The Effectiveness of Google Classroom Learning Media, Google Meet and Students' Learning Motivation of SMAN 3 Mojokerto

Zainal Abidin[1,a], Hartono[1,b]

[1]Department of Education Technology, Universitas PGRI Adibuana Surabaya, Indonesia

[a]zainmojokusumo@gmail.com, [b]hartono@unipasby.ac.id

Abstract. The research aims to determine the learning outcomes and scientific attitudes of students who are taught using Google Classroom and Google Meet learning media. The population in this experiment were students in first grade SMA Negeri 3 Mojokerto in the academic year 2020/2021. Data analysis using interactive model and data validity test, use test, pretest prerequisites are normality test and homogeneity test. Sampling was carried out using pretest and post-test techniques, the results of data analysis was an increase in learning outcomes using google classroom and google meet for IPS majors as many as 15 students, after getting pretest and post-test treatment. Students have better scores when the treatment has been carried out compared to before the treatment was carried out, so the conclusion is that learning outcomes of students taught using learning motivation media were higher than students taught using google classroom and google meet media. That the influence of learning media with Google classroom and google meet as 80% relaxation techniques is effective for students of SMA 3 Mojokerto majoring in IPS in physics learning material on Newton's Law.

1. Introduction

Pandemic that has hit various countries including Indonesia has made all lines of life change. No exception in the world of education. Educational institutions that from the start, in the learning process were carried out face-to-face, then changed by implementing online/ online learning.

Online learning options in this pandemic era are a must. Because if learning is forced directly, it is feared that it will become *a cluster of* new transmission in educational institutions. While the application of online learning itself is in accordance with WHO recommendations to maintain distance in order to cut the transmission of covid-19. This is also the case with President Jokowi's instructions that encourage people to stay at home, study at home, work at home, and worship at home. The Minister of Education and Culture also made a policy with the issuance of Circular (SE) Number 4 of 2020 concerning the Implementation of Education Policies in an Emergency for the Spread of Covid-19. The circular of the Minister of Education and Culture emphasized that during a pandemic, learning must continue. Although it cannot be implemented face-to-face, online learning. And in online learning, it is necessary to pay attention to several important points in its application, such as 1)

meaningful learning is needed without burdening students by pursuing the completion of the material. 2) Online education must focus on the life skills of students according to their interests and abilities, 3) The assignments given must be adjusted to their abilities and internet access according to the area occupied, 4) assignments given to students must be given feedback so that they occur meaningful interactions.

Media that can be used for online learning include learning media for Google Classroom, Edmodo, and Schoology (Enriquez, 2014; Sicat, 2015; Iftakhar, 2016), and instant messaging applications such as WhatsApp (So, 2016). Online learning can even be done through social media such as Facebook and Instagram (Kumar & Nanda, 2018). While learning is in the form of video or live streaming such as YouTube, zoom,and so on.

Google Meet learning media is an application that can be used for teleconferencing. It can accommodate about 100 people to conduct meetings. In the world of learning, with google meet learning media, teachers can meet face to face with students even in large numbers. Interestingly, this application can be used with a laptop or with a cellphone. Just download the application, and click on the Google Meet learning media to be connected to the scheduled class meeting.

The use of the Google Meet learning media application is not yet widely used. It could be that many teachers are not good at IT or have insufficient tools or other deficiencies. Research from Selamet Riadi stated that from the most widely used application of the Google Classroom learning media application, 26 people (52%), 9 people (18%) WhatsApp Group, 8 people (16%) Google Meet learning media, and as many as 7 people (14%) Zoom. While the obstacles faced in using online applications are 33 people who do not understand (66%), as many as 8 people (16%) stated that there is a lack of internet quota, as many as 8 people (16%) stated that they had difficulty getting internet access, and 1 person (2%) stated that he did not understand the online lecture application.

