THE INFLUENCE OF EXTERNAL FACTORS, SCHOOL SCOPE ON STUDENT'S LEARNING OUTCOMES IN MATHEMATICS CLASS X THE DEPARTMENT OF SCIENCE AT SMAN 1 PANJI

Lisma Dian Kartika Sari[1], Ida Fitriana Ambarsari[2*], Eric Dwi Putra[3], Nur Hasanah[4]
[1,2,4]STKIP PGRI Situbondo, Indonesia
[3]Universitas PGRI Argopuro Jember, Indonesia
email: ifa643@gmail.com

Abstract: This study aims to determine the influence of external factor in the scope of the school student learning outcomes in mathematic subjects specialization in class X sciences in Panji 1 Senior High School. In this study examined 3 independent variables contained in external factors in the scope of the school, namely the learning methods used by teachers, learning media, and socializing. This study in determining respondents using the proportional random sampling method, which consists of 177 populations of class X science students and taken 100 students as samples. The research design used was ex-post facto design. Retrieval of independent variable data using a questionnaire and Likert scale. Bound Variable Data using the method of documentation. Data analysis uses multiple linear regression analysis. The results of data analysis obtained the value of the correlation coefficient (r-count) of 0,014 and F count of 0,443, while F table of 2,70 at N = 100 with a significance level 5% means F count < F table .

Keywords: Learning outcomes, Learning methods, Learning media, Associating friends.

INTRODUCTION

To increase the knowledge and potential that exists within humans requires education, which is an absolute element in human life. All forms of individual interaction with their environment and all life processes, both formally and non-formally up to a certain level of maturity, constitute education in a broad sense. Teaching and learning are known as formal forms in which there is a correlation process of teaching and learning which is the meaning of education in a limited way.

In supporting and realizing the process of internal student learning, it requires a learning system in which there are several series of events arranged in such a way (Blum & Leilj, n.d.). According to (Blum, 2015) to produce a completely new change in behavior, a person needs to carry out a series of business processes called learning. The change that occurs in a person form not knowing to being able to know is the learning process that has been experienced (Nuryami, Janan, & Hasanah, 2022).

Something that is learned can be more deeply understood and knowing it is possible because a person is encouraged to have a good interaction relationship between himself and the environment in every learning activity(Hasanah, Hobri, Fatekurrahman, Kusuma, & Hadiyanti, 2021). But in learning activities, the changes experienced by students are not all experienced, many of the students are not optimal, the changes experienced and affect student learning outcomes. The achievement of the minimum completeness score set by the teacher can be used as a measuring tool to see the large number of students who experienced problems in the learning process(Hasanah et al., 2021).

Regarding the cause, it is influenced by factors that influence student learning outcomes, namely internal factors and external factors. According to (Blum, 2015) factors originating within students include learning motivation, intelligence, talent, interest in learning, perceptions of

subjects and subjects and subject teachers is the understanding of internal factors. In addition, there are also factors that come from outside the students themselves, such as the school environment, community environment, and family environment (Blum, 2015). Many researchers examine both factors at the same time that influence learning outcomes, namely internal and external factors. So researchers are interested in examining external factors that have not been researched before, especially external factors within the school environment.

External factors are very important in determining students learning outcomes, especially factors that are influenced in the school environment such as the learning methods used by the teacher, the condition of the building, comfort and safety at school, the relationship between students and teachers, learning media, curriculum, and the environment where friend hang out. The focus of this research is the learning methods used by teachers, learning media, and friend associating between students and students. Seeing from the theory of the two existing factors, researchers want to analyze external factors that influence student learning outcomes, especially in mathematics specializing in vector material for class X majoring in Science at SMA Negeri 1 Panji Situbondo(Pendidikan, 2023). In this study, researchers took place at SMA Negeri 1 Panji Situbondo Jl. Argopuro No. 1A, where the researcher carried out the PPL (Field Experience Program), therefore, based on the experience of field activities over the past few months, the researcher was interested in researching "The Influence of School-Scope External Factors on Student Learning Outcomes in Mathematics Specializing in Vector Material class X Science Department at SMA Negeri 1 Panji Situbondo(Pendidikan, Hasanah, & Ambarsari, 2022)".

