



Journal of Education and Learning Mathematics Research (JELMaR)

Online ISSN : 2715-9787

Print ISSN : 2715-8535

Journal Homepage : <http://jelmar.wisnuwardhana.ac.id/index.php/jelmar/index>

The Influence of Learning Motivation on Mathematics Learning Achievement in terms of Gender of Class VIII Students of SMP Negeri 5 Tarakan

Shinta Wulandari, Hermansyah, & Yanti Indah Pratiwi

To cite this article Wulandari, S., Hermansyah, H., & Pratiwi, Y. (2021). The Influence of Learning Motivation on Mathematics Learning Achievement in terms of Gender of Class VIII Students of SMP Negeri 5 Tarakan. *Journal of Education and Learning Mathematics Research (JELMaR)*, 2(2), 42-49. <https://doi.org/10.37303/jelmar.v2i2.63>

To link this article : <https://doi.org/10.37303/jelmar.v2i2.63>



Publisher

Department of Mathematics Education,
Faculty of Teacher Training and Education,
Universitas Wisnuwardhana Malang

The Influence of Learning Motivation on Mathematics Learning Achievement in terms of Gender of Class VIII Students of SMP Negeri 5 Tarakan

¹Shinta Wulandari, ²Hermansyah, ³Yanti Indah Pratiwi

Mathematics Education Department, Teacher Training And Education Faculty, University of Borneo Tarakan, Indonesia

Email: ¹pmatshintaw@gmail.com, ²hermansyah@borneo.ac.id, ³yantiindahpratiwi@gmail.com

Abstract: This study aims to determine the effect of learning motivation on mathematics learning achievement of class VIII students of SMP Negeri 5 Tarakan, the effect of gender on mathematics learning achievement of class VIII students of SMP Negeri 5 Tarakan, and the effect of interaction between learning motivation and gender on mathematics learning achievement. VIII grade students of SMP Negeri 5 Tarakan. The type of research used is quantitative with a causal associative approach. The population in this study were all eighth grade students of SMP Negeri 5 Tarakan. Sampling was carried out using Proportionate Stratified Random Sampling. The sample in this study amounted to 163 students, including 88 male students and 75 female students. Data was collected using a questionnaire and score documentation. Data analysis technique used descriptive analysis and inferential analysis which was processed with the help of SPSS 24 application. Descriptive analysis used mode, while inferential analysis used Two Way ANOVA. Based on the results of the analysis with a significance level of 5% or 0,05, it can be concluded that: (1) there is an influence of learning motivation on mathematics learning achievement of class VIII students of SMP Negeri 5 Tarakan; (2) there is an influence of gender on the mathematics learning achievement of eighth grade students of SMP Negeri 5 Tarakan; (3) there is no interaction effect between learning motivation and gender on mathematics learning achievement of class VIII students of SMP Negeri 5 Tarakan.

Keywords: Gender, Learning Motivation, Learning Achievement.

INTRODUCTION

Learning is a process of interaction between teachers and students. One of the interactions between teachers and students occurs in learning mathematics. Mathematics learning which generally occurs face-to-face in schools has now turned into online learning. This is due to the spread of the Covid-19 virus in almost all regions of the world.

Mathematics learning that is carried out online is inseparable from the motivation and achievement of students in learning. According to Alderfer (1969) learning motivation is the tendency of students in doing all learning activities driven by the desire to achieve the best achievement or learning outcomes. According to Sardiman (2012, p. 75) motivation

can be said as the overall driving force in students that causes learning activities, which ensure the continuity of learning activities, so that the goals desired by the learning subjects can be achieved. According to Uno (2019, p. 23) learning motivation is internal and external encouragement for students who are learning to make changes in behavior in general with several indicators or supporting elements. Based on this, learning motivation is very important to support student achievement. According to Tohirin (2008, p. 151) achievement is what has been achieved by students after doing learning activities. According to Nawawi (1986, p. 58) learning achievement is the level of success of students in studying learning materials at school in the form of scores obtained from tests on certain materials. According to Tu'u (2004, p. 78) learning achievement is the mastery of knowledge or skills developed by subjects which are usually indicated by test scores or scores given by the teacher. Based on this, learning achievement is the level of success obtained by students in the form of scores from a number of materials after carrying out learning activities.

