

## THE RELATIONSHIP BETWEEN LEARNING TIME MANAGEMENT, LEARNING MOTIVATION, AND PEER INTERACTION WITH MATHEMATICS LEARNING OUTCOMES

**Ria Fridha Kusumaningrum<sup>a</sup>, Uswatun Khasanah<sup>b</sup>**

Program Studi Pendidikan Matematika Universitas Ahmad Dahlan  
Jalan Ring Road Selatan, Tamanan, Banguntapan, Bantul Yogyakarta  
[riafridha@gmail.com](mailto:riafridha@gmail.com), [uswatun.khasanah@pmat.uad.ac.id](mailto:uswatun.khasanah@pmat.uad.ac.id)

### ABSTRACT

Student mathematics learning results are low related to several factors. The correlation between learning time management, learning motivation, and peer interaction are several factors that are likely related to learning results. This study aims to determine whether there is a positive and significant correlation between Learning Time Management, Learning Motivation, and Peer Associations with Mathematics Learning Results of Students at Grade VIII, State Junior High School of 1 Pandanarum (SMP Negeri 1 Pandanarum) in Banjarnegara Regency in the odd semester in the academic year of 2016/2017. This study's population were eighth-grade students of SMP Negeri 1 Pandanarum Banjarnegara Regency in the odd semester in the academic year of 2016/2017, consisting of classes VIII A, VIII B, VIII C, VIII D, VIII E, totaling 145 students. A random sampling technique determined the research sample. Data collection techniques were performed using a questionnaire method to obtain data on learning time management, learning motivation, peer interaction, and test methods to obtain data on mathematics learning results. The research instrument test includes validity tests, different power tests, and reliability tests, while the analysis prerequisite test includes a normality test, linearity test, and independence test. In this study, data analysis was performed using product moment analysis and multiple linear regression analysis. The results showed a positive and significant correlation between learning time management, learning motivation, and peer interaction with mathematics learning results of Grade VIII students of SMP Negeri 1 Pandanarum Banjarnegara Regency in the odd semester the academic year of 2016/2017. This is indicated by  $F_{count} > F_{table}$  which is  $8,0123 > 2,9912$  with  $R = 0,7001$  and  $R^2 = 0,4902$  with  $\hat{Y} = -43,7046 + 0,6181 X_1 + 0,0262 X_2 + 0,5848 X_3$ , with  $RC X_1 = 51,2855 \%$ ,  $RC X_2 = 15,1763 \%$  and  $RC X_3 = 33,5381 \%$ ,  $EC X_1 = 25,1391 \%$ ,  $EC X_2 = 7,4391 \%$  and  $EC X_3 = 16,4397 \%$ .

**Keywords:** Learning Time Management, Learning Motivation, and Peer Interaction, Mathematics Learning Results.

### INTRODUCTION

Education is a process to help humans develop their potential to face every change that occurs. Quality education will produce quality human resources, superior, and able to compete. Education aims to foster human potential to become mature, civilized, and normal human beings. Education will bring changes in attitudes, behavior, and values in individuals, groups, and society. Through education, it is expected that it can form competent individuals in their fields to be in line with science and technology development. In line with the development of society today, education faces many challenges and obstacles. One obstacle is the low quality of education in this country so that it is a challenge for education managers to improve the quality of education in Indonesia. A challenge is a tool that can bring up new thoughts and innovations in learning methods. In Indonesia itself, mathematics has been taught from elementary schools to high schools. In general, the purpose of giving mathematics in schools is to prepare students to be able to face the changes in life and an ever-evolving world. Through practice, students are expected to act based on logical, rational, and critical thinking. It also prepares students to use mathematics in daily life, study science, technology, and art. While emphasizing the general purpose of giving mathematics in schools is structuring reason, forming students' attitudes and skills in applying mathematical science.

