan gender dengan model terbaik yang ditawarkan oleh hasil uji statistik log linier. Subyek penelitian sebanyak 192 siswa SMP di Kabupaten Majalengka, Indonesia. Pemilihan subyek penelitian dilakukan dengan teknik purposive sampling. Variabel penelitian merupakan variabel kategorik yang diklasifikasikan berdasarkan jenis variabelnya dan disusun dalam tabel kontingensi. Hasil penelitian menunjukkan model *conditional association* cocok digunakan pada kasus ini dengan dua interaksi yang terjadi yakni (1) jenis kelamin dengan hasil belajar matematika, dan (2) self efficacy dengan hasil belajar matematika. Terdapat tiga nilai probabilitas yang disimpulkan secara umum yakni: (1) peluang siswa perempuan memiliki ketuntasan belajar matematika yang lebih besar dibandingkan siswa laki-laki; (2) peluang siswa dengan self efficacy tinggi adalah 3,99 kali lebih besar dalam mendapatkan ketuntasan belajar matematika, dan (3) peluang siswa dengan self efficacy sedang adalah 2,06 kali lebih besar dalam mendapatkan ketuntasan belajar matematika.

Kata kunci: *Cut scores*; jenis kelamin; prestasi belajar; *self-efficacy*.

Abstract

Mathematics learning achievement is influenced by the determination of minimum completeness criteria or cut scores. This study aims to determine how the chances of students achieving learning achievement are influenced by self-efficacy and gender differences based on the cut score. This research is qualitative research using statistical analysis of a linear log model. This study systematically describes the analysis of the relationship between self-efficacy and mathematics learning outcomes based on gender differences with the best model offered by the results of the linear log statistical test. The research subjects were 192 junior high school students in Majalengka Regency, Indonesia. The purposive sampling technique made the selection of research subjects. Research variables are categorical variables classified based on the type of variables and arranged in a contingency table. The results show that the conditional association model is suitable for use in this case with two interactions that occur, namely (1) gender with learning outcomes in mathematics and (2) self-efficacy with learning outcomes in mathematics. Three probability values can be concluded in general, namely: (1) the chances of female students having mastery in learning mathematics are greater than male students; (2) the chances of students with high self-efficacy are 3.99 times greater in getting mastery in learning mathematics, and (3) the chances of students with moderate self-efficacy are 2.06 times greater in getting mastery in learning mathematics.

Keywords: *Cut scores*; gender; mathematics achievement; *self-efficacy*.



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INTRODUCTION

There are several indicators of the success of a learning process, one of which is learning outcomes. Learning outcomes are one of the main elements of the learning process (Fitriani, 2017) which can be determined through scores or learning evaluations. Giving scores for students must be based on the size of the achievement of competencies that have been determined (Suparman, 2015), one of which is by setting the Minimum Completeness Criteria (KKM) as the basis for assessing the achievement of competencies that have been obtained. KKM is a value about the education or cut score. The cut score is a point of difference between students who have reached the minimum criteria for the success of a learning process. This value provides information about the graduation threshold or mastery of a material and can determine the sustainability of student learning (Mardapi et al., 2015; Suparman, 2015).

The criteria for determining the value of the cut score, especially in daily test completeness, is generally determined by the school. This value is determined by teacher deliberations based on intake, complexity, and carrying capacity of the school (Mardapi et al., 2015) so that the cut scores in each school are different. The cut score is set to be the limit value between students who are complete and not complete in achieving learning outcomes. Therefore, the cut score becomes a reference for teachers and students in achieving learning outcomes.

One of the internal factors that influence learning outcomes is student psychology, especially self-efficacy (Ghufron & Risnawitaq, 2010). Self-efficacy is an individual's belief about his ability to perform tasks or actions taken to achieve certain results

(Bandura, 1997). Bandura describes self-efficacy as a sense of self-worth or self-worth, feelings about self-efficacy, efficiency and competence in dealing with problems. Self-efficacy affects student learning outcomes because with the confidence they have, students will plan directed actions, provide good performance to achieve targets and motivate themselves in facing difficulties and challenges (Adni et al., 2018; Minarti & Nurfauziah, 2018; Sari et al., 2019). However, the importance of the role of self-efficacy is not felt by students (Adni et al., 2018) and teachers which result in the teacher's lack of attention in building self-confidence in mathematics.