METHOD

This study used a descriptive quantitative approach and was analyzed using regression analysis. This study aims to analyze external factors that affect student learning outcomes in mathematics for class X students majoring in Science at SMA Negeri 1 Panji Situbondo. In this study, using an ex post facto research design.

This research was conducted at SMA Negeri 1 Panji, Panji District, Situbondo Regency, Jl. Argopuro No. 1A. The selection of research locations used the Purposive Sampling Area method. According to (Cai, Cirillo, Ferri, & Geiger, 2014) Purposive Sampling Area, namely the way researchers deliberately set research in a certain place without any choice of other places. The reason for choosing this research was because no similar research had ever been conducted

The determination of research respondents is by sampling. The sampling technique was carried out using proportional random samling. According to (*Indicators , Models and Mathematical Modeling*, 2018) proportional random sampling is research that takes a portion of the population to study. In this study, students of class X majoring in science at SMA Negeri 1 Panji and a total of 100 samples were examined.

Data collection to obtain material information that is accurate, relevant, and in accordance with the aims of the researcher. According to (Frejd & Bergsten, 2018) the quantitative research method is a research method based on the philosophy of positivism, used in researching samples and research populations, sampling techniques are generally carried out randomly or randomly while data collection techniques use research instruments and data analysis is quantitative or statistical in nature with the aim of testing the hypotheses that have been set. The data collection techniques used in this study used the following methods:

1. Interview

   The interview used in this research is unstructured interview. The interview guide is in the form of an outline of the problems that will be asked of the interviewees. Unstructured

interviews are often used in preliminary research or for more in-depth research on the respondent.

2. Questionnaire

The way researchers use the questionnaire technique is to make a questionnaire with a Likert scale and rating scale. The questionnaire used in this study is a closed ended questionnaire or closed questionnaire, which is a collection of various questions made by providing answer options that are already available in the questionnaire, so that respondents only have to choose answers according to actual conditions.

3. Documentation

According to (Arseven, 2015) documentation technique is a way of collecting data that produces important records related to the problem being studied, so that complete, legitimate data will be obtained and not based on estimates.

Data Analysis

1. Instrument Validity Test

The validity of a measuring instrument is an index of activities and exercises, namely how far the measuring instrument actually measures what needs to be measured and is said to be valid/sahih (Borromeo & Germany, 2006). The validity of the instrument uses the product moment correlation. From the research results, all of the research instrument items are valid.

2. Instrument Reliability Test

The purpose of holding reliability is to find out whether the data that has been collected is reliable or not. According to (*Indicators , Models and Mathematical Modeling*, 2018) says that "reliability indicates an understanding that an instrument is reliable enough to be used as a data collection tool because the instrument is good"(Puspitasari & Hasanah, 2019). The reliability testing was carried out using the Alpha Cronbach technique. Consulted on r table with a significance level of 5% which is = 0,197, it can be said that the instruments of the three variables in this study are very reliable, because the r count value is greater than the r table value with the results r count learning method 0,870 > 0,197, r count learning media 0,851 > 0,197, and r count of friends hanging out 0,840 > 0,197 with very high criteria (very reliable) for the three variables.

3. Multiple Linear Regression Analysis

According to (*Indicators , Models and Mathematical Modeling*, 2018) multiple/multiple linear regression is used to model the relationship between th dependent (independent) variable and the independent (bound) variable, with more than one variable(Hadiyanti et al., 2021).