Learning success is caused by several factors that can be classified into two groups: internal and external (Slameto, 2010: 54-55). Internal factors are factors found in students, including intelligence, numeracy, independence, interest, and motivation. External factors outside of students include the environment, parental attention, facilities, infrastructure, and others. One internal factor that affects student learning results is learning time management. According to Timpe, Susanto Budidharmo's translation (2002: 10) is a unique source. Time is not saved but is used wisely. The amount of time is not so substantial, but more important is how time is managed. Future time can be managed effectively only by planning from the start and how we use our time is a personal choice. There will be so many benefits if we can work time well and many results that we will get, especially for students to achieve academic achievement.

Besides learning time management, there are also internal factors, namely, motivation. Motivation is an individual's drive to do something to achieve the desired goal. Motivation in learning is a major factor that is beneficial for achieving satisfying results. Motivation is an absolute requirement for learning. Students can realize the learning point and the objectives to be achieved with the lesson if given good and appropriate motivation. In learning activities, motivation can be the overall driving force within students that gives rise to learning activities, guarantees the continuity of learning activities, and gives direction to learning activities. The desired goals of the learning subject are achieved. Its distinctive role is in growing passion, feeling happy, and eager to learn. Students who have learning motivation with students who do not have learning motivation will be different. External factors that are thought to have a relationship with learning results in students are peer interaction. Not all students' peers behave positively in their relationships at school and support student learning success. Students provide information that when they gather with their friends, they prefer to discuss things other than lessons, such as planning what they will do that day. There are still noisy peers in class and do not pay attention to lessons during the teaching and learning process so that the learning process becomes disrupted, and also play truant when there are peers who skipped school.

This study's problems are: 1) Is there a positive and significant correlation between learning time management with mathematics learning outcomes in Students Class VIII of SMP Negeri 1 Pandanarum Banjarnegara Regency in the odd semester in the academic year of 2016/2017? 2) Is there any positive and significant correlation between learning motivation with mathematics learning outcomes in Students Class VIII of SMP Negeri 1 Pandanarum Banjarnegara Regency in the odd semester in the academic year of 2016/2017? 3) Is there any positive and significant correlation between peer interaction with mathematics learning outcomes in Students Class VIII of SMP Negeri 1 Pandanarum Banjarnegara Regency in the odd semester in the academic year of 2016/2017? 4) Is there any positive and significant correlation between learning time management and learning motivation with mathematics learning outcomes in Students Class VIII of SMP Negeri 1 Pandanarum Banjarnegara Regency in the odd semester in the academic year of 2016/2017? 5) Is there any positive and significant correlation between learning time management and peer interaction with mathematics learning outcomes in Students Class VIII of SMP Negeri 1 Pandanarum Banjarnegara Regency in the odd semester in the academic year of 2016/2017? 6) Is there any positive and significant correlation between learning motivation and peer interaction with mathematics learning outcomes in Students Class VIII of SMP Negeri 1 Pandanarum Banjarnegara Regency in the odd semester of the academic year 2016/2017? 7) Is there any positive and significant relationship between learning time management, learning motivation, and peer interaction with mathematics learning outcomes in Students Class VIII of SMP Negeri 1 Pandanarum Banjarnegara Regency in the odd semester in the academic year of 2016/2017?

The objectives of this study are 1) To find out whether there is a positive and significant correlation between learning time management with mathematics learning outcomes in Students Class VIII of SMP Negeri 1 Pandanarum Banjarnegara Regency in the odd semester in the academic year of 2016/2017. 2) To determine whether there is a positive and significant correlation between learning motivation with mathematics learning outcomes in Students Class VIII of SMP Negeri 1 Pandanarum Banjarnegara Regency in the odd semester in the academic year of 2016/2017. 3) To determine whether