In the context of mathematics, self-efficacy is an important factor that should be considered. This is related to the stigma that mathematics is still considered difficult and unpleasant. Students' self-confidence is low before trying as a result of the stigma that has been built so far. Students do not have confidence in themselves, many do not want to try to solve math problems and easily give up in doing math problems (Novferma, 2016; Sari et al., 2019). Interventions to improve mathematics learning should focus on developing sources of student self-efficacy, especially reducing psychological conditions that reduce students' self-efficacy in mathematics (Kyaruzi, 2021). Based on the results of research (Fitriani, 2017; Sari et al., 2019) it is known that there is a significant relationship between self-efficacy and student learning outcomes in mathematics.

In terms of gender, men and women tend to have different self-efficacy, men have higher efficacy than women (Fitriani, 2017). Self-efficacy related to learning competence between

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male and female students varies according to the context of the learning outcomes achieved (Santrock, J, 2008). Several studies have consistently shown that boys are more independent in mathematics (Frenzel et al., 2010; Putra et al., 2021) and tend to perform better than girls (Dickerson et al., 2015; Ependi & Sopiah, 2015; Mazana et al., 2020). However, there are different opinions, based on the results of the study (Fitriani, 2017) it is known that there is no significant difference between the self-efficacy of male and female students. This shows that gender has a different effect in each study depending on educational and cultural backgrounds.

Based on the results of initial observations by teachers and researchers, it is known that students' self-efficacy toward mathematics is still low. This is shown in the process of learning mathematics in class, where students are still shy and not confident in showing their abilities, both individually and in groups. However, statistically, the teacher has never conducted a survey related to student self-efficacy to see if it is true that the student's self-efficacy is low. The low self-efficacy can be influenced by the stigma of mathematics which is still bad in students' eyes, and mathematics material that many students have not mastered. Regarding gender, the teacher said that female students were more diligent in doing the assigned tasks than male students. Even female students showed more courage in solving math problems in class. The results of this observation are different when compared to research results (Dickerson et al., 2015; Ependi & Sopiah, 2015; Frenzel et al., 2010; Mazana et al., 2020; Putra et al., 2021). Therefore, the researcher wants to know how the

relationship between learning outcomes, self-efficacy and gender based on the cut score of students in Majalengka district is based on the cut score that has been set.

The relationship between learning outcomes, self-efficacy and gender can be identified by analyzing the effect of self-efficacy on mathematics learning outcomes based on gender differences. This analysis can be done by investigating students' opportunities with differences in self-efficacy and gender differences in learning mathematics completeness. The results of this study are expected to provide accurate information regarding the effect of self-efficacy and gender on mastery of learning mathematics. The results of this study can be used by teachers and researchers in determining suitable methods for learning mathematics according to the actual conditions of students so that all students are expected to get maximum mathematics learning achievement.

METHOD

This research is qualitative research using linear log analysis. The analysis of the linear log model is a tool in statistical data analysis used to determine the relationship between variables. With a linear log approach in a contingency table, the linear log model will describe the pattern of associations between variables. This study systematically and accurately describes the facts, traits and phenomena being investigated, namely analyzing the relationship between self-efficacy and learning outcomes based on gender differences. The research subjects were 192 junior high school students in grade VIII Academic Year 2022/2023 at SMPN 1 Palasah, Majalengka Regency, West Java.

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The selection of research subjects was carried out through a purposive sampling technique based on the research objectives in the form of the diversity of students' gender. In collecting data, self-efficacy questionnaires were used as primary data, which were taken directly, and data on students' mathematics learning outcomes on daily tests as primary data obtained from 8th-grade mathematics teachers at SMPN 1 Palasah.

