Edutec
Journal of Education And Technology
2597-9221 (Online)
Volume 5 Number 1 September 2021

The Effect of Problem-Based Learning Model with Google Meet on Independence and Learning Outcomes

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Article History	Received : June 7th 2021
	Revision : July 19th 2021
	Publication : Sept 30th 2021

Abstract
This research aims to find out the Influence of Problem-Based Learning Models with Google Meet Media on Independence and Learning Outcomes of Students of Grade X State High School 1 Lubuk Pakam. Where the background is based on data from the Ministry of Education and Culture student learning outcomes seen from the achievement of the average National Examination (UN) score from 2015 to 2019 in economic subjects are very low plus due to emergency situations in the covid-19 pandemic, giving rise to the indonesian government's policy of learning from home through online learning patterns. In the current situation when learners learn at home following online learning provided by the teacher's mother while parents are not always present to accompany and monitor the process of student learning activities, then learning independence is needed so that students can follow learning activities and be responsible in completing the learning tasks of each subject. The goals to be achieved in this study include: (1) To know the difference in student learning outcomes taught using a problem-based learning model with google meet media is higher than student learning outcomes taught with a direct learning model, (2) To know the difference in learning outcomes of students who have high independence higher than learning outcomes that have low independence, (3) To know the interaction between problem-based learning models with google meet media and learning independence in influencing student learning outcomes. This research will be conducted in class X of State High School 1 Lubuk Pakam using a treatment by level 2 x2 research design using a two-track anava, a two-track anava with Quantitative Descriptive analysis techniques where a sample of 60 students and using experimental methods.

Keywords; PBL, Google Meet, Learning Independence and Learning Outcomes

INTRODUCTION

Based on data from the Ministry of Education and Culture, student learning outcomes are seen from the achievement of average National Examination (UN) scores from 2015 to 2019 that student learning outcomes in Indonesia are low. Seen from the acquisition of the average score of national examination of economic subjects every year did not reach the number 60. The low economic learning outcomes are due to two factors, namely internal factors and external factors coupled with emergency situations during the covid-19 pandemic, giving rise to the Indonesian government's policy of learning from home through online learning patterns. When learners learn at home following online learning provided by the teacher's mother while parents are not always present to accompany and monitor the process of student learning activities, then learning independence is needed so that students can follow learning activities and are responsible in completing the learning tasks of each subject. Then one solution that can be implemented in students is with video conference. Learning with video conference can replace learning that is usually done face-to-face in the

classroom into virtual face-to-face activities through the help of applications connected to the internet network. One solution to realize learning that facilitates learners in achieving desired learning outcomes without forgetting the development of self-potential is to apply the Problem-Based Learning (PBL) model that is strongly supported by experts in answering the demands of the 21st century. Santyasa (in Sindu et al, 2013: 2) explained that one of the learning environments that is able to accommodate the growth of problem-solving skills for students is problem-based learning. PBM is a learning model based on John Dewey's philosophy, that teachers should encourage students to engage in problem-oriented tasks related to the real world and students should be active in learning activities and applications that provide facilities for face-to-face interaction of educators and learners virtually through video conferences with PCs or laptops and smartphones is Google Meet. Google Meet is one application or software that can be used to stay productive at work even though it is done from home. Reporting from Software Advice, this software is an online video conversation conference application. This is another version of Google Hangouts that is devoted to businesses of all sizes. Google Meet allows users to make video calls with 30 other users per meeting. In other words, Google Meet can be an alternative medium for socializing between teachers and students in online learning.

Google Meet integrates with G Suite, allowing users to join directly from Calendar or email-sent invitations. The application was selected based on the results of previous research conducted by Rustaman (2020: 561) concluded based on the results of his research that the use of Google Meet can overcome the practicum assistance process directly, learners understand well how to use it. Based on the problems that have been raised above, the research objectives to be achieved are as follows (1) To find out the difference in the learning outcomes of students of class X Of State High School 1 Lubuk Pakam which is taught using a problem-based learning model with google meet media is higher than the learning outcomes of students of class X Sma Negeri 1 Lubuk Pakam which is taught with a direct learning model, (2) To find out the difference in learning outcomes of students of class X Of State High School 1 Lubuk Pakam who have higher independence than the learning outcomes of students of class X State High School 1 Lubuk Pakam who have low independence, (3) To know the interaction between problem-based learning models with google meet media and learning independence in influencing the learning outcomes of students of class X State High School 1 Lubuk Pakam.