there is a positive and significant correlation between peer interaction with mathematics learning outcomes in Students Class VIII of SMP Negeri 1 Pandanarum Banjarnegara Regency in the odd semester in the academic year of 2016/2017. 4) To determine whether there is a positive and significant correlation between learning time management and learning motivation with mathematics learning outcomes in Students Class VIII of SMP Negeri 1 Pandanarum Banjarnegara Regency in the odd semester the academic year of 2016/2017. 5) To determine whether there is a positive and significant correlation between learning time management and peer interaction with mathematics learning outcomes in Students Class VIII of SMP Negeri 1 Pandanarum Banjarnegara Regency in the odd semester the academic year of 2016/2017. 6) To determine whether there is a positive and significant correlation between learning motivation and peer interaction with mathematics learning outcomes in Students Class VIII of SMP Negeri 1 Pandanarum Banjarnegara Regency in the odd semester academic year of 2016/2017. 7) To determine whether there is a positive and significant correlation between learning time management, learning motivation, and peer interaction with mathematics learning outcomes in Students Class VIII of SMP Negeri 1 Pandanarum Banjarnegara Regency the odd semester in the academic year of 2016/2017.

According to Mujiyono et al. (2009: 5) argues that Time management is planning, organizing, mobilizing, and monitoring time productivity. While Purwanto, Sigit (2008: 6) argues that: Time management is a daily process used to divide time, making schedules, to-do lists, task assignments, and other systems that help to use time effectively. The definition of motivation according to experts including, according to Hamalik, Oemar (2005: 158) Motivation is a change in energy in (personal) someone who is characterized by the emergence of a feeling of reaction to achieve goals. Meanwhile, according to Uno, Hamzah B (2007: 3), motivation is the impetus in a person to try to make behavior changes that better meet their needs. According to Uno, Hamzah B (2007: 4), motivation is divided into intrinsic motivation and extrinsic motivation. Intrinsic motivation arises not requiring stimulation from outside because it already exists within the individual himself, which is by his needs. Extrinsic motivation is motivation arising from stimulation from outside the individual. For example, there is a lively interest in educational activities in the education sector from seeing the benefits. According to Ghozally, R. Fitri (2007: 80) argues that association can be interpreted as relationships between individuals that concern behavior, feelings, and identity.

Meanwhile, according to Santrock (2009: 109), Peers are children of a similar age or maturity level. According to Desmita (2009: 224), Peer interactions of most school-age children occur in groups, so this period is often called groupage. Forming peer groups, children emphasize activities they do together, such as playing, sharing stories, and doing the same hobbies.

## METHODS

This research is classified as quantitative research. This research used research design in the Interrelation Model between the Three Independent Variables and the Bound Variable (Sugiyono, 2010: 11). It Was used one class in this study, namely the sample class. This study's population were all students of grade VIII SMP Negeri 1 Pandanarum consisting of 5 classes with 145 students. The sample taken in this study was grade VIII-A. The sampling technique used was *Random Sampling*. Data collection techniques used were questionnaire techniques with instruments in the form of questionnaires, while the test techniques were done by using objective questions in the form of multiple choice. Analysis prerequisite was done through the test, namely by using a normality test with *Chi-squared* formula, F-formula linearity test, and Chi-squared formula independence test. The research hypothesis test used a simple correlation test, multiple regression analysis tests, and multiple linear regression test with three independent variables. The research hypothesis used for this research was made by testing using a simple correlation test which is performed to determine the presence or absence of a positive and significant correlation between 1) learning time management with student mathematics learning results, 2) learning motivation with student mathematics learning results, 3) peer interaction with learning results student mathematics. Furthermore, the research hypothesis test uses multiple regression analysis tests carried out

to determine the presence or absence of a positive and significant relationship between 1) learning time management and learning motivation with students' mathematics learning results, 2) learning time management and peer interaction with students' mathematics learning results, 3) learning motivation and peer interaction with students' mathematics learning results. Whereas the multiple linear regression test with three independent variables was conducted to determine whether there is a positive and significant correlation between learning time management, learning motivation, and peer relations with students' mathematics learning results.

## RESULTS AND DISCUSSION

The summary of normality test results can be seen in Table 1.

**Table 1.** Summary of Normality Test Results

Variable	$\chi^2_{count}$	$\chi^2_{table}$	Df	Information
X <sub>1</sub>	2,7827	5,5910	2	Normal
X <sub>2</sub>	0,1970	5,5910	2	Normal
X <sub>3</sub>	1,3928	5,5910	2	Normal
Y	0,7892	5,5910	2	Normal

From the normality test at a significant level of 5%, it is seen  $\chi^2_{count} \leq \chi^2_{table}$ , which means that the distribution of data obtained on each variable is normally distributed.