There are three variables in this study. Namely, the learning outcomes of mathematics are divided into two complete and incomplete categories based on the cut score set by the school of 72. Furthermore, the self-efficacy variable is divided into three categories, namely high, medium and low, and the gender variable. Consisting of male and female types. The stages of analysis in this study are presented research flow chart on Figure 1.

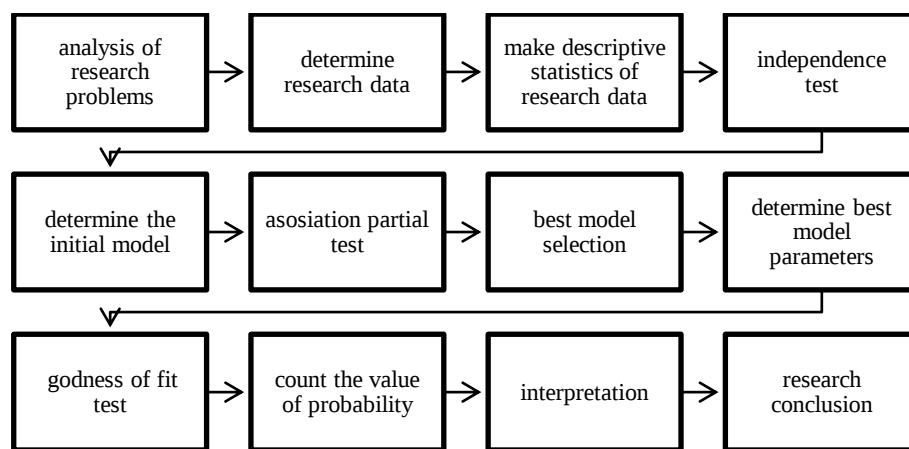


Figure 1. Research flow

Figure 1 shows the research flow used in the research phase. The stages of observation and interviewing were used to conduct the research analysis, which was condensed by articulating the problem. The distribution of self-efficacy questionnaires and information on the importance of mathematics learning outcomes from mathematics teaching teachers were the two approaches used to collect the research data. Gender, mathematics learning results, and self-efficacy data were

collected and organized in a contingency table.

Contingency table

The research data obtained are all categorical variables arranged in a contingency table. A contingency table is used to measure the relationship (association) between two or more categorical variables. The contingency table (Table 1) summarizes the shared frequency of observations for each variable category.

Table 1. Frequency of mathematics learning outcomes, self efficacy and gender

Gender	Self Efficacy	Mathematics Learning Outcomes	
		Completes	Not Completes
Male	High	15	8
	Medium	15	28
	Low	9	19

Gender	Self Efficacy	Mathematics Learning Outcomes	
		Completes	Not Completes
Female	High	20	10
	Medium	27	14
	Low	9	18

The contingency table in Table 1 provides an overview of mathematics learning outcomes based on gender and self-efficacy. The number of male students with high self-efficacy who get mastery learning is more than that of students with moderate and low self-efficacy. While the number of female students with high and moderate self-efficacy who get mastery learning is more than the number of students with low self-efficacy.

RESULT

The research data that has been presented in the contingency table are then analyzed based on the research stages as follows:

Independence Test

The independence test was used to determine the relationship between two variables (Agresti, 1990). The independence table was used as a prerequisite test before performing the linear log test to determine whether

there was a relationship between the variables of mathematics learning outcomes and self-efficacy based on gender differences. The hypotheses are:

H_0 : There is no association or relationship between mathematics learning outcomes and self-efficacy based on gender differences

H_1 : There is an association or relationship between mathematics learning outcomes and self-efficacy based on gender differences

The basis for making the decision is:

- If the value of Sig. < 0.05, then H_0 is rejected
- If the value of Sig. > 0.05, then H_0 is accepted

The results of the independence test using the chi-square test using SPSS can be seen in Table 2.