The free variable in the study was a problem-based learning model with Google Meet media. Students' independence and learning outcomes include bound variables.

METHODS

The research method that I am using is *quasi* experimental research, which is a study that aims to find out the consequences of "something" imposed on "subjects" that are students of grade X of State High School 1 Lubuk Pakam. The study involved two classes of samples used by as many as 60 students who were given different treatments. In the 1st experiment class with the problem-based learning model with Google Meet media, while the 2nd experiment class with the problem langusng (conventional) learning model without using media. The research design is quantitative in the form of Two Group Pretes-Postes Design, the instruments used in this study in the form of tests and questionnaires and data analysis techniques used are descriptive statistical analysis techniques and inferential statistics, where the technique used is a two-track ANAVA technique (factorial design 2 x 2) with a significant level of 5%. Before the two-track ANAVA is performed, the analysis requirements test is first conducted, namely the normality test using the Liliefors test and the homogeneity test using the Fisher test and the Bartlett test.

RESULTS AND DISCUSSIONS

This research aims to find out the learning outcomes of students of Grade X Of State High School 1 Lubuk Pakam taught using a problem-based learning model with Google Meet media is higher than student learning outcomes taught with a direct learning model. Furthermore, to find out the learning outcomes of students of Class X Of State High School 1 Lubuk Pakam who have higher independence than the learning outcomes of students of class X State High School 1 Lubuk Pakam who have low independence. This study uses a 2 x 2 treatment by level research design using two pathways, for research data grouped into 6 groups, namely (1) student learning outcomes taught using problem-based learning models with Google Meet media, (2) student learning outcomes taught using direct learning models without Google Meet media, (3) average high learning independence by using problem-based learning models with media Google Meet, (4) average low learning independence using a problem-based learning model with Google Meet media, (5) average high learning independence using a direct learning model without Google Meet media, and (6) average high learning independence using a direct learning model without Google Meet media. The calculation results for the central size (average, mode, and median) and data spread size (standard deviation) are outlined in table below.

Table1 Data Description

No	Group	Statistics							Range
		N	Max	min	Mode	Median	X	Standard Deviation	
1	A1	30	100	60	70	80	80,06	8,81	40
2	A2	30	89	55	60	67,5	70,5	10,59	34
3	A1B1	15	100	77	85	85	85,8	5,87	23
4	A1B2	15	88	60	70	75	74,33	7,49	28
5	A2B1	15	89	58	60	68	71,66	11,51	31
6	A2B2	15	88	55	65	68	69,86	9,51	33

The summary of the scores for each group can be seen in the table.
next.

Table 2 Summary of Each Group's Score

A. Model Learning B. Learning Independence	Statistics	PBL with Google Media Meet (A1)	Hands-on learning without media (A2)	Sb
Height (B1)	N	15	15	30
	SX	1287	1115	2402
	SX^2	110907	83669	194576
	$\bar{X}$	85,8	74,33333	80,06667
Low (B2)	N	15	15	30
	SX	1075	1048	2123
	SX^2	78897	74488	153385
	$\bar{X}$	71,66667	69,86667	70,76667
Sk	N	30	30	60
	SX	2501	2163	4525
	SX^2	189804	158157	347961
	$\bar{X}$	83,36	72,1	75,41667

The details for each group are presented as follows.

Student Learning Outcomes taught with Problem-Based Learning model with Google Meet Media (PBL) (A1)

Student learning outcomes taught with a problem-based learning model with google meet media without distinguishing learning independence, overall had the 100 highest scores and 60 lowest scores. The theoretical score range is 60-100 with an average score of 80.06 included in the medium category. Mode 70, median 80 and standard deviation 8.81 Frequency distribution of learning score of this group data can be seen in the following table.

Table 3 Frequency Distribution of Student Learning Outcome Scores taught using problem-based learning models with google meet media (PBL) (A1)

Interval	Frequency	Fr (%)
60-66	2	0,066667
67-73	5	0,166667
74-80	9	0,3
81-87	10	0,333333
88-94	3	0,1
95-101	1	0,033333
Sum	30	100%

Student Learning Outcomes taught with Hands-on Learning without Using Google Meet Media (A2)

Student learning outcomes taught with hands-on learning without using Google Meet media as a whole had 89 highest scores and 55 lowest scores. The theoretical score range is 55-89 with an average score of 70.5 included in the medium category. Mode 60, median 67.5 and standard deviation 10.59. The frequency distribution of the results of learning data of this group can be seen in table 4 below.