During the pandemic, teachers at SMA Negeri 3 Mojokerto could not do face-to-face learning, so they took advantage of social media applications to carry out online learning. Various applications are used for learning, such as whatsapp, youtube, google classroom learning media, google meet learning media, schoology, Google Quiz and others. Until now, there has been no more serious research to determine the impact on the level of achievement of using these learning media applications. Complaints from students or parents regarding the use of online media applications are usually about inadequate quota (Interview with SMA N 3 Mojokerto Curriculum).

Physics is a difficult subject compared to other subjects. Because in addition to being based on calculations, you must also have the ability to operationalize the formula. Therefore a quality meeting intensity is needed thus it makes easier to understand the material presented. Physics teachers at SMA Negeri 3 make use of Google Classroom and Google Meet learning media for their learning. There has been no serious research to examine the effect of these two applications on student achievement. Hence this study took the title "The effect of using google classroom learning media, google meet and student motivation in class X IPS SMA Negeri 3 Mojokerto."

1.1 Google Classroom

Google Classroom is an online mixed learning application platform that can be used for free. (Batubara, 2021) Researchers made a special class for six meetings in physics lessons using learning media Google Classroom. After six meetings, we will evaluate how effective the learning is using learning media Google Classroom.

1.2 Google Meet

Google Meet as a learning media is a video conference application or it can also be called an online meeting. This application allows teachers and students to come face to face using videos (Simanjuntak, 2018). Researchers made a special class for six meetings in physics lessons using

learning media Google Meet. After six meetings, we will evaluate how effective the learning is using learning media Google Meet.

1.3 Learning Motivation

Indicators of learning motivation in this study, measured by indicators identified by Sardiman, namely: a) perseverance in facing tasks or being able to work continuously for a long time b) resilient in facing difficulties and not easily discouraged, not quickly satisfied with the achievements obtained c) Shows great interest in various learning problems d) Prefers to study alone, does not depend on others, e) Does not get bored quickly with routine tasks f) Can defend his opinion, is not easy to let go of what who are believed, and g) Enjoy finding and solving problems (Rahmanto, 2020).

2. Research Method

This research is a quasi-experimental study because of the selection of research subjects was not random, thus there were two groups of subjects that were available as is, the experimental group and the control group were not chosen randomly or randomly (Setyosari, 2010). This study used a factorial design (2 x2) with analysis of research data using two-way ANOVA. The experimental procedure in this study is as follows:

Table 1 Design (2x2) adaptation of Source Tuckman (1978: 135)

0_2	X1	G1	02
02	X2	G1	02
03	X1	G1	02
02	X2	G1	02

Information
0 = Pre-test material, to determine students' initial abilities
X_{11} = Use of Google Classroom
X_{22} 2= Use of Google Meet
G_{11} 1= High motivation
G_{22} = Low motivation
0 = post test material, understanding of concepts

Table 2: The pattern of Tuckman's quasi-adaptation experimental design in this study can be described with a matrix

Media Pembelajaran / Motivasi Belajar	Media Belajar: Google Classromm (X_1)	Media Belajar: Google Meet (X_2)
Motivasi Tinggi (MT)	YX_1 MT_1 YX_1 MT_a	YX_2 MT_2 YX_2 MT_a
Rendah (MR)	YX_1 MR_1 YX_1 MRa	YX_2 MR_2 YX_2 MRa

Description:
X_1 = Google Classroom learning media (experimental group treatment)
X_2 = Google Meet learning media (control group treatment)
MT= High motivation (moderator)
MR = Low Motivation (moderator)
Y = Learning achievement
a = umpteenth subject

Instruments of this study include: the student's learning motivation instrument using a questionnaire. According to Sugiyono (2010: 389) population is the whole object or subject that affects the quantity and certain characteristics set by the researcher for study and then draws conclusions. According to Suharyadi and Purwanto (2009: 7) population is a collection of all possible people, objects, and other sizes, which become objects of attention or a collection of all objects of attention or a collection of all objects of concern. Based on this understanding, the population in the study were students of class X IPS consisting of 35 X IPS 1, 35 X IPS 2, 36 X IPS 3 and 36 X IPS 4 students. all. Therefore this study did not use a sample.
The steps in data collection in this study are as follows:

2.1. Questionnaire (questionnaire)
The questionnaire is a data collection technique which is done by giving a set of questions or written statements to respondents to be answered. Questionnaires can be in the form of closed or open questions which can be given to respondents directly. The questionnaire is an efficient data collection technique if the researcher knows exactly what variables to measure and what the respondents expect**.** The questionnaire in this study to find out student learning motivation.