Table 2. Independence test output

		Chi-Square Tests		
Gender		Value	df	Asymp. Sig. (2-sided)
Male	Pearson Chi-Square	7.115 ^a	2	.029
	Likelihood Ratio	7.072	2	.029
	Linear-by-Linear Association	5.237	1	.022
	N of Valid Cases	94		
Female	Pearson Chi-Square	8.631 ^b	2	.013
	Likelihood Ratio	8.643	2	.013
	Linear-by-Linear Association	6.124	1	.013
	N of Valid Cases	98		

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Based on Table 2 of the independence test in the chi-square test table above, it is known that there are two significances based on gender differences. For the male gender, the value of Sig. = 0.029 < 0.05, then H_0 is rejected, which means there is an association or relationship between mathematics learning outcomes and self-efficacy in male students. Furthermore, for the female gender, the value of Sig. = 0.013 < 0.05, then H_0 is rejected, which means there is an association or relationship between mathematics learning outcomes and self-efficacy in female students.

The results of the independence test concluded that there was an association or relationship between

mathematics learning outcomes and self-efficacy based on gender differences, both male and female. These results can be used as a prerequisite for further tests, namely the linear log test, to determine the best model offered for the analyzed cases.

Determining the Initial Model

The initial model is an ideal model based on the number of categorical variables analyzed using a linear log test. Because there are three categorical variables in this study, the initial model given to the three-dimensional log-linear model is the complete model (saturated model) as follows:

$$\log(\mu_{ijk}) = \lambda + \lambda_i^X + \lambda_j^Y + \lambda_k^Z + \lambda_{ij}^{XY} + \lambda_{ik}^{XZ} + \lambda_{jk}^{YZ} + \lambda_{ijk}^{XYZ} \quad (1)$$

with:

X = gender, $i = 1, 2$;

Y = self efficacy, $j = 1, 2, 3$;

Z = mathematics learning outcomes, $k = 1, 2$

The saturated model perfectly describes the interaction between the three categorical variables, X , Y and Z , which interprets the perfect relationship between gender, self-efficacy, and student learning outcomes in mathematics.

Partial Association Test

A partial association test is a test that aims to test all possible parameters of a complete model both for one independent variable and for the dependency relationship of several variables, which is a complete partial model (Budiaty et al., 2014). The hypotheses are:

H_0 : There is no interaction between variables

H_1 : There is an interaction between the variables contained in the model

The basis for making the decision is:

- If the value of Sig. < 0.05, then H_0 is rejected
- If the value of Sig. > 0.05, then H_0 is accepted

This association test uses the chi-square statistical test. The following is Table 3 of the output of the association test using SPSS:

Table 3. Association test output at step summary

Effect	Chi-Square	Sig.
X*Y*Z	4,004	0,135
X*Y	0,390	0,823
X*Z	4,203	0,040
Y*Z	11,711	0,003

Based on Table 3, it is known that the value of Sig. Effects of less than 0.05, namely X*Z (gender with

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mathematics learning outcomes and Y*Z (self-efficacy with mathematics learning outcomes). These results are

outputs in the step summary table supported by the convergence information table presented in Table 4.

Table 4. The output of the association test on convergence information

Convergence Information	
Generating Class	Gender*mathematiscl_learning_outcomes, self_efficacy* mathematiscl_learning_outcomes
Number of Iterations	0
Max. Difference between Observed and Fitted Marginals	.000
Convergence Criterion	.784

Table 4 shows two interactions from the generating class, namely gender with mathematics learning outcomes and self-efficacy with mathematics learning outcomes. Thus, the best type of linear log model chosen is the conditional association type XY, YZ.

Best Model and Estimated Model Parameter

Based on the results of the association test, the best choice model with a linear log test is obtained, namely the type of conditional association XY, YZ with the model number (2). After iteration testing is done, the estimated parameters are obtained so that the model formed become model number (3).