The summary of independence test results can be seen in Table 2.

**Table 2.** Summary of Independence Test Results

Variable	$\chi^2_{count}$	$\chi^2_{table}$	Df
X <sub>1</sub> dan X <sub>2</sub>	27,382	37,652	25
X <sub>1</sub> dan X <sub>3</sub>	28,672	37,652	25
X <sub>2</sub> dan X <sub>3</sub>	32,216	37,652	25

From the independence test at a significant level of 5% ( $\alpha = 0.05$ ) and degrees of freedom (dk) = (k-1)(b-1), it is seen  $\chi^2_{count} \leq \chi^2_{table}$ . This means that the distribution of data obtained at each variable is independent of one another.

The summary of linearity test results can be seen in Table 3.

**Table 3.** Summary of Linearity Test Results

Variable	F <sub>count</sub>	F <sub>table</sub>
X <sub>1</sub> and Y	0,5336	2,5073
X <sub>2</sub> and Y	0,5734	2,5073
X <sub>3</sub> and Y	1,0880	2,5536

From the linearity test at a significant level of 5% ( $\alpha = 0.05$ ) and the degree of freedom  $v_1$  numerator k-2 and  $v_2$  the denominator n-k is seen  $F_{count} \leq F_{table} (1-\alpha) (k-2, N-k)$ , which means that there is a linear correlation between the independent variable (X) and the dependent variable (Y).

The summary of the results of the first hypothesis test can be seen in Table 4.

**Table 4.** Summary of First Hypothesis Test Results

t <sub>count</sub>	t <sub>table</sub>	Df	Information
3,5170	2,0518	27	H <sub>0</sub> is rejected, H <sub>1</sub> is accepted

From the first hypothesis test at a significant level of 5% and df = 27, it can be seen that  $t_{count} = 3.5170$  and  $t_{table} = 2.0518$ , so that  $t_{count} > t_{table}$ , which means that there is a positive and significant correlation between learning time management with mathematics learning outcomes in Students Class VIII of SMP Negeri 1 Pandanarum Banjarnegara Regency in the odd semester in the academic year of 2016/2017.

The summary of the results of the second hypothesis test can be seen in Table 5.

**Table 5.** Summary of Second Hypothesis Test Results

$t_{count}$	$t_{table}$	Df	Information
2,5071	2,0518	27	$H_0$ is rejected, $H_1$ is accepted

From the second hypothesis test at a significant level of 5% and  $df = 27$ , it can be seen that  $t_{count} = 2.5071$  and  $t_{table} = 2.0518$ , so that  $t_{count} > t_{table}$ , which means that there is a positive and significant correlation between learning motivation with mathematics learning outcomes in Students Class VIII of SMP Negeri 1 Pandanarum Banjarnegara Regency in the odd semester in the academic year of 2016/2017.

The summary of the results of the third hypothesis test can be seen in Table 6.

**Table 6.** Summary of Third Hypothesis Test Results

$t_{count}$	$t_{table}$	Df	Information
2,1886	2,0518	27	$H_0$ is rejected, $H_1$ is accepted

From the first hypothesis test at a significant level of 5% and  $dk = 31$ , it can be seen that  $t_{count} = 2.1886$  and  $t_{table} = 2.0518$ , so that  $t_{count} > t_{table}$ . This means that there is a positive and significant correlation between peer interactions and mathematics learning outcomes in Students Class VIII of SMP Negeri 1 Pandanarum Banjarnegara Regency in the odd semester in the academic year of 2016/2017.

The summary of the results of the fourth hypothesis test can be seen in Table 7.