2.2. Tests
There are two data from the test results, namely data 1, pre-test scores for data on students' initial abilities. And 2, the post test result data score after the end of the last face-to-face learning activity**.** The test is done to find out how much understanding has been absorbed from a knowledge.

Data analysis is an activity after collecting the data from all respondents or other data sources have been collected (2018: 147). The data in this study used statistical methods with the help of SPPS for 21 software. There are two types of tests used in data processing, namely validity test, reliability test, normality test, homogeneity test and hypothesis testing.

2.3. Test Instruments

2.3.1. Validity Test

The Validity test in this study was obtained from a questionnaire used to determine student motivation. The steps include:

Construct validity

This test tests the validity of the construction, and expert opinion can be used, in this case the instrument is constructed on the aspects measured based on a certain theory then consulted with the expert) (Sugiyono, 2018; 353)

Content Validity

Content validity can be done by comparing the instrument with the content or design that has been determined according to the curriculum (Sugiyono 2018: 353)

Face validity

Basuki, I., & Hariyanto (2014: 121) states that states that the face validity with regard to whether the instrument is valid or not, looks good to the test taker.

Validity of Item

Basuki, I., & Hariyanto (2014: 137), in essence, the analysis of item reference items quantitatively is intended to assess and be carried out through empirical trials calculated by the level of difficulty coefficient, distinguishing power, and correlation of questions. using Karl Pearson's product moment formula.

2.3.2. $DB = \frac{R_H - R_L}{\frac{1}{2}N}$ *Power of Difference (discriminating power)*

Description:

Table 3: Table of Relationship between DB and Test Quality

the power difference*(Discriminating power*)
the number of correct answers from a group of students who are motivated.
the number of correct answers from the group of students is less motivated. the number of students in groups N_H and N_L (upper group and lower group).

Table 4: Item Discrimination Index
Source Adapted from Basuki, I., & Hariyanto (2017: 141)

Item Discrimination Index (DB)	**Interpretation**
0.40 or more	Very good question item, acceptable.
0.30 - 0.39	Enough question items, acceptable with repair.
0.20 - 0.29	Items that need discussion, usually need to be repaired and become targets for improvement.
0.19 and below	Bad item, rejected or discarded and replaced by another item.

2.3.3. Difficulty Level

After calculating the difference power, the difficulty level can be calculated using the formula:

$$TK = \frac{R_H + R_L}{N_H + N_L} = \frac{R_H + R_L}{N}$$

Description:

level of difficulty (facilityindex).
number of correct answers from groups of motivated students.
the number of correct answers from the group of students is less motivated. the number of students in the top group. the number of students in the lower group. the number of students in the group N_H and NL.

2.3.4. $r_{xy} = \frac{N\sum XY - (\sum X)(\sum Y)}{\sqrt{\{N\sum X^2 - (\sum X)^2\}\{N\sum Y^2 - (\sum Y)^2\}}}$

Item Score Correlation to Total Score Analysis techniquecorrelation *product moment* of Karl Pearson'sto find the magnitude of the influence of Google Classroom and Google Meet. The formula is as follows.

Information:

Table 5: Correlation ofItem Score
Source(Adapted from Basuki, I., & Hariyanto, 2016, p. 125).

R	:	correlation coefficient *Product moment*
N	:	Sum of all data
X and Y	:	Dichotomous variables that are correlated

2.3.5. Reliability Test

Reliability test on AL variables using *Alpha's Cronbach*formula, while the formula is as follows.

Information:

r_{11}	Reliability sought
n	The number of question items tested.
1	Constant number.
$\sum S_i^2$	Total score variance of each item of item
s_t^2	Total variance

Table 6: Reliability Criteria Table Item Problem
Source (Sudjono, 2016)

Reliability	**Description**
≥ 0.60	Results achievement motivation questionnaire has high reliability /reliable.
< 0.60	The results of the questionnaire on achievement motivation do not have high /reliability*unreliable*.