Motivation consists of intrinsic motivation and extrinsic motivation. intrinsic motivation is motivation that comes from within the student, while extrinsic motivation comes from outside the student. Based on the results of observations and interviews, information was obtained that students learning motivation was still lacking in online mathematics learning. In addition, male students are known to have lower learning motivation than female students. So it can be said that the learning motivation of female students is better than male students. The next data collection is in the form of score documentation

Final Semester Assessment (PAS) Odd in mathematics subjects for the 2020/2021 Academic Year. Based on this information, it is known that student achievement is still lacking in online mathematics learning. In addition, male students are known to have lower learning achievements than female students. It can be seen from the percentage of male students who did not complete it was greater than the percentage of female students who did not complete. So it can be said that the learning achievement of female students is better than male students.

Learning motivation and learning achievement can be viewed from various things, one of which is gender. Gender is the physiological and anatomical difference that occurs between men and women. Based on the research of Winata and Friantini (2019), it is stated that there is an influence of learning motivation on learning achievement. In addition to learning motivation, gender can also affect learning achievement. Based on Susanti research (2014) there is an influence of gender on student achievement.

Learning motivation and learning achievement can be viewed from gender. However, there is no research that shows the effect of learning motivation on learning achievement in terms of gender in online mathematics learning. Meanwhile, based on preliminary data on class VIII students of SMP Negeri 5 Tarakan for the 2020/2021 academic year, it was found that the learning motivation and mathematics learning achievement of male and female students were still lacking in online learning. Therefore, it is necessary to investigate further whether learning motivation has an influence on learning achievement in terms of the gender of class VIII students of SMP Negeri 5 Tarakan in online mathematics learning.

Based on the description above, the focus of this research is learning motivation, learning achievement, and gender. Therefore, the aims of this study were to determine the effect of learning motivation on mathematics learning achievement of class VIII students of SMP Negeri 5 Tarakan, the effect of gender on mathematics learning achievement of class VIII students of SMP Negeri 5 Tarakan, and the effect of the interaction between learning motivation and gender. gender on mathematics learning achievement of class VIII SMP Negeri 5 Tarakan.

METHOD

The type of research used is quantitative with a causal associative approach. Quantitative research is a process of finding knowledge that uses data in the form of numbers as a tool to analyze information about what we want to know (Kasiram, 2010, p. 172). There are several approaches used in quantitative research, one of which is a causal associative approach. According to Umar (2005, p. 30) causal associative research is research that aims to determine the effect between two or more variables.

The population in this study were all eighth grade students of SMP Negeri 5 Tarakan for the 2020/2021 academic year. Sampling was carried out using Proportionate Stratified Random Sampling. The sample in this study amounted to 163 students, including 88 male students and 75 female students.

The variables in this study were the independent variable (X) and the dependent variable (Y). The independent variable consists of learning motivation (X_1) and gender (X_2), while the dependent variable consists of learning achievement (Y). The model in this study is described by the following paradigm:

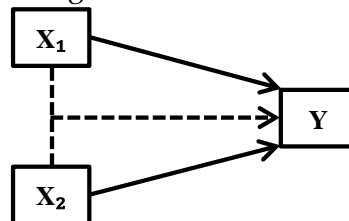


Figure 1. Research Paradigm

Information:

→ : Partially (individually)

→→ : Simultaneously (together)

X_1 : Learning motivation

X_2 : Gender

Y : Learning achievement

Description:

X_1 → Y : The influence of learning motivation (X_1) partially on learning achievement (Y)

X_2 → Y : The influence of gender (X_2) partially on learning achievement (Y)

$X_{1,2}$ →→ Y : The influence of learning motivation (X_1) and gender (X_2) simultaneously on learning achievement (Y)

Data was collected using a questionnaire and score documentation. Data analysis technique used descriptive analysis and inferential analysis which was processed with the help of SPSS 24 application. Descriptive analysis used mode, while inferential analysis used Two Way ANOVA.