$$\log(\mu_{123}) = \lambda + \lambda_1^X + \lambda_2^X + \lambda_1^Y + \lambda_2^Y + \lambda_3^Y + \lambda_1^Z + \lambda_2^Z + \lambda_{11}^{XZ} + \lambda_{12}^{XZ} + \lambda_{21}^{XZ} + \lambda_{22}^{XZ} + \lambda_{11}^{YZ} + \lambda_{12}^{YZ} + \lambda_{21}^{YZ} + \lambda_{22}^{YZ} + \lambda_{31}^{YZ} + \lambda_{32}^{YZ} \quad (2)$$

$$\log(\mu_{123}) = 2,774 + 0,270(X1) + 0(X2) - 0,721(Y1) + 0,127(Y2) + 0(Y3) - 0,412(Z1) + 0(Z2) - 0,631(X1 * Z1) + 0(X1 * Z2) + 0(X2 * Z1) + 0(X2 * Z2) + 1,386(Y1 * Z1) + 0(Y1 * Z2) + 0,721(Y2 * Z1) + 0(Y2 * Z2) + 0(Y3 * Z1) + 0(Y3 * Z2) \quad (3)$$

The numbers in the model cannot be added up but can be interpreted one by one in calculating the odds ratio of the exponential lambda value first. The exponential value becomes the probability value for each interaction between variables.

Model Fit Test: Godness of Fit Test

The model fit test was carried out using the godness of fit test by looking at the likelihood ratio in the godness of fit test out table from spss. This fit test aims to see whether the offered model is

quite suitable for the Poisson model or not. The hypothesis is as follows:

H_0 : Model fits

H_1 : Model does not match

The basis for making the decision is:

- If the value of Sig. < 0.05, then H_0 is rejected
- If the value of Sig. > 0.05, then H_0 is accepted

The output of god-ness of fit test is presented in Table 5.

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Table 5. God-ness of fit test

Goodness-of-Fit Tests^{a,b}			
	Value	df	Sig.
Likelihood Ratio	4.394	4	.355
Pearson Chi-Square	4.369	4	.358

Based on table 5, it is known that the value of Sig. The likelihood of 0.355 > 0.05 means that H_0 is accepted. This result can conclude that the model offered is the conditional association XY, YZ model, which is suitable for use in the case in this study.

Probability Value

The probability value is a value that can provide an overview of the opportunity for an interaction to occur. The probability calculation is based on the estimated expected value (Budiati et al., 2014). The probability value is obtained by calculating the exponential value of the constant on the lambda value for each interaction or the estimated value of the exponential. The following table 6 shows the probability values for each interaction estimate in the previously obtained equations of the log-linear model.

Table 6. Probability value of conditional association model XY, YZ

Gender (X)	Mathematics Learning Outcomes (Z)	Estimation	Probability
Male	Completes	-0,631	0,53
	Not completes	0	1
Female	Completes	0	1
	Not completes	0	
Self Efficacy (Y)	Mathematics Learning Outcomes (Z)	Estimation	Probability
High	Completes	1,386	3,99
	Not completes	0	1
Medium	Completes	0,721	2,06
	Not completes	0	1
Low	Completes	0	1
	Not completes	0	1

Table 6 shows the probability values for each interaction in the conditional association model obtained. It is known that almost all interactions have a probability value of 1 except for the interaction on $X1*Z1$, which is 0.5321 and $Y1*Z1$, which is 3.9988. This probability value can show the

probability value in percentage for each interaction.

Interpretation

Based on the probability values obtained in Table 6, every interaction must be interpreted. The interpretation for each interaction can be seen in Table 7.

Table 7. Interpretation of Probability Value

Interaction	Probabilitas	Interpretations
$X1*Z1$	0,53	The tendency for male students to complete learning mathematics has a 0.532 times greater chance than female students.
$Y1*Z1$	3,99	The tendency of students who have high self-efficacy to complete learning mathematics has a 3.99 times greater chance than students with moderate or low self-efficacy.

Interaction	Probabilitas	Interpretations
Y2*Z1	2,06	The tendency of students who have self-efficacy who are still learning mathematics has a 2.06 times greater chance than students with high or low self-efficacy.

Table 7 shows three probability values that can be concluded in general: (1) the probability of female students having mastery in learning mathematics is greater than male students; (2) the chance of students with high self-efficacy is 3.99 times greater to get mastery in learning mathematics; and (3) the chance of students with moderate self-efficacy is 2.06 times greater to get mastery in learning mathematics.