Table 4 Frequency Distribution of Student Learning Outcome Scores taught using a direct learning model without using google meet (PBL) (A2) media

Interval	Frequency	Fr (%)
55-60	8	0,266667

61-66	5	0,166667
67-72	6	0,2
73-78	4	0,133333
79-84	2	0,066667
85-90	5	0,166667
Sum	30	100%

Average Data Description of High Learning Independence using Google Meet Media-Free Direct Learning Model (A2B1)

The average independence of learning is high using the direct learning model without using Google Meet media, overall having the 89 highest scores and 58 lowest scores. The theoretical score range is 58-89 with an average score of 71.66 included in the medium category. Mode 60, median 68 and standard deviation 11.51. The average frequency distribution of this group data can be seen in the following table 5.

Table 5 Average Frequency Distribution of High Learning Independence using Direct Learning Model Without Using Google Meet Media (A2B1)

ss	Frequency	Fr (%)
58-64	4	0,266667
65-71	5	0,333333
72-78	1	0,066667
79-85	1	0,066667
86-92	4	0,266667
Sum	15	100%

Low Learning Independence Average Data By Using Google Meet Media-Free Live Learning Model (A2B2)

The average low learning independence using the live learning model without using Google Meet media, overall had 88 highest scores and 55 low t-scores. The theoretical score range is 55-88 with an average score of 69.86 included in the medium category. Mode 65, median 68 and standard deviation 9.51. The average frequency distribution of this group data can be seen in the following table 6.

Table 6 Average Frequency Distribution of Low Learning Independence using The Direct Learning Model Without Using Google Meet Media (A2B2)

Interval	Frequency	Fr (%)
55-61	3	0,2
62-68	6	0,4
69-75	2	0,133333
76-82	2	0,133333
83-89	2	0,133333

Instrument Item Analysis

Validity Test

Validity of Instrument

The test of the validity of the learning independence questionnaire instrument was conducted using the Product Coefficient Formula by Pearson. By comparing rhitung values with rtabel. If the rhitung value > rtabel then the data is declared valid. Furthermore, if the rhitung < from the rtabel then the data is declared invalid. Rtabel value with N = 30 at significance level (5%) in statistical rtabel value distribution. Then obtained an rtabel value of 0.361. The results of the calculation of the validity test of the learning independence instrument with 20 question items are as follows:

Table 7 Results of the Learning Independence Instrument Validity Test

Item Question	r_{table}	r_{count}	Category
1	0,361	0,459	Valid
2		0,624	Valid
3		0,577	Valid
4		0,527	Valid
5		0,595	Valid
6		0,517	Valid
7		0,608	Valid
8		0,554	Valid
9		0,509	Valid
10		0,547	Valid
11		0,495	Valid
12		0,473	Valid
13		0,388	Valid
14		0,536	Valid
15		0,415	Valid
16		0,433	Valid
17		0,433	Valid
18		0,629	Valid
19		0,415	Valid
20		0,503	Valid

From the table above it can be known that each question item has a rhitung > of rtabel (0.361) and is positively valued. Thus the entire question point of the instrument is declared valid.

Validity of Multiple Choice Tests

Test the validity of multiple-choice items using the biserial point correlation formula. By comparing rhitung values with rtabel. If the rhitung value > rtabel then the data is declared valid. Furthermore, if the rhitung < from the rtabel then the data is declared invalid. Rtabel value with N = 30 at significance level (5%) in statistical rtabel value distribution. Then obtained an rtabel value of 0.361. The results of the calculation of the validity test of the multiple choice test with 20 question items are as follows.

Table 8 Multiple Choice Test Validity Test Results

Item Question	r_{table}	r_{count}	Category
1	0,361	0,437	Valid
2		0,458	Valid
3		0,452	Valid
4		0,491	Valid
5		0,618	Valid
6		0,442	Valid
7		0,530	Valid
8		0,563	Valid
9		0,425	Valid
10		0,605	Valid
11		0,516	Valid
12		0,435	Valid
13		0,605	Valid
14		0,605	Valid
15		0,451	Valid
16		0,479	Valid
17		0,393	Valid
18		0,413	Valid
19		0,437	Valid
20		0,375	Valid

From the table above it can be known that each question item has a$_{> count}$ of the table r (0.361) and is positive. Thus the question point of the instrument is declared valid.