RESULT

Data Presentation

Below are the results of research findings obtained from research locations. The learning outcome data used is the value of the students' daily mathematics test in class X IPA vector material. The

following is a histogram of the total score of the learning method questionnaire based on the output of SPSS Windows 22, which can be seen in Figure 1.1.
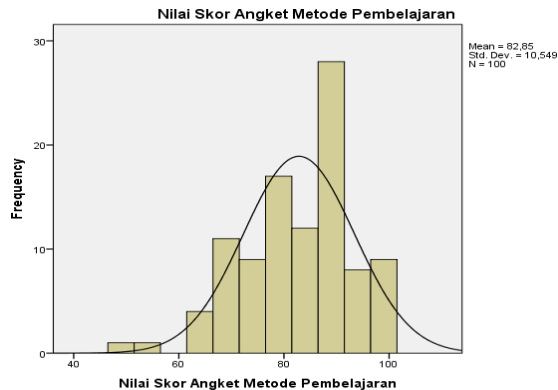

Figure. 1.1 The value of the questionnaire score of the learning method

Based on Figure 1.1, it can be seen that the number of questionnaire scores obtained by frequency is in the range of total scores 49 – 55 for 2 students, the total range is 56 – 62 as many as 0 students, total range 63 – 69 as many as 13 students, total range 70 – 76 as many as 11 students, total range 77 – 83 as many as 22 students, total range 84 – 90 as many as 21 students, the number range 91 – 97 is 26 students and the number range is 98 – 104 as many as 5 students. The frequency of the highest and lowest number of students is in the range of 91 – 97 and 49 – 55 with 26 students each and the lowest frequency is in the range of 2 students. From the acquisition of the number of questionnaires above, it can be seen that there are differences of opinion regarding the method learning used by the teacher. Then the histogram results of the learning media questionnaire will be seen in Figure 1.2:
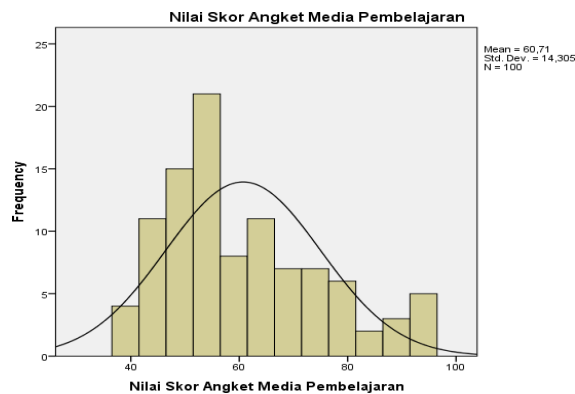

Figure. 1.2 The value of the questionnaire score of the learning method

Based on Figure 1.2, it can be seen that the number of questionnaire scores obtained by frequency is in the range of 39 – 46 as many as 15 students, the number range 47 – 54 as many as 23 students, the total range of 55 – 62 is 21 students, the total range is 63 – 70 16 students, the total range of 71 – 78 is 10 students, the total range is 79 – 86 is 7 students, the number range 87 – 94 is 5 students, the number range 95 – 102 is 3 students. From the acquisition of the number of questionnaires above it can be seen that there are differences of opinion regarding the learning media used by the teacher. Then the results of the questionnaire of friends hanging out can be seen in Figure 1.3 as follows:
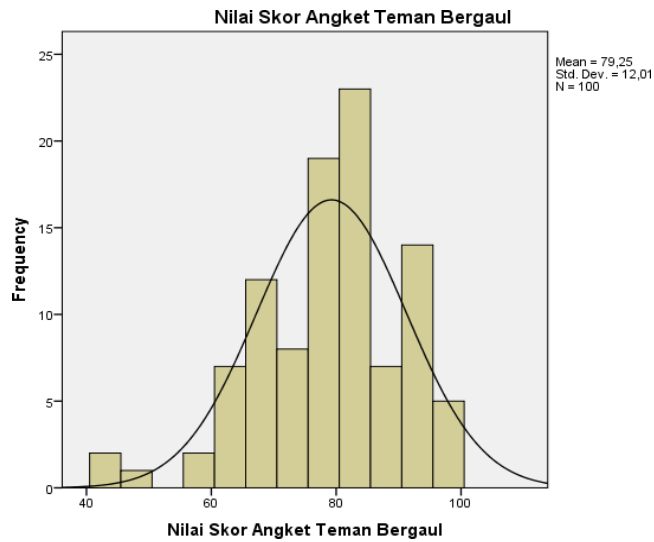
Figure. 1.3 Social friend questionnaire scores