2.4. Test requirements

2.4.1. Normality test

The normality test is carried out to determine whether the sample from the population is normally distributed or not. The normality test in this study used the *lilliefors* test as follows.

Table 7: Distribution Table
Source (Irianto, 2010, p. 275)

H_0: distribution of normal student achievement scores
H_1: distribution of student achievement scores is not normal
while the testing criteria are as follows.
Reject H_0 if $L_{maximum} > L_{table}$

2.4.2. Homogeneity Test

The homogeneity test is carried out to determine the homogeneity of the variance taken from the population, if the significance value is less than 0.05, the data is not normally distributed, if the significance value is more than 0.05 then the data is normally distributed. The homogeneity test in this study used the test with *Bartlett* computer-assisted *SPSS for windows* version 20

2.5. Hypothesis Testing

If all the prerequisite tests are normally distributed and homogeneous, then the hypothesis test is carried out using univariate two-way ANOVA. The hypothesis in two-way ANOVA (two independent variables) in this study is as follows.

2.5.1. Relating to the effect of the first factor (A), or the effect of the Google classroom row and google meet.

H_0: $\mu_{GC} = \mu_{GM}$

H_1: $\mu_{GC} \neq \mu_{GM}$

2.5.2. Relating to the effect of the second factor (B), or the column effect of Low Motivation and High Motivation.

H0: μMR = μMT

H1: $\mu_{MR} \neq \mu_{MT}$

2.5.3. Interaction between factor A and factor B

H0: There is no interaction of learning media and motivation

H1: There is interaction of learning media and motivation

Next, compare F table with F count, if F table is greater than F count then H0 is accepted, and vice versa, if F table is smaller than F count then H_0 will be rejected.

3. Results and Analysis

Before the 2-way Anava test was conducted, to determine the interaction between Google Classroom learning media or Google Meet learning media with students who have high learning motivation of students who have low learning motivation, previously conducted a prerequisite test, namely normality and homogeneity.

3.1. Normality Test

To detect the normality of the data can be done by: (1) By looking at the ratio *Skewnesss / Kurtosis*, (2) By using graphs, and (3) By using the *Kolmogorov-Smirnov test*.

In this study, data normality was detected using the *Kolmogorov-Smirnov test*, with the following hypothesis:

Ho: data is normally distributed

Hi: data is not normally distributed

The criteria for decision making are:

- Probability sig., A> 0.05 then the data normally distributed
- Probability sig., a <0.05 then the data is not normally distributed

Table 8: Normality Test Results
Sumber Zainal Abidin 2021

One-Sample Kolmogorov-Smirnov Test

		GooClass	GooMeet
N		50	50
Normal Parameters a,b	Mean	81.4909	72.6545
	Std. Deviation	8.23919	9.32781
Most Extreme Differences	Absolute	.154	.139
	Positive	.154	.139
	Negative	-.140	-.115
Kolmogorov-Smirnov Z		1.139	1.033
Asymp. Sig. (2-tailed)		.149	.236

a. Test distribution is Normal.

b. Calculated from data.

The KS value for Google Classroom learning media data obtained a value of 1.308 with a significance probability of 0.065 and a value above a = 0.05, this means that the null hypothesis is accepted or the pretest result data for the Google Classroom learning media class is normally distributed. Whereas for classes using Google Meet learning media, the KS value was 1.092 with a significance probability of 0.184 and the value was far above a = 0.05, this means that the null hypothesis is accepted or the pretest result data for the Google Meet learning media class is normally distributed.

Based on the description above, it can be explained that the two learning media have data that are normally distributed.

3.2. Homogeneity Test

The results of the homogeneity calculation can be seen from table 4.4 as follows.