RESULT AND DISCUSSION

1. Result

a. Descriptive Statistics

The description of the data presented is data on learning motivation and student achievement data. Students learning motivation data was obtained based on the results of questionnaires that had been filled out by students. Furthermore, student achievement data is obtained based on the results of the Even Semester Final Assessment (PAS) that have been done by students.

1.) Learning Motivation

The description of the learning motivation of class VIII students of SMP Negeri 5 Tarakan for the 2020/2021 Academic Year in mathematics subjects is as follows:

Table 1. Overview of Student Learning Motivation

Interval	Category	Boys		Girls		All Students	
		F	%	F	%	F	%
$168 \leq \text{Value} \leq 200$	Very Good	2	2,27	2	2,67	4	2,45
$136 \leq \text{Value} < 168$	Good	12	13,64	21	28,00	33	20,25
$104 \leq \text{Value} < 136$	Less	60	68,18	46	61,33	106	65,03
$72 \leq \text{Value} < 104$	Poor	12	13,64	6	8,00	18	11,04
$40 \leq \text{Value} < 72$	Very Poor	2	2,27	0	0,00	2	1,23
Quantity		88	100	75	100	163	100

Information:

F : Frequency

% : Percentage

Based on table 1 above, it is known that the male students learning motivation is mostly in less category with a frequency of 60 students and a percentage of 68,18%. Meanwhile, the learning motivation of the most female students is in the less category with a frequency of 46 students and a percentage of 61,33%. Based on this, the learning motivation of all students (male students and female students) is mostly in the less category with a frequency of 106 students and a percentage of 65,03%.

2.) Learning Achievement

The description of the learning achievement of class VIII students of SMP Negeri 5 Tarakan for the 2020/2021 academic year in mathematics is as follows:

Table 2. Overview of Student Achievement

Interval	Category	Boys		Girls		All Students	
		F	%	F	%	F	%
$\text{Value} \geq 91$	Very Good	2	2,27	3	4,00	5	3,07
$82 \leq \text{Value} < 91$	Good	1	1,14	1	1,33	2	1,23
$73 \leq \text{Value} < 82$	Enough	6	6,82	10	13,33	16	9,82
$\text{Value} < 73$	Less	79	89,77	61	81,33	140	85,89

Quantity	88	100	75	100	163	100
----------	----	-----	----	-----	-----	-----

Information:

F : Frequency

% : Percentage

Based on table 2 above, it is known that the male students learning achievement is mostly in less category with a frequency of 79 students and a percentage of 89,77%. Meanwhile, the learning achievement of the most female students is in the less category with a frequency of 61 students and a percentage of 81,33%. Based on this, the learning achievement of all students (male students and female students) is mostly in the less category with a frequency of 140 students and a percentage of 85,89%.

b. Prerequisite Test

1.) Normality Test

The normality test in this study used the Kolmogorov-Smirnov with the help of the SPSS 24 application with the following hypotheses:

H_0 : Data comes from a normally distributed population

H_1 : Data comes from a population that is not normally distributed

The decision-making criteria of the Kolmogorov-Smirnov test with a significance level of 5% or 0,05 are as follows:

H_0 is accepted if the significance value is $\geq 0,05$

H_0 is rejected if the significance value is $< 0,05$

The normality test in the form of the Kolmogorov-Smirnov test in this study is as follows:

Tabel 3. Results of Normality Test Analysis

Sig.	Conclusion	Decision	Condition
0,095	Sig > 0,05	H_0 is accepted	Normal

Based on table 3 above, the significance value of the residual data normality test is 0,095. This causes a significance value $> 0,05$, resulting in a decision that H_0 is accepted. Therefore, it can be concluded that the data is normally distributed.