Then the histogram of daily test scores (student learning outcomes) can be seen in Figure 1.4 as follows:
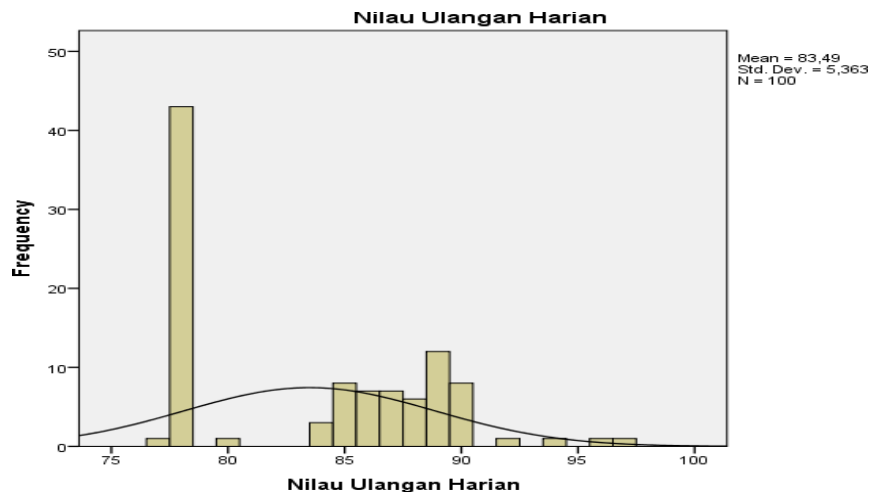

Figure. 1.4 Daily rate

Based on Figure 1.4, it can be seen that the score for the test scores obtained is the frequency in the range of 77 – 80, the score is 46 students, the number range 81 – 84 is 3 students, the number range 85 – 88 is 28 students, the number range 89 – 92 is 21 students, the value range 93 – 96 is 2 students, the range is 21 students, the number range 91 – 97 is 26 students and the value range 97 – 100 is 1 student. The frequency of the highest and lowest number of students is in the range of 77 – 80 and 97 – 100 with 46 students each and the lowest frequency is in the range of 1 student. Based on the acquisition of student learning outcomes, it can be seen that there is an uneven distribution of students' daily test scores.

The influence of learning methods, learning media, and social friends (X1, X2, X3) in Students Learning Outcomes (Y) Simultaneously/together

To determine the extent to which external factors influence the school environment on student learning outcomes (major hypothesis), it can be calculated by calculating the correlation between the X and Y variables value ry(1,2,3), that is 0,014.

Table 1. Results of Detection of Imperfect Coffee Beans

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	,117ᵃ	,014	-,017	5,40844

a.Predictors: (Constant), Teman Bergaul (X3), media pembelajaran (X2), Metode Pembelajaran (x1)

To find out whether the proposed major hypothesis is accepted/rejected, the calculated R value is compared with the R table. Comparison between the R count with a significant level of 5% and the number of respondents 100 students obtained R table = 0.1966 while the major hypothesis Ry(1,2,3) of 0.014 is that the R count is smaller than the R table, meaning that the working hypothesis (Ha) is rejected and the null hypothesis (Ho) is accepted, the null hypothesis (Ho) accepted is "There is no influence of external factors in the school environment on student learning outcomes in the mathematics subject specialization of class X IPA at SMAN 1 Panji Situbondo even semester of the 2018/2019 academic year". The Ry(1,2,3) value is compared with the correlation coefficient interpretation table:

Table 2. Interpretation of the correlation coefficient

The value of r	Interpretation
between ± 0,00 and ± 0,20	Almost none/ Very low influence
between ± 0,21 and ± 0,40	Low influence
between ± 0,41 and ± 0,60	Moderate influence
between ± 0,61 and ± 0,80	High influence
between ± 0,81 and ± 1,00	Very high influence

When compared with the results of the interpretation table above, the value Ry(1,2,3) = 0.014 lies between +0.00 to +0.20 meaning that the influence of external factors in the school environment is influence is very low and can be said to be almost non-existent.

Effect of Learning Methods (X1) on Learning Outcomes (Y)

To find out whether the first minor hypothesis submitted is accepted/rejected, we can calculate the partial correlation coefficient by continuing to look for the tcount and compare it with the T table. After the data is processed and the partial Rp is obtained from X1, which is equal to 0.10215 and tcount = 1.006. Then the comparison between tcount with a significant level of 5% and the number of respondents 100 students obtained ttable = 1.9845 while tcount is smaller than ttable which is equal to 1.006 <1.9845, meaning that the working hypothesis (HA1) is rejected and the null hypothesis (Ho) is accepted, because tcount < ttable, the first major hypothesis is: "There is no effect of learning methods on student learning outcomes in the mathematics subject of specialization class X IPA at SMAN 1 Panji Situbondo".

We can find out this from Table 1.3 based on the results of the t count output value for testing the first minor hypothesis in the table below:

Table 3. the results of the t count output value for testing the first minor

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		Std. Error	Beta		
(Constant)	79,49	4,741		16,76	,000
Metode Pembelajaran (x1)	,061	,061	,120	1,006	,317
media pembelajaran (X2)	-,026	,042	-,070	-,626	,533
Teman Bergaul (X3)	,007	,050	,015	,134	,894

From the SPSS output results, it can be seen that the significant value for the effect of the learning method (X1) on Y is 0.317 > 0.05 and the tcount value is 1.006 < ttable 1.9845 so it can be concluded that HA1 is rejected or there is no effect of X1 on Y.

Effect of Learning Media (X2) on Learning Outcomes (Y)

To find out whether the proposed second minor hypothesis is accepted/rejected, we can calculate the partial correlation coefficient by continuing to look for the Tcount value and compare it with the Ttable. After the data is processed and obtained partial R X2 is -0.0635 and tcount = -0.626 Then the comparison between tcount with a significant level of 5% and the number of respondents 100 students obtained t table = 1.9845 while tcount is smaller than t table which is -0.06356 <1.9845, means that the working hypothesis (HA2) is rejected and the null hypothesis (Ho) is accepted, because tcount <t table, the second major hypothesis is: "There is no effect of learning media on student learning outcomes in mathematics specializing in class X IPA at SMAN 1 Panji Situbondo.

We can find out this from Table 1.4 based on the results of the Tcount output value for testing the second minor hypothesis in the table below:

Table 4. The results of the t count output value for testing the second minor

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients		Sig.
		Std. Error	Beta		
(Constant)	79,498	4,741		16,76	,000
Metode Pembelajaran (x1)	,061	,061	,120	1,006	,317
media pembelajaran	-,026	,042	-,070	-,626	,533
Teman Bergaul(X3)	,007	,050	,015	,134	,894

From the SPSS output results, it can be seen that the significant value for the influence of learning media (X2) on Y is 0.533 > 0.05 and the tcount is -0.626 <t table 1.9845 so it can be concluded that HA2 is rejected or there is no effect of X2 on Y.