Reliability Test

Reliability testing is conducted on statement items that fall into the valid category. Reliability testing is done by testing the instrument once. Reliability tests for learning independence questionnaires are analyzed using Cronbach's Alpha formula, then to determine the degree of reliability used by benchmarks made by J.P. Guilford (in Suherman, 2003: 13). Furthermore, for the test of student learning results analyzed using the kuder-richardson formula (K-R) 20, then the value r_{11} obtained compared to the criteria for interpretation of the correlation coefficient Sugiono (2016: 231). The terms of interpretation of the magnitude of the test reliability coefficient are as follows.

- If r11 > of 0.70 then the data is reliable.
- If r11 < of 0.70 then the data is not reliable.

The results of the reliability test for learning independence and learning outcome tests can be seen in table 9 as follows.

Table 9 Reliability Test Results study independence and multiple choice tests

Variable	Formula	Value Reliability	Information
Independence Learn	Alpha Cronbach	0,83	High Reliability
Test Results	KR 20	0,82	High Reliability
Learn			

From the description of the table above it can be known that each variable has a reliability value of > 0.70. Thus the instrument of learning independence and the test of student learning outcomes can be said to be reliable.

Differentiating Power

The problem points on the test instrument can be said to be good if the test items have the least differentiating power is 1. This shows that the details of the problem have at least enough differentiating power. The differentiating power of the test question developed is obtained from data on student work results on field trials. Here are the results of the analysis of the differentiating power of student learning test instruments on basic economic concept materials amounting to 20 questions.

Table 10 Differentiating Power of Student Learning Outcome Test

Problem Item	**Differentiating Power**	**Information**
1	0,53	Good
2	0,46	Good
3	0,33	Enough
4	0,53	Good
5	0,46	Good
6	0,33	Enough
7	0,26	Enough
8	0,46	Good
9	0,73	Excellent
10	0,33	Enough
11	0,33	Enough
12	0,46	Good
13	0,46	Good
14	0,73	Excellent
15	0,46	Good
16	0,33	Enough
17	0,73	Excellent
18	0,46	Good
19	0,33	Enough
20	0,45	Good

Based on the results of the analysis conducted on 20 points of the multiple choice question, it can be known that as many as 3 points of questions include very good categories, 10 points of problems including good categories, 7 points of questions including sufficient categories. The distribution of problems based on differentiating power categories can be seen in the following table.

Table 11 Distribution of Question Items By Differentiating Power

Classification	**Problem Number**	**Sum**	**Percentage**
Excellent	9, 14 and 17	3	15%
Good	1, 2, 4, 5, 8, 12, 13, 15, 18 and 20	10	50%
Enough	3, 6, 7, 10, 11, 16 and 19	7	35%
Sum	-	20	100%

Difficulty Level

The details of the test question can be done well if the test items have a difficulty level at intervals of 0.16-0.85, this shows that the details of the problem are not too difficult and not too easy. The difficulty level of the test developed is also obtained from data on student work results on field trials. Analyze the difficulty level of each problem item in the appendix. Here are the results of the difficulty level analysis on the student learning results test.

Table 12 Difficulty Level of Student Learning Outcomes Test

Item Question	Level Difficulty	Category
1	0,6	Keep
2	0,36	Keep
3	0,46	Keep
4	0,53	Keep
5	0,76	Easy
6	0,46	Keep
7	0,66	Keep
8	0,36	Keep
9	0,2	Difficult
10	0,53	Keep
11	0,73	Easy
12	0,53	Keep
13	0,56	Keep
14	0,23	Difficult
15	0,46	Keep
16	0,43	Keep
17	0,6	Keep
18	0,16	Keep
19	0,33	Keep
20	0,83	Easy

Based on an analysis of 20 points of the multiple choice question, it can be known that as many as 3 points of questions include simple categories, 15 questions include moderate categories, and 2 points of problems including difficult categories. The distribution of problems based on the classification of problem-level can be seen in the following table:

Table 13 Distribution of Problem Items Based on Difficulty Level

Classification	Problem Number	Sum	Percentage
Difficult	9 and 14	2	10%
Keep	1, 2, 3, 4, 6, 7, 8, 10, 12, 13, 15, 16, 17, 18 and 19	15	75%
Easy	5, 11 and 20	3	15%
Sum	-	20	100%

Analysis Requirements Testing

The analysis requirement used in this study is the Two-Lane Variance Analysis (Anava) with Interaction. Then continued with the test of the difference in the average value of the two groups. Analysis with Anava technique requires several requirements regarding the

data to be analyzed. That requirement includes the randomness of the study sample data, data coming from the normal distributed study population, and research data from treatment groups coming from homogeneous study populations. As a way of fulfilling the requirement that the sample data comes from a normal distributed population, it needs to be done through testing the normality of research data using *lilliefors*testtechniques. The fulfillment of the population variancerequirements for the entire treatment group is carried out using the*Bartlett-test*technique.