2.) Homogeneity Test

The homogeneity test in this study used the Levene test with the help of the SPSS 24 application with the following hypothesis:

H_0 : Homogeneity occurs

H_1 : There is no homogeneity

The decision-making criteria with a significance level of 5% or 0,05 are as follows:

H_0 is accepted if the significance value is $\geq 0,05$

H_0 is rejected if the significance value is $< 0,05$

The homogeneity test in the form of Levene's test in this study is as follows:

Tabel 4. Results of Homogeneity Test Analysis

Sig.	Conclusion	Decision	Condition
0,076	Sig > 0,05	H_0 is accepted	Homogeneous

Based on table 4 above, the significance value of the data homogeneity test is 0,076. This causes a significance value $> 0,05$, resulting in a decision that H_0 is accepted. Therefore, it can be concluded that the data is homogeneous.

c. Inferential Statistics

The analysis of hypothesis testing in this study used Two Way ANOVA with the help of the SPSS 24 application with the following form of hypothesis:

H_0 : There is no effect

H_1 : There is an influence

The decision-making criteria with a significance level of 5% or 0,05 are as follows:

H_0 is accepted if the significance value is $\geq 0,05$

H_0 is rejected if the significance value is $< 0,05$

The hypothesis test in the form of the Two Way ANOVA test in this study is as follows:

Tabel 5. Results of Two Way ANOVA Test

Source of Variance	Sum of Squares (JK)	df	Middle Square (KT)	F	Sig.
Learning Motivation (X_1)	13355,130	4	3338,783	8,465	0,000
Gender (X_2)	1832,749	1	1832,749	4,647	0,033
Learning Motivation Interaction (X_1 * Gender (X_2))	1065,663	3	355,221	0,901	0,442
Error	60741,416	154	394,425		
Total	470850,000	163			

Based on the table of results of the Two Way ANOVA test above, it is known that the decisions of the given hypothesis are as follows:

1.) The influence of learning motivation on mathematics learning achievement of class VIII students of SMP Negeri 5 Tarakan with the following form of hypothesis:

a.) Null Hypothesis (H_{01})

There is no influence of learning motivation on mathematics learning achievement of class VIII students of SMP Negeri 5 Tarakan.

b.) Alternative Hypothesis (H_{11})

There is an influence of learning motivation on mathematics learning achievement of class VIII students of SMP Negeri 5 Tarakan.

Based on table 5 above, the significance value on learning motivation is 0,000. This causes a significance value of $< 0,05$, resulting in a decision that H_{01} is rejected. Therefore, it can be concluded that there is an influence of learning motivation on mathematics learning achievement of class VIII students of SMP Negeri 5 Tarakan.

2.) The influence of gender on mathematics learning achievement of class VIII students of SMP Negeri 5 Tarakan with the following form of hypothesis:

a.) Null Hypothesis (H_{02})

There is no effect of gender on mathematics learning achievement of class VIII SMP Negeri 5 Tarakan.

b.) Alternative Hypothesis (H_{12})

There is an influence of gender on the mathematics learning achievement of eighth grade students of SMP Negeri 5 Tarakan.

Based on table 5 above, the significance value for gender is 0,033. This causes a significance value $< 0,05$, resulting in a decision that H_{02} is rejected. Therefore, it can be concluded that there is an influence of gender on mathematics learning achievement of class VIII students of SMP Negeri 5 Tarakan.

3.) The effect of the interaction between learning motivation and gender on mathematics learning achievement of class VIII students of SMP Negeri 5 Tarakan with the following hypothesis:

a.) Hipotesis Nol (H_{03})

There is no interaction effect between learning motivation and gender on mathematics learning achievement of class VIII students of SMP Negeri 5 Tarakan

b.) Hipotesis Alternatif (H_{13})

There is an interaction effect between learning motivation and gender on the mathematics learning achievement of eighth grade students of SMP Negeri 5 Tarakan.

Based on table 5 above, the significance value on the interaction between learning motivation and gender is 0,442. This causes a significance value $> 0,05$, resulting in a decision that H_{03} is accepted. Therefore, it can be concluded that there is no interaction effect between learning motivation and gender on the mathematics learning achievement of eighth grade students of SMP Negeri 5 Tarakan.