3.5. The Effect of Hanging Out with Friends (X3) on Learning Outcomes (Y)

To find out whether the proposed third minor hypothesis is accepted/rejected, we can calculate the partial correlation coefficient by continuing to look for the tcount value and compare it with the t table. After the data is processed and obtained a partial Rp. of X3, namely 0.0136 and tcount = 0.134. Then the comparison between tcount with a significant level of 5% and the number of respondents 100 students is obtained ttable = 1.9845 while tcount is smaller than ttable, namely 0.0136 <1.9845, meaning that the working hypothesis (HA3) is rejected and the null hypothesis (Ho) is accepted, because tcount <ttable, the third major hypothesis is: "There is no effect of socializing friends on student learning outcomes in mathematics specializing in class X IPA at SMAN 1 Panji Situbondo in the even semester of the 2018/2019 academic year.

We can find out this from Table 1.5 based on the results of the Tcount output value for testing the second minor hypothesis in the table below:

Table 5. The results of the Tcount output value for testing the second minor

	Coefficients[a]				
Model	Unstandardized Coefficients		Standardized Coefficients		Sig.
		Std. Error	Beta		
(Constant)	79,49	4,741		16,769	,000
Metode Pembelajaran (x1)	,061	,061	,120	1,006	,317
media pembelajaran (X2)	-,026	,042	-,070	-,626	,533
Teman Bergaul (X3)	,007	,050	,015	,134	,894

Dari hasil *output SPSS* dapat diketahui nilai signifikan untuk pengaruh media pembelajaran(X_2) terhadap Y adalah 0,894 >0,05 dan nilai t_{hitung} 0,134 < t tabel 1,9845 sehingga dapat disimpulkan bahwa H_{A3} ditolak atau tidak ada pengaruh X_3 Terhadap Y.

DISCUSSION

After analyzing the hypothesis testing data, the value of the correlation coefficient level between the three independent variables simultaneously / together with the Y criterion, namely Ry (1,2,3) is 0.014. While the correlation coefficient between X1 and Y is Ryx1(x2x3) of 0.01215, the correlation coefficient between X2 and Y is Ryx2(x1x3) of -0.06356, and the correlation coefficient between X3 and Y is Ryx3(x1x2) of 0.0136 .

Based on the hypothesis testing, it was also obtained that the Tcount X1 was 1.006, the Tcount X2 was -0.626, and the Tcount X3 was 0.134. Then prove the major working hypothesis by using

the F test, the major working hypothesis will be proven if F is calculated > F table. From the calculations, it is obtained that F count is 0.443 while F table is 2.70 at N = 100 with a significant level of 5% meaning that F count <F table so that it can be said that Ho is accepted and Ha is rejected. So, there is no influence of external factors in the school environment on student learning outcomes in the mathematics subject of specialization in class X IPA at SMAN 1 Panji Situbondo even semester of the 2018/2019 academic year.

From the table above it can be seen that the effective contribution (SE) or the influence of learning methods (X1) is 1.2016%, the effective contribution (SE) or the influence of learning media (X2) is 0.1212% and the effective contribution (SE) or the size effect (X3) of 0.0771% with the total effect of all the variables studied on learning outcomes was 1.4% while other variables not examined were 98.6%.

We can see that there are many divided factors that influence student learning, external factors in the school environment are still divided into many factors within it, but the author only examines some of the factors that are selected, namely learning methods, learning media, as well as associates and many more. external factors in the school environment that are not examined, for example curriculum, classroom learning material content, learning facilities, convenience, security, and others. So there are a lot of other variables that are not examined in this external factor research affect student learning. In addition to these factors that have not been studied, there are many possibilities that make the results of this study insignificant, student questionnaires obtained from data collection during the study obtained very low scores so that the distribution was uneven and not normal. Many students have low daily test scores but high questionnaire scores, and conversely many students who get high daily test scores then have low questionnaire results.

From the results of previous research by Siswanto, Budi in 2016 with the research title "factors that influence student learning outcomes in learning electricity at Vocational High Schools in Yogyakarta" with the same research results, the influence of learning methods on learning outcomes also has very little effect, namely 4 .34% and learning media of 5.58%. From this we can see that there is a very low or little effect of the two variables.