DISCUSSION

The results of the linear log model test illustrate that in the case of investigating mathematics learning achievement with a cut score or KKM as an indicator for 8th-grade students of Junior High School 1 Palasah, Majalengka, it concludes that there is only an interaction between gender and mathematics learning outcomes and interaction between self-efficacy and mathematics learning outcomes. There is no interaction between gender and self-efficacy.

The probability values obtained generally indicate that the chances of female students having mastery in learning mathematics are greater than that of male students. Many female students get high math scores when compared to male students. In this case, high school students in Majalengka gave a similar picture to the results of research (Rodríguez et al., 2020), which showed that male students' interest in mathematics was reduced, which resulted in lower mathematics achievement than female students. In his research, Rodríguez showed that although boys performed better in confidence in their abilities and were

more motivated, their interest was reduced due to negative feelings about math. This is in line with the results of the study, which showed that students with low self-efficacy had a lower chance of mastery learning mathematics when compared to students who had high or moderate self-efficacy. The negative impression of mathematics on male students is greater than that of female students, which results in mastery learning.

The results of this study differ from several studies which have consistently shown that boys are more independent in mathematics (Frenzel et al., 2010; Putra et al., 2021) and tend to perform better than girls (Dickerson et al., 2015; Ependi & Sopiah, 2015; Mazana et al., 2020). This fact is interesting to discuss because it is related to gender equality today. Other research related to mathematics achievement by gender resulted from inequality of mathematics learning achievement between male and female students on the material of opportunity (Melfiani & Prasetyo, 2015). Differences in mathematics achievement based on gender differences can be influenced by many factors, including environment and culture. Male and female students have different ways of responding to learning in class in terms of how they think, respond, and accept the material presented (Agustin, 2014; Safitri, 2017). This difference is also influenced by the size of the part of the brain, the memory centre (hippocampus) of the female brain is larger than that of the male, so men forget more easily than women (Michael, 2003).

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Many factors can affect the mathematics learning outcomes between male and female students resulting in differences in research results between regions and countries. Female students in Indonesia themselves have high learning motivation, almost the same as male students. The observations in grade 8 of SMPN 1 Palasah Majalengka by class teachers showed that female students were more diligent in doing schoolwork than male students. This factor can also affect the completeness of learning set by the school. The frequency of entirety of female students is more than that of male students, namely 56 versus 39, and less completeness of female students than male students, namely 42 versus 55. These data provide good justification for stating that the chances of female students having mastery of learning mathematics are greater compared to male students.

Other results show that students with high self-efficacy tend to have a 3.99 times greater chance of having mastery in learning mathematics than students with moderate or high self-efficacy. These results are in line with research (Sari et al., 2019), which shows that if self-efficacy is high, mathematics learning outcomes are also high. The study results (Ahmad, 2016; Disai et al., 2018; Ningsih & Hayati, 2020) show that self-efficacy has a significant effect on learning achievement in mathematics. These results are related to self-efficacy as a psychological factor that greatly influences student learning outcomes. Confidence in mathematics can affect perceptions and attitudes to act. Students with high self-efficacy will believe that they can face everything related to the learning process of mathematics.

In contrast, students with low self-efficacy will tend to consider themselves unable to do anything related to mathematics. This perception is important because it will affect the actions to be taken. Self-efficacy determines how we choose our attitude, effort, and persistence when facing difficulties (Ningsih & Hayati, 2020).

This study also concluded that the chances of students with moderate self-efficacy were 2.06 times greater in getting mastery in learning mathematics. This is related to the motivation of students with moderate self-efficacy who still have good beliefs about mathematics. Self-efficacy, which is quite good, impacts sufficient motivation to achieve high results. High achievement in learning is more likely when the students are highly motivated, as motivations represent a key factor influencing how students can achieve desired learning outcomes (Kinchin, 2007).