Table 9: Calculation of Homogeneity of Pretest Results
Sumber Zainal Abidin 2021

Test of Homogeneity of Variances

Nilai Tes

Levene Statistic	df1	df2	Sig.
.913	1	108	.341

With decision making:

- if the probability <0.05 is not homogeneous
- if the probability> 0.05 is homogeneous

Based on the table above it can be seen that the probability value of the data above is 0.59, meaning the probability is> 0.05, this gives the sense that the data is homogeneous.

From the description above, it can be seen that the two groups have the same learning achievement, where the two samples have the same or homogeneous characteristics.

After the learning process was carried out in each class, one group was treated with Google Classroom learning media and the other group as a control group using Google Meet learning media. From the learning process in this sample, it will be seen that some students who like Google Classroom learning media who have high motivation, and who don't like Google Classroom learning media that have low motivation, as well as Google Meet learning media will seem happy or motivated to follow. learning is said to be a high motivation group, and the rest is low motivation.

After the implementation of learning in each predetermined lesson, one class is conducted with Google Classroom learning media, while the other class uses Google Meet learning media.

From the results of this posttest, 2-way Anava testing will be carried out, which previously will be carried out by the following prerequisite tests.

3.3. Post-test Prerequisite Test

3.3.1. Normality test

The KS value for Google Classroom learning media data obtained a value of 1.139 with a significance probability of 0.149 and the value is far above a = 0.05, this means that the null hypothesis is accepted or the learning achievement data for the Google Classroom learning media group is normally distributed. Whereas for the group using Google Meet learning media, the KS value was 1.033 with a significance probability of 0.236 and the value was far above a = 0.05, this means that the null hypothesis was accepted or the learning achievement data for Google Meet learning media were normally distributed.

Based on the description above, it can be explained that the two learning classes have data that are normally distributed.

3.3.2. Homogeneity Test

By making the decision:

- if the probability <0.05 is not homogeneous
- if the probability> 0.05 is homogeneous.

Based on the above data, it can be seen that the probability value of the data above is 0.341, meaning the probability is> 0.05, this means that the data is homogeneous.

3.4. Hypothesis

Test Testing the significance level of the average results used the t test, with the following results.

Table 10: Google Classroom and Google Meet Difference Test
Sumber Zainal Abidin 2021

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Equal variances assumed		.913	.341	5.266	108	.000	8.83636	1.67816	5.50996	12.16277
	Equal variances not assumed			5.266	106.378	.000	8.83636	1.67816	5.50938	12.16334

From the table above, the significance value is below 0.05 (a <0.05), so it can be explained that there are differences in the use of google classroom learning media, google meet and learning motivation on student achievement in class X IPS SMA Negeri 3 Mojokerto.

Furthermore, to test the significance of the average difference between students with high motivation and low motivation, the following results were obtained.

Table 11: Different Table of Average Motivation
Sumber Zainal Abidin 2021

Test of Homogeneity of Variances

Nilai Tes

Levene Statistic	df1	df2	Sig.
3.897	1	108	.059

Obtained a significance value below 0.05 (a <0.05), so it can be explained that there are differences in the use of learning media google classroom, google meet and learning motivation towards student achievement in class X IPS SMA Negeri 3 Mojokerto which has high motivation with who have low motivation on Google Classroom learning media. While the Google Meet learning media is presented in the following table.

Table 13: Difference Test for students' mean with motivation
Source Zainal Abidin 2021

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Prestasi Belajar	Equal variances assumed	.572	.451	2.857	108	.005	5.30909	1.85836	1.62550	8.99268
	Equal variances not assumed			2.857	107.246	.005	5.30909	1.85836	1.62521	8.99297

From the table above, the significance value is below 0.05 (a <0.05), so it can be explained that there are differences in the use of google classroom, google meet learning media and student learning motivation in class X IPS SMA Negeri 3 Mojokerto who have high motivation and those who have motivation. low on Google Meet learning media.

After the prerequisite test was carried out, the 2-way Anava test was carried out, to determine the interaction of the learning media and the students' motivation. The results of the two-way Anava test are presented in Table 4:11 as follows.