With the findings of previous research by Puspitasari, 2017 entitled "The Influence of Peer Association and Student Learning Motivation on Student Learning Outcomes at SD Ngaringan 3 in Gandusari District, Blitar Regency" with research findings there is no significant effect of peer association on student learning outcomes, with obtained by calculating a significance level of 0.078 which is less than a significance level of 5%, this indicates that Ho is accepted and H1 is rejected.

Previous research by Ervin Oktavia, 2015 with the research title "A Study of the Factors Influencing Student Achievement in the Mathematics Education Study Program, FKIP University of Jember" with research findings on the variable teaching methods used by lecturers/teachers has a very low effect with a significance level of 0.203 or more smaller than the significant level of 5%, this shows that H0 is accepted and H1 is rejected, meaning that there is no significant effect between the teaching methods used by lecturers on student learning outcomes.

CONCLUSION

The conclusions that can be drawn from the results of the tests that have been carried out are as follows:

1. After analyzing the hypothesis testing data, from the calculations, it is obtained that F count is 0.443 while F table is 2.70 at N = 100 with a significant level of 5% meaning F count <F table.

And the correlation coefficient between the three independent variables is also obtained simultaneously together -same as the Y criterion, namely Ry (1,2,3) of 0.014 while rtable of 0.1966 at N = 100 with a significant level of 5% so that it can be said that there is no influence of external factors on the school environment on student learning outcomes in mathematics specialization in class X in the Science Department at SMAN 1 Panji even semester of the 2018/2019 academic year, with an overall Effective Contribution or a very low influence of 1.4%

2. The results showed that the correlation coefficient between X1 and Y by controlling for variables X2 and X3 was Ryx1(x2x3) = 0.10215 while the r table was 0.1966 and Tcount = 1.006. So the comparison between T count with a significant level of 5% and the number of respondents for 100 students obtained T table = 1.984 Tcount <Ttable, so that it can be said that there is no effect of learning methods on student learning outcomes in mathematics specialization class X Science Department at SMAN 1 Panji even semester of 2018/2019 academic year with Effective or large Contribution the effect is 1.2016%

3. The research results show that the correlation coefficient between X2 and Y by controlling the variables X1 and X3 or X1 and X3 remains Ryx2 (x1x3) = -0.06356, while the r table is 0.1966 and Tcount = -0.026. So the comparison between T count with a significant level of 5% with a total of 100 students obtained Ttable = 1.984 Tcount<Ttable, so that it can be said that there is no effect of learning media on student learning outcomes in mathematics specializing in class X Science Department at SMAN 1 Panji even semester of 2018 academic year /2019 with an Effective Contribution or an influence of 0.1212%

4. The results showed that the correlation coefficient between X3 and Y by controlling for variables X1 and X2 was Ryx3(x1x2) = 0.0136 while r table was 0.1966 and Tcount = 0.134. So the comparison between T count with a significant level of 5% and the number of respondents for 100 students obtained T table = 1.984, Tcount <Ttable, so that it can be said that there is no effect of socializing friends on student learning outcomes in mathematics specialization class X Science Department at SMAN 1 Panji even semester of 2018/2019 academic year with Effective Contribution or large effect of 0.0771%.

Based on the results of the discussion in the previous chapter and the conclusions set above, the writer can provide suggestions to:

1. These results can be used as input for other researchers to carry out further research by adding other variables, and do not forget to also consider conducting an assessment of subject teachers who are assessed through a questionnaire instrument not only from one side of the students and other researchers can also research with subjects different and different levels too

2. Schools should pay more attention to and invite their students to study more actively so they can improve student learning outcomes with various other internal and external factors that can affect student learning.

REFERENCES

Anggraeni, Evi. 2014. "Pengaruh Pergaulan Teman Sebaya dan Motivasi Belajar Terhadap Hasil Belajar Ekonomi Siswa Kelas XI IPS SMA 1 Sukodono. Universitas Muhammadiyah Surakarta.