Normality Test

Normality tests were conducted on students' study outcome scores for each treatment group. There are six data groups tested for normality, namely:

1. Student learning outcome data taught using a problem-based learning model with Google Meet (A1) media,
2. Student learning outcome data taught using a direct learning model without Google Meet (A2) media,
3. Data on average high learning independence using a problem-based learning model with Google Meet (A1B1) media,
4. Data on average low learning independence using a problem-based learning model with Google Meet (A1B2) media
5. Data on average high learning independence using a direct learning model without Google Meet (A2B1) media, and
6. Data on average learning independence is high using the direct learning model without Google Meet (A2B2) media.

Normality testing is performed using the Lilifors test at the significance level of α = 0.05 with criteria: if the value $L_{calculates}$ (L_o)< from the$_{table}$ L (L_t)then the data isnormally distributed. The results of the calculation are presented in the following table.

Table 14 Summary of Normality Test Results of Student Learning Outcomes Data

No	Data Group	N	L_o	L_t (α = 0.05)	Conclusion
1	Group A1	30	0,106	0,161	Normal
2	Group A2	30	0,153	0,161	Normal
3	Group A1B1	15	0,134	0,220	Normal
4	Group A1B2	15	0,141	0,220	Normal
5	Group A2B1	15	0,191	0,220	Normal
6	Group A2B2	15	0,177	0,220	Normal

Based on the table above, it is seen that the Lilifors value of the calculation L_o for all data groups is smaller than the value L_t. This suggests that this sample group of studies came from a normal distributed population, so normality requirements were met. Normality testing is performed using the Lilifors test at the significance level of α = 0.05 with criteria: if the value $L_{calculates}$ (L_o)< from the$_{table}$ L (L_t)then the data isnormally distributed. The results of the calculation are presented in the following table.

Table 15 Summary of Normality Test Results of Student Learning Outcomes Data

No	Data Group	N	L_o	Lt (a = 0,05)	Conclusion
1	Group A1	30	0,106	0,161	Normal
2	Group A2	30	0,153	0,161	Normal

3	Group A1B1	15	0,134	0,220	Normal
4	Group A1B2	15	0,141	0,220	Normal
5	Group A2B1	15	0,191	0,220	Normal
6	Group A2B2	15	0,177	0,220	Normal

Based on the table above, it is seen that the Lilifors value of Lo calculations for all data groups is smaller with lt values. This indicates that this sample group of studies comes from normal distributed populations, so normality requirements are met.

Homogeneity Test

Homogeneity tests were conducted on treatment data between learning models and student learning independence (A1B1, A1B2, A2B1, A2B2). Homogeneity testing uses the Barlett test at the significance level of α = 0.05: where $_{dk(n-1)}$ ^{2} counts smaller than ^{2} table then the variance of all groups is homogeneous. From the *chiquametric distribution* table with dk (degree of freedom) 3 and real level α = 0.05 obtained ^{2} table = 7.81. The prices required for the Bartlett test can be seen in the following table.

Table 16 List of Results of Variance Homogeneity Test

Sample	dk= (n-1)	Varian (S2)	min S2	Log S2	dk Log s2
1 (A1B1)	14	34,45714286	482,4	2,683407	37,567702
2 (A1B2)	14	56,23809524	787,3333	2,896159	40,546221
3 (A2B1)	14	132,5238095	1855,333	3,268422	45,757907
4 (A2B2)	14	90,55238095	1267,733	3,103028	43,442391
Sum	56				167,31422

The combined variance of the four groups is as follows:

$$S^2 = \frac{\sum(ni-1)S^2}{\sum(ni-1}$$

$$= \frac{14(482,4)+14(787,3)+14(1855,3)+14(1267,7)}{14+14+14+14}$$

$$= \frac{61499,2 = 1098,2}{56}$$

So Log S^2= Log (1098.2) = 3.0406 and

B = (3,0406) (56) = 170,2781

X^2 = (2.3026) (170,2781-167,3142) = 6,82

Based on the results of the combined variance calculation of the four groups above, obtained^{c2} = 6.82 smaller than c^2 = 7.81. Thus, the variance for all groups is homogeneous, so the requirements of homogeneity are met.