Table 14: 2 Line Anava Test Results
Source of Zainal Abidin 2021

Tests of Between-Subjects Effects

Dependent Variable: Prestasi Belajar

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	7805.727[a]	3	2601.909	32.362	.000
Intercept	1140768.018	1	1140768.018	14188.776	.000
Faktor_A	888.018	1	888.018	11.045	.001
Faktor_B	5640.891	1	5640.891	70.161	.000
Faktor_A * Faktor_B	1276.818	1	1276.818	15.881	.000
Error	17366.255	216	80.399		
Total	1165940.000	220			
Corrected Total	25171.982	219			

a. R Squared = .310 (Adjusted R Squared = .301)

Based on the tableabove, it can be explained that:

3.4.1. FA ratio = 11.045 with a significance value smaller than α <0.05, namely 0.001, with df1 = 1 and df2 = 216 obtained F table value = 3.89, meaning that there are differences in the use of learning media google classroom, google meet and learning motivation on student achievement in class X IPS SMA Negeri 3 Mojokerto

3.4.2. FB ratio = 70.161, with a significance value less than α <0.05, namely 0.001, with df1 = 1 and df2 = 216 obtained the value of F table = 3.89, which means that there are differences

in the use of google classroom learning media, google meet and learning motivation towards student achievement in class X IPS SMA Negeri 3 Mojokerto.

3.4.3. The significance value on the interaction between factor A (Learning Media) and factor B (motivation) obtained a calculated F value of 15,881 with a significant level of 0.000, comparison with F table and a significant level of a = 0.05; (15,881> 3.89), so it can be explained that factor A (learning media) and factor B (motivation) have an influence on the use of google classroom learning media, google meet and learning motivation on student achievement in class X IPS SMA Negeri 3 Mojokerto.

Based on the data, it is explained that the hypothesis proposed by Ho is rejected or H1 is accepted. This means that there are significant differences in learning outcomes and interactions between the test results of students who use Google Classroom learning media with Google Meet learning media and those who have high learning motivation and those who have low learning motivation.

3.5. The Use of Google Classroom Learning Media and Google Meet Learning Media

It can be explained that the learning outcomes of students in class X IPS SMA Negeri 3 Mojokerto, at the beginning of learning have the same abilities, where the average learning outcomes are the same. After treatment using Google Classroom media there is a significant difference in learning, namely an increase in student learning in class X IPS SMA Negeri 3 Mojokerto.

4. Conclusion

Learning using Google Classroom learning media provides motivation for students to learn and improve their learning achievement. Furthermore, students who still use Google Meet learning media do not have a significant average difference in their learning achievement, both before learning and after learning. This can be explained that little material can be absorbed in Google Meet learning media, in contrast to Google Classroom learning media, where almost all material can be absorbed by students, because students are directly involved in the problems given, when students learn, do assignments and interpret them. , so that students are more familiar with the material. The average difference between groups with Google Classroom learning media and Google Meet learning media has a significant difference, this is indicated by the t value is greater than t table (5.266> 2.00) and the significance value of the difference between the two lessons is below 0.05.

In addition, the calculation using the 2-way analysis of variance, the FA value (F count for the Google Classroom learning media and Google Meet learning media) is greater than the F table, meaning that there is a difference between the use of Google Classroom learning media, Google Meet and learning motivation. on student achievement in class X IPS SMA Negeri 3 Mojokerto.

The results of this calculation indicate that the proposed hypothesis is acceptable, where there is a difference between the use of Google Classroom learning media, Google Meet and learning motivation towards student achievement in class X IPS SMA Negeri 3 Mojokerto between those taught using Google Classroom learning media and those taught using Google Meet learning media. There are differences in physics learning outcomes for student of class X IPS in SMA Negeri 3 Mojokerto, students who have high learning motivation and those who have low learning motivation. Fundamentally, the conclusion is that children or students who have high learning motivation have higher learning achievements and make significant progree compared to students who have low motivation.

Application of learning models that significant effect on increasing learning motivation turns out to be become the basic capital for the next response in the form of increased achievement student

learning. However, it should be realized that motivation is a factor complex psyche (Syaiful Islam, at.al 2018). In addition, students' learning motivation in two eyes lessons that are used as a reference, in the class have high motivation very good and very good, it is important for students to get facilities in order to generate motivation to learn to be better (Ari Riswanto, Sri Aryani, 2017).