Slameto, 2013. *Belajar dan faktor-faktor yang memperngaruhinya*. Jakarta: Rineka Cipta.

Sugiyono, 2014. *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. Bandung : Alfabeta. CV.

Sugiyono, 2015. *Metode Penelitian Kuantitaif, Kualitatif, dan Kombinasi (Mixed Method)*. Bandung :ALfabeta. CV.

Arikunto, 2012. *Prosedur Penelitian Sutau Pendekatan Praktik*. Jakarta : Rineka Cipta.

Sugiyono, 2017. *Statistika Untuk Penelitian*. Bandung : Alfabeta. CV.

Arseven, A. (2015). *Mathematical Modelling Approach in Mathematics Education*. *3*(12), 973–980. https://doi.org/10.13189/ujer.2015.031204

Blum, W. (2015). *Quality Teaching of Mathematical Modelling : What Do We Know , What Can We Do ?* 73–96. https://doi.org/10.1007/978-3-319-12688-3

Blum, W., & Leilj, D. (n.d.). *HOW DO STUDENTS AND TEACHERS DEAL WITH MODELLING PROBLEMS ?* (1 997). https://doi.org/10.1533/9780857099419.5.221

Borromeo, R., & Germany, F. (2006). *Theoretical and empirical differentiations of phases in the modelling process model*. *38*(2).

Cai, J., Cirillo, M., Ferri, R. B., & Geiger, V. (2014). *MATHEMATICAL MODELING IN SCHOOL EDUCATION :* (August 2020).

Frejd, P., & Bergsten, C. (2018). Professional modellers ' conceptions of the notion of mathematical modelling : ideas for education. *ZDM*, *50*(1), 117–127. https://doi.org/10.1007/s11858-018-0928-2

Hadiyanti, N. F. D., Hobri, Prihandoko, A. C., Susanto, Murtikusuma, R. P., Khasanah, N., & Maharani, P. (2021). Development of mathematics e-module with STEM-collaborative project based learning to improve mathematical literacy ability of vocational high school students. *Journal of Physics: Conference Series*, *1839*(1). https://doi.org/10.1088/1742-6596/1839/1/012031

Hasanah, N., Hobri, Fatekurrahman, M., Kusuma, M. A., & Hadiyanti, N. F. D. (2021). Development of lesson study for learning community based learning tools using google classroom media and its impact on students' creative thinking skills. *Journal of Physics: Conference Series*, *1839*(1), 0–13. https://doi.org/10.1088/1742-6596/1839/1/012017

Indicators , Models and Mathematical Modeling. (2018).

Nuryami, N., Janan, T., & Hasanah, N. (2022). the Influence of Realistic Mathematics Education on Year 8 Students' Spatial Ability of Cuboids and Cubes. *Kalamatika: Jurnal Pendidikan Matematika*, *7*(1), 69–84. https://doi.org/10.22236/kalamatika.vol7no1.2022pp69-84

Pendidikan, J. (2023). *PENGEMBANGAN MEDIA PEMBELAJARAN BERBASIS GAME TEBAK STKIP PGRI Situbondo , Indonesia PENDAHULUAN Salah satu pelajaran yang dianggap sulit oleh siswa yaitu matematika namun pada disisi lain , matematika merupakan sebuah subjek yang sangat penting dalam keh*. *10*(1), 171–180.

Pendidikan, J., Hasanah, N., & Ambarsari, I. F. (2022). *Pengaruh Metode Kuis Menggunakan Aplikasi Quizizz dan Ice Braking Terhadap Motivasi Belajar pada Materi Sistem Persamaan Linear Tiga Variabel*. *10*(3), 1133–1142.

Puspitasari, Y., & Hasanah, N. (2019). *NASIONAL TERHADAP HASIL BELAJAR MATEMATIKA SISWA KELAS X MANURUL FATA TAHUN PELAJARAN 2017 / 2018*. *6*(1), 34–43.