2. Discussion

a. There is an influence of learning motivation on mathematics learning achievement of class VIII SMP Negeri 5 Tarakan

Based on the results of data analysis on the Two Way ANOVA test, it is known that learning motivation has an effect on learning achievement. Learning motivation that affects learning achievement in mathematics shows that when students motivation is lacking, student learning achievement is also lacking. Thus, the less students learning motivation, the less student achievement. On the other hand, the better the student's motivation, the better the student's learning achievement. Learning motivation that affects learning achievement causes the importance of motivation for students to achieve maximum learning achievement.

b. The influence of gender on mathematics learning achievement of class VIII students of SMP Negeri 5 Tarakan

Based on the results of data analysis on the Two Way ANOVA test, it is known that gender has an effect on student achievement. Gender which has an effect on learning achievement in mathematics shows the importance between male and female students to help each other if they have difficulty in the learning process. This is necessary so that male and female students together can obtain maximum learning achievement.

c. There is no interaction effect between learning motivation and gender on mathematics learning achievement of class VIII students of SMP Negeri 5 Tarakan

Based on the results of data analysis on the Two Way ANOVA test, it is known that the interaction between learning motivation and gender has no effect on learning achievement. The interaction between learning motivation and gender that has no effect on learning achievement in mathematics subjects indicates whether or not there are gender differences in learning motivation will not be important in improving student achievement. The interaction between learning motivation and gender that has no effect on learning achievement causes the importance of learning motivation for students without distinguishing between men and women to achieve maximum learning achievement.

CONCLUSION

1. There is an influence of learning motivation on mathematics learning achievement of class VIII students of SMP Negeri 5 Tarakan.
2. There is an effect of gender on the mathematics learning achievement of eighth grade students of SMP Negeri 5 Tarakan.
3. There is no interaction effect between learning motivation and gender on mathematics learning achievement of class VIII students of SMP Negeri 5 Tarakan.

ACKNOWLEDGMENTS

1. Mr. Prof. Dr. Adri Patton, M.Si. as Chancellor of the University of Borneo Tarakan.
2. Mr. Suyadi, S.S., M.Ed., Ph.D. as Dean of the Teacher Training and Education Faculty, University of Borneo Tarakan.
3. Mrs. Eka Widyawati, M.Pd. as Head of the Mathematics Education Department, Teacher Training and Education Faculty, University of Borneo Tarakan.
4. Mr. Alfian Mucti, S.Pd., M.Si. as Secretary of the Mathematics Education Department, Teacher Training and Education Faculty, University of Borneo Tarakan.
5. Mr. Supardji, S.Pd. as the Principal of SMP Negeri 5 Tarakan who has given permission and support.
6. Beloved family who have given prayers and support.
7. All lecturers of the Mathematics Education Department, Teacher Training and Education Faculty, University of Borneo Tarakan who have provided support.
8. All teachers and staff at SMP Negeri 5 Tarakan who have provided support.
9. Fellow students of the Department of Mathematics Education, Faculty of Teacher Training and Education, University of Borneo Tarakan who have provided support.

REFERENCES

- Alderfer, C. P. (1969). An empirical test of a new theory of human needs. *Organizational behavior and human performance*, 4(2), 142-175. [https://doi.org/10.1016/0030-5073\(69\)90004-X](https://doi.org/10.1016/0030-5073(69)90004-X)
- Kasiram, H. M. (2010). *Quantitative-Qualitative Research Methodology*. Malang: UIN Malang Press.
- Nawawi, H. (1986). *School Administration*. Jakarta: Ghalia Indonesia.
- Sardiman. (2012). *Teaching and Learning Interaction and Motivation*. Jakarta: Rajawali Press.

- Susanti, L. F. D. (2014). The Influence of the Application of Numbered Heads Together (NHT) Learning Methods on Student Achievement in terms of Gender in SMP Negeri 2 Grobogan (Doctoral dissertation, University of Muhammadiyah Surakarta).
- Tohirin. (2008). *Psychology of Islamic Religious Education Learning*. Jakarta: Raja Grafindo Persada.
- Tu'u, T. (2004). *The Role of Discipline on Student Behavior and Achievement*. Jakarta: Grasindo.
- Umar, H. (2005). *Research Methods For Thesis and Business*. Jakarta: Raja Grafindo Persada.
- Uno, H. B. (2019). *Motivation Theory and Its Measurement*. Jakarta: Earth Literacy.
- Winata, R., and Friantini, R. N. (2019). The Influence of Learning Motivation on Mathematics Learning Achievement of Eighth Grade Students of SMP Negeri 1 Kuala Behe. *Scientific Journal of Mathematics Education*, 7(2), 85-92. <http://doi.org/10.25273/jipm.v7i2.3663>