In the implementation of the learning process learning media and student learning motivation together can have an effect on increasing student achievement/learning outcomes, thus in the learning process it is expected to always pay attention to the right learning media to consider which student characteristics will be used as a reference to be juxtaposed with the media learning. Saveral suggestions emerged, namely for institutions, they should encourage aall teachers to use the Google Classroom learning media as a bridge to facilitate the learning process. In the 21st century in the industrial era 4.0 then For principal to encourage teacher to immediately change their teaching style which is always using conventional learning media followed by powerpoint displays using online-based learning media.

References

[1] Afrilianto, M. "Peningkatan Pemahaman Konsep Dan Kompetensi Strategis Matematis Siswa Smp Dengan Pendekatan Metaphorical Thinking." Ilmiah Program Studi Matematika STKIP Siliwangi Bandung, no. 2 (2012).

[2] Anas Sudijono, "*Pengantar Statistika Pendidikan"* (Jakarta: Raja Grafindo Persada, 2011).

[3] Anderson, W. L., & Krathwohl, D. R. (2010). Pembelajaran, pengajaran, dan asesmen. Yogyakarta: Pustaka Pelajar

[4] Angga Murizal, Yarman, Yerizon. *"Pemahaman Konsep Matematis Dan Model Pembelajaran."* Pendidikan Matematika1, no. 1 (2012).

[5] Anwar, Chairul. "Buku Terlengkap Teori-Teori Pendidikan Klasik Hingga Kontemporer." Yogyakarta: IRCiSoD, 2017.

[6] Basuki, I., & Haryanto, M. S. (2016). "*Asesmen pembelajaran"*. Bandung: PT. Remaja Rosdakarya

[7] Batubara, M. D., Hamdani, Z., & Paderan, M. P. (2021). Google Classroom: A Learning Media In Increasing Students' Motivation. *Indonesian Journal of Learning Education and Counseling*, *3*(2), 164-169.

[8] Dewimarni, Syelfia. "Kemampuan Komunikasi Dan Pemahaman Konsep Aljabar Linier Mahasiswa Universitas Putra INdonesia 'YPTK' Padang." Al-Jabar: Jurnal Pendidikan Matematika8, no. 1 (2017).

[9] Ekaputri, Yanti Nazmai. "Pengaruh Model Pembelajaran Generatif Terhadap Pemahaman Konsep Siswa Kelas VIII MTs Di Kabupaten Pesisir Selatan." STKIPI, no. 1 (2016).

[10] Fahrurrozi, Muh, and Muhip Abdul Majid. "Pengembangkan Model Pembelajaran Blended Learning Berbasis Edmodo Dalam Membentuk Kemandirian Belajar Siswa Pada Mata Pelajaran Ekonomi Kelas XI IPS SMAN 1 Selong Tahun Pelajaran 2017/2018." JPEK1, no. Juli (2018)

[11] Farida. "Pengaruh Strategi Pembelajaran Heuristic Vee Terhadap Kemampuan Pemahaman Konsep Matematis Peserta Didik." Al-Jabar : Jurnal Pendidikan Matematika6, no. 2 (2015).

[12] Fitria, E. (2021). Analisis Pemanfaatan Media Online pada Pembelajaran Daring Fisika terhadap Motivasi Belajar Siswa. *Journal of Innovation in Teaching and Instructional Media*, *2*(1), 43-51.

[13] Fuady, I., Sutarjo, M. A. S., & Ernawati, E. (2021). Analysis of Students' Perceptions of Online Learning Media During the Covid-19 Pandemic (Study of E-learning Media: Zoom, Google Meet, Google Classroom, and LMS). *Randwick International of Social Science Journal*, *2*(1), 51-56.