The results of this study theoretically show that there are not many different opportunities for male and female students to master learning mathematics. Only female students have higher independence than male students. Therefore, this study can provide an overview for educators, especially mathematics teachers, to pay special attention to male students' independence and their response to mathematics. This study also generally shows that self-efficacy positively impacts mastery of learning mathematics. Teachers can consistently provide positive self-confidence to students by delivering friendly and fun material by applying various appropriate learning methods or models.

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CONCLUSION

Mathematics learning achievement is influenced by the cut score as the limit of the student's learning mastery value to measure the achievement of the specified competence. Self-efficacy affects mathematics learning outcomes based on gender differences. Based on the log-linear model test, it can be concluded that there are three probability values in general, namely: (1) the chances of female students having greater mastery in learning mathematics than male students; (2) the chances of students with high self-efficacy are 3.99 times greater in getting mastery in learning mathematics, and (3) the chances of students with moderate self-efficacy are 2.06 times greater in getting mastery in learning mathematics.

This study employs loglinear analysis and is qualitative. It is advised that future researchers use more significant study subjects in order to obtain more accurate research findings. There may be greater potential for future researchers to use loglinear analysis techniques as a substitute for qualitative data analysis because they are still infrequently used in current research. This investigation also generates a large number of probability values to identify statistical opportunities. As a result, this research can be developed with more significant and diverse variables.

REFERENCES

- Adni, D. N., Nurfauziah, P., & Rohaeti, E. E. (2018). Analisis Kemampuan Koneksi Matematis Siswa SMP ditinjau dari Self-Efficacy Siswa. *Jurnal Pembelajaran Matematika Inovatif (JPMI)*, 1(5), 957–964.
- Agresti, A. (1990). *Categorical Data analysis*. John Willey & Sons.
- Agustin, D. . (2014). *Perbedaan Minat Dan Prestasi Belajar Siswa LakiLaki Dan Siswa Perempuan Pada Mata Pelajaran Seni Tari Di SMPN 1 Yogyakarta*.
- Ahmad, S. R. . (2016). Pengaruh Math Phobia, Self-Efficacy, Adversity Quotient Dan Motivasi Berprestasi Terhadap Prestasi Belajar Matematika Siswa Smp. *Jurnal Riset Pendidikan Matematika*, 2(November), 259–272.
- Bandura, A. (1997). *Self-efficacy - The Exercise of Control*. W.H. Freeman and Company.
- Dickerson, A., McIntosh, S., & Valente, C. (2015). Do the maths: An analysis of the gender gap in mathematics in Africa. *Economics of Education Review*, 46, 1–22. <https://doi.org/10.1016/j.econedurev.2015.02.005>
- Disai, W. I., Dariyo, A., & Basaria, D. (2018). Hubungan Antara Kecemasan Matematika Dan Self-Efficacy Dengan Hasil Belajar Matematika Siswa Sma X Kota Palangka Raya. *Jurnal Muara Ilmu Sosial, Humaniora, Dan Seni*, 1(2), 556. <https://doi.org/10.24912/jmishumsen.v1i2.799>
- Ependi, U., & Sopiah, N. (2015). Pemanfaatan Teknologi Berbasis Android Sebagai Media Belajar Matematika Anak Sekolah Dasar. *Ilmiah Matrik*, 17 No 2(3), 109–122.
- Fitriani, W. (2017). Analisis Self Efficacy Dan Hasil Belajar Matematika Siswa Di Man 2 Batusangkar Berdasarkan Gender. *AGENDA: Jurnal Analisis Gender Dan Agama*, 1(1), 141–