**Table 7.** Summary of Fourth Hypothesis Test Results

$F_{count}$	$F_{table}$	Df	Information
8,2173	3,3690	$v_1 = 2$ $v_2 = 26$	$H_0$ is rejected, $H_1$ is accepted

From the fourth hypothesis test at a significant level of 5%,  $v_1$  numerator = 2 and  $v_2$  denominator = 26 so that it can be obtained  $F_{count} = 9.2203$  and  $F_{table} = 3.3690$  so that  $F_{count} > F_{table}$ , which means that there is a positive and significant correlation between learning time management and Peer interactions with mathematics learning outcomes in Students Class VIII of SMP Negeri 1 Pandanarum Banjarnegara Regency in the odd semester in the academic year of 2016/2017.

The summary of the results of the fifth hypothesis test can be seen in Table 8.

**Table 8.** Summary of Fifth Hypothesis Test Results

$F_{count}$	$F_{table}$	Dk	Information
9,2203	3,3690	$v_1 = 2$ $v_2 = 26$	$H_0$ is rejected, $H_1$ is accepted

From the fifth hypothesis test at a significant level of 5%,  $v_1$  numerator = 2 and  $v_2$  denominator = 26 so that it can be obtained  $F_{count} = 9.2203$  and  $F_{table} = 3.3690$  so that  $F_{count} > F_{table}$ , which means that there is a positive and significant correlation between learning time management and Peer interactions with mathematics learning outcomes in Students Class VIII of SMP Negeri 1 Pandanarum Banjarnegara Regency in the odd semester in the academic year of 2016/2017.

The summary of the results of the sixth hypothesis test can be seen in Table 9.

**Table 9.** Summary of Sixth Hypothesis Test Results

$F_{count}$	$F_{table}$	Df	Information
10,0706	3,3690	$v_1 = 2$ $v_2 = 26$	$H_0$ is rejected, $H_1$ is accepted

From the sixth hypothesis test at a significant level of 5%,  $v_1$  numerator = 2 and  $v_2$  denominator = 26 so that it can be obtained  $F_{count} = 10.0706$  and  $F_{table} = 3.3690$  so that  $F_{count} \geq F_{table}$  which means there is a positive and significant correlation between learning motivation and peer interactions with mathematics

learning outcomes in Students Class VIII of SMP Negeri 1 Pandanarum Banjarnegara Regency in the odd semester in the academic year of 2016/2017.

The summary of the results of the seventh hypothesis test can be seen in Table 10.

**Table 10.** Summary of Seventh Hypothesis Test Results

$F_{count}$	$F_{table}$	Df	Information
8,0123	2,9912	$v_1 = 3$ $v_2 = 25$	$H_0$ is rejected, $H_1$ is accepted

From the seventh hypothesis test at a significant level of 5%,  $v_1$  numerator = 3 and  $v_2$  denominator = 25 so that it can be obtained  $F_{count} = 8.0123$  and  $F_{table} = 2.9912$  so  $F_{count} \geq F_{table}$ , which means there is a positive and significant correlation between time management students, learning motivation, and peer interaction with mathematics learning outcomes in Students Class VIII of SMP Negeri 1 Pandanarum Banjarnegara Regency in the odd semester in the academic year of 2016/2017.

## CONCLUSION

Based on the analysis of the experimental data and its discussion, it can be concluded that several points form this research as follows:

1. There was a positive and significant correlation between mathematics learning time management with mathematics learning outcomes in Students Class VIII of SMP Negeri 1 Pandanarum Banjarnegara Regency in the odd semester in the academic year of 2016/2017. This was indicated by the  $t_{count} > t_{table}$  or  $3,5170 > 2,0518$ . The simple correlation coefficient (r) between learning time management and mathematics learning results was 0.5605, while the simple regression equation Y for  $X_1$  was  $\hat{Y} = 9,7544 + 0,7225 X_1$ .
2. There was a positive and significant correlation between learning motivation with mathematics learning outcomes in Students Class VIII of SMP Negeri 1 Pandanarum Banjarnegara Regency in the odd semester in the academic year of 2016/2017. The t-test, namely indicated this  $t_{count} > t_{table}$  or  $2.5071 > 2.0518$ . The simple correlation coefficient (r) between learning motivation with mathematics learning results was 0.4433. Besides, a simple regression equation for Y over  $X_2$  was also obtained  $\hat{Y} = 10,6006 + 0,6925 X_2$ .
3. There was a positive and significant correlation between peer interactions with mathematics learning outcomes in Students Class VIII of SMP Negeri 1 Pandanarum Banjarnegara Regency in the odd semester in the academic year of 2016/2017. This was indicated by the t-test that was  $t_{count} > t_{table}$  or  $2.1886 > 2.0518$ . The simple correlation coefficient (r) between peer interactions with mathematics learning results was 0.3882. It was also obtained a simple regression equation for Y over  $\hat{Y} = 25,5419 + 0,5360 X_3$
4. There was a positive and significant correlation between learning time management and learning motivation with mathematics learning outcomes in Students Class VIII of SMP Negeri 1 Pandanarum Banjarnegara Regency in the odd semester of 2016/2017. This was indicated by the F test, which was  $t_{count} > t_{table}$  or  $8.2173 > 3.3690$ . The multiple correlation coefficient (R) between learning time management and learning motivation on mathematics learning results was 0.6223 and the coefficient of determination ( $R^2$ ) is 0.3873 with a linear line equation  $\hat{Y} = (-16,2656) + 0,6392 X_1 + 0,4485 X_2$ . The relative contribution of  $X_1$  was 67.1293%, and  $X_2$  was 32.8707%, and the effective contribution of  $X_1$  was 25.9986%, and  $X_2$  was 12.7305%.
5. There was a positive and significant correlation between learning time management and peer interaction with mathematics learning outcomes in Students Class VIII of SMP Negeri 1 Pandanarum Banjarnegara Regency in the odd semester of 2016/2017. This was indicated by the F test, which is  $t_{count} > t_{table}$  or  $9.2203 > 3.3690$ . The correlation coefficient (R) between learning time management and peer interaction on mathematics learning results was 0.6442 and the coefficient of determination ( $R^2$ ) was 0.4149 with a linear line equation  $\hat{Y} = (-19,1567) +$

- $0,7147 X_1 + 0,4421 X_3$ . The relative contribution of  $X_1$  was 70.0472%, and  $X_3$  was 29.9528%, and the effective contribution  $X_1$  was 29.0660%, and  $X_3$  was 12.44289%.
6. There was a positive and significant correlation between learning motivation and peer interaction with mathematics learning outcomes in Students Class VIII of SMP Negeri 1 Pandanarum Banjarnegara Regency in the odd semester of 2016/2017. This was indicated by the F test that was  $t_{\text{count}} > t_{\text{table}}$  or  $10.0706 > 3.3690$ . The correlation coefficient (R) between learning motivation and peer interaction on mathematics learning results was 0.6607 and the coefficient of determination ( $R^2$ ) was 0.4365 with a linear line equation  $\hat{Y} = (-53,9331) + 0,8534X_2 + 0,6912 X_3$ . The relative contribution of  $X_2$  was 55.4873%, and  $X_3$  was 44.5127%, and the effective contribution of  $X_2$  was 24.2209%, and  $X_3$  was 19.4303%.
7. There was a positive and significant correlation between learning time management, learning motivation, and peer interactions with mathematics learning outcomes in Students Class VIII of SMP Negeri 1 Pandanarum Banjarnegara Regency in the odd semester academic year of 2016/2017. This was indicated by the F test, which was  $t_{\text{count}} > t_{\text{table}}$  or  $8.0123 > 2.9912$ . The correlation coefficient (R) between management of learning time, learning motivation, and peer interaction on mathematics learning results was 0.7001 and the coefficient of determination ( $R^2$ ) was 0.4902 with a linear line equation  $\hat{Y} = (-43,7046) + 0,6181 X_1 + 0,0262 X_2 + 0,5848 X_3$ . The relative contribution of  $X_1$  was 51.2855%,  $X_2$  was 15.1763%, and  $X_3$  was 33.5381%, and the effective contribution was  $X_1$  was 25.1391%,  $X_2$  was 7.4391 %, and  $X_3$  16.4397%.

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