[14] Ghofur, A. (2018). Using Google Classroom on Inquiry Based Learning to Improve Student's

Learning Participation. *Jurnal Penelitian Pendidikan*, *10*(2), 1503-1509.
[15] Guswara, A. M., & Purwanto, W. (2021). The Contribution of Google Classroom Application and Motivation to The Learning Outcomes of Web Programming. *Journal of Education Technology*, *4*(4), 424-432.
[16] Hakim, abdul barir. "Efektifitas Penggunaan E-Learning Moodle Google ClassroomDan Edmodo." I-Statement2, no. 1 (2016).
[17] Hallal, K., HajjHussein, H., & Tlais, S. (2020). A quick shift from classroom to Google Classroom: SWOT analysis. *Journal of Chemical Education*, *97*(9), 2806-2809.
[18] Harun Rasyid Dan Mansur, Penelitian Hasil Belajar(Bandung: Cv Wacana Prima, 2007).
[19] Hima, Lina Rihatul. "Pengaruh Pembelajaran Bauran (Blended Learning) Terhadap Motivasi Siswa Pada Materi Relasi Dan Fungsi." Ilmiah Pendidikan Matematika2, no. 1 (2016)
[20] Mahardini, M. M. A. (2020). Analisis situasi penggunaan google classroom pada pembelajaran daring fisika. *Jurnal Pendidikan Fisika*, *8*(2), 215-224.
[21] Murtikusuma, R. P., Fatahillah, A., Hussen, S., Prasetyo, R. R., & Alfarisi, M. A. (2019, February). Development of blended learning based on Google Classroom with osing culture theme in mathematics learning. In *Journal of Physics: Conference Series* (Vol. 1165, No. 1, p. 012017). IOP Publishing.
[22] Rahmanto, M. A., & Bunyamin, B. (2020). Efektivitas Media Pembelajaran Daring melalui Google Classroom. *Jurnal Pendidikan Islam*, *11*(2), 119-135.
[23] Rokhman, A. M. & Basuki, I. (2013). "Pengaruh metode pembelajaran (savi dan discovery) dan gaya belajar (audiotory learning dan visual learning) terhadap hasil belajar". Jurnal Mahasiswa Teknologi Pendidikan, 2(1)
[24] Rusmiati, A. (2007). "Pengembangan model pengajaran dengan problem based instruction pada pokok bahasan untuk menumbuhkan keterampilan Proses sains". Universitas Negeri Semarang. semarang.
[25] Sholikh, M. N., Sulisworo, D., & Maruto, G. (2019). Effects of Cooperative blended learning using Google Classroom on critical thinking skills. *Advances in Social Science, Education and Humanities Research*, *349*.
[26] Simanjuntak, B., & Limbong, T. (2018). Using Google form for student worksheet as learning media. *International Journal of Engineering & Technology*, *7*(3.4), 321-324.
[27] Suardana, K. (2012). "Implementasi model belajar mandiri untuk meningkatkan aktivitas, hasil dan kemandirian belajar mahasiswa". Jurnal Pendidikan dan Pengajaran, 45(1).
[28] Sugiyono, P. (2011). "Metode penelitian kuantitatif kualitatif & R & D". Bandung: Alfabeta.
[29] Syah, M. (2014). "*Psikologi pendidikan"*. Bandung: PT. Remaja Rosdakarya
[30] Wahyuningsih, R. (2021). BLENDED LEARNING BERBANTUAN BERBAGAI APLIKASI SOLUSI CERDAS PEMBELAJARAN JARAK JAUH FISIKA DI SMA N 1 KALIBAWANG. *Mekar Berseri Di Masa Pandemi (Kumpulan Best Practices Inovasi Pembelajaran Pada Sekolah Model Di Masa Pandemi Covid 19) SMP, SMA, SMK*, 52.
[31] Wakijo. (2015). "Pengaruh penggunaan model cooperative learning tipe picture and picture terhadap hasil belajar media pembelajaran mahataruna semester iv pendidikan ekonomi tahun akademik 2004/2015". Jurnal Pendidikan Ekonomi UM Metro, 3 (1), 14-23.
[32] Winkel, W. S. (2007). "*Prinsip-prinsip desain pembelajaran".* Jakarta: Media Abadi