DOI: <https://doi.org/10.24127/ajpm.v11i3.5203>

158.
<https://doi.org/10.31958/agenda.v1i1.945>
- Frenzel, A. C., Goetz, T., Pekrun, R., & Watt, H. M. G. (2010). Development of Mathematics Interest in Adolescence: Influences of Gender, Family, and School Context. *Journal of Research on Adolescence*, 20(2), 507–537.
<https://doi.org/10.1111/j.1532-7795.2010.00645.x>
- Kinchin, G. D. (2007). *Understanding learning. Dalam Viv Ellis (Eds.), Learning and Teaching in Secondary Schools*. Learning Matters.
- Kyaruzi, F. (2021). Impact of gender on sources of students' self-efficacy in Mathematics in Tanzanian secondary schools. *International Journal of School and Educational Psychology*, 00(00), 1–14.
<https://doi.org/10.1080/21683603.2021.1945512>
- Mardapi, D., Hadi, S., & Retnawati, H. (2015). Menentukan Kriteria Ketuntasan Minimal Berbasis Peserta Didik. *Jurnal Penelitian Dan Evaluasi Pendidikan*, 19(1), 38–45.
<https://doi.org/10.21831/pep.v19i1.4553>
- Mazana, M. Y., Montero, C. S., & Casmir, R. O. (2020). Assessing Students' Performance in Mathematics in Tanzania: The Teacher's Perspective. *International Electronic Journal of Mathematics Education*, 15(3), em0589.
<https://doi.org/10.29333/iejme/7994>
- Melfiani, N. I., & Prasetyo, T. D. (2015). Pengaruh Motivasi Terhadap Prestasi Ditinjau dari Perbedaan Jenis Kelamin Mahasiswa STKIP PGRI Pacitan. *Jurnal Derivat*, 2(1), 1–10.
- Michael, G. (2003). *What could he be thinking? : how a man's mind really works*. St. Martin's Press.
- Minarti, E. D., & Nurfauziah, P. (2018). Pendekatan Konstruktivisme Dengan Model Pembelajaran Generatif Guna Meningkatkan Kemampuan Komunikasi dan Koneksi Matematis serta Self Efficacy Mahasiswa Calon Guru di Kota Cimahi. *P2M STKIP Siliwangi*, 68–83.
- Ningsih, W. F., & Hayati, I. R. (2020). Dampak efikasi diri terhadap proses dan hasil belajar matematika. *Journal on Teacher Education*, 1(2), 26–32.
<https://journal.universitaspahlawan.ac.id/index.php/jote/article/view/514>
- Novferma, N. (2016). Analisis Kesulitan Dan Self-Efficacy Siswa Smp Dalam Pemecahan Masalah Matematika Berbentuk Soal Cerita. *Jurnal Riset Pendidikan Matematika*, 3(1), 76.
<https://doi.org/10.21831/jrpm.v3i1.10403>
- Putra, Z. H., Dahnilsyah, & Aljarrah, A. (2021). a Praxeological Analysis of Pre-Service Elementary Teacher-Designed Mathematics Comics. *Journal on Mathematics Education*, 12(3), 563–580.
<https://doi.org/10.22342/jme.12.3.14143.563-580>
- Rodríguez, S., Regueiro, B., Piñeiro, I., Estévez, I., & Valle, A. (2020). Gender Differences in Mathematics Motivation: Differential Effects on Performance in Primary Education. *Frontiers in*

DOI: <https://doi.org/10.24127/ajpm.v11i3.5203>

Psychology, 10(January), 1–8.
<https://doi.org/10.3389/fpsyg.2019.03050>

- Safitri, N. (2017). Analisis Perbedaan Gaya Belajar Antara Siswa LakiLaki Dan Siswa Perempuan Kelas X Jasa Boga Pada Materi Pelajaran Ilmu Gizi Di SMK Negeri 6 Yogyakarta [Universitas Negeri Yogyakarta.].
<https://eprints.uny.ac.id/52536/>
- Santrock, J. W. (2008). *Psikologi Pendidikan* (2nd ed.). Kencana.
- Sari, N. R., Hidayat, W., & Yuliani, A. (2019). Analisis Hasil Belajar Matematika Siswa Kelas X SMA Pada Materi SPLTV Ditinjau Dari Self-Efficacy. *UNION: Jurnal Ilmiah Pendidikan Matematika*, 7(1), 93–103.
<https://doi.org/10.30738/union.v7i2.3835>
- Suparman, S. (2015). Menentukan Cut Score Pada Evaluasi Pendidikan. *Al-Manar*, 4(2), 1–24.
<https://doi.org/10.36668/jal.v4i2.59>