Based on the results of the test of the analysis requirements, namely the normality test and the homogeneity test, it can be concluded that the requirements required for variance analysis are met so that it is worth further analysis to see the difference in the influence of learning models and learning independence on student learning outcomes. Analysis of differences in research includes:

1. The difference in learning outcomes of students of class X Of State High School 1 Lubuk Pakam taught using a problem-based learning model with google meet media is higher than the learning outcomes of students of class X Of State High School 1 Lubuk Pakam taught with a direct learning model.
2. 2.Differences in the learning outcomes of students of class X Of State High School 1 Lubuk Pakam who have higher independence than the learning outcomes of students of Class X State High School 1 Lubuk Pakam who have low independence.

3. The influence of interaction between problem-based learning models with google meet media and learning independence in influencing the learning outcomes of students of class X Of State High School 1 Lubuk Pakam.

Hypothesis Testing

Hypothesis testing is conducted in the analysis of two-track variance with interaction (ANAVA 2 x 2) first with the aim of knowing the difference in the effect of problem-based learning model treatment and direct learning model on student independence and learning outcomes. In addition, hypothesis testing is done to find out whether or not there is an interaction between its free variables. The result of the ANAVA calculation at the level of significance of the α = 0.05, following the summary of the calculation.

Table 17 Summary of Analsis Varians (ANAVA) Two Paths

SOURCE Variations	Db	JK	RJK=JK/db	Fh=RK/RKD	Ft
Between Columns (k)	1	347961	347961	4435,8532	4,01
Between Lines (b)	1	1297,35	1297,35	16,538791	4,01
Interaction (kxb)	1	4743,217	350,416667	4,4671584	4,01
Deep	56	4392,8	78,4428571	-	-
Total	59	358394,4	-	-	-

Based on the results of calculations of the analysis of the two paths variance, it can be concluded as follows.

The First Hypothesis

There are differences in student learning outcomes between students who are taught using a problem-based learning model with google meet media and a direct learning model without google meet media. This hypothesis is statistically formulated as follows.

H_0 : μA1 < μA2 H_1 : μA1 > μA2

Information:

μA1: average student learning outcomes taught using the model problem-based learning with google meet media

μA2: average student learning outcomes taught using the model live learning without google meet media

Based on anava calculation two paths obtained $F_{calculated}$ for the learning model (in columns) of 4435.85, while F_{table} with db numerator 1 and db denominator 56 at the level of α = 0.05 is known at 4.01. Because $F_{calculates}$ > $F_{tables,}$the H_0 hypothesis is rejected and H1 is accepted which indicates that student learning outcomes are taught using a problem-based learning model with google meet media higher than students who are taught using a direct learning model without google meet media.

Second Hypothesis

There are differences in the learning outcomes of students who have high learning independence and students who have low learning independence. This hypothesis is statistically formulated as follows.

H_0 : μB1 < μB2 H_1 : μB1 > μB2

Information:

μB1: average learning outcomes of students who have high learning independence

μB2: average learning outcomes of students who have low learning independence

Based on anava calculation two paths obtained $F_{calculated}$ for learning independence (in rows) of 16.53, while F_{table} with db numerator 1 and db denominator 56 at the level of α = 0.05 is known at 4.01. Because $F_{calculates}$ > $F_{tables,}$then hypothesis H_0 is rejected and H1 is accepted which indicates that the learning outcomes of students who have high learning independence are different from the learning outcomes of students who have low learning independence.

Third Hypothesis

There is an influence of interaction between learning models and learning independence on students' learning outcomes. This hypothesis is statistically formulated as follows.

H_0 : INT. A x B = 0 H_1 : INT. A x B ≠ 0

Information:

H_0: There is no interaction between learning models and learning independence against student learning outcomes

H_1: There is an interaction between the learning model and the independence of learning towards

Student learning outcomes

Based on the results of anAVA calculations it can be seen that Fhitung for interaction factor 4.46 greater than Ftabel which is 4.01 at the level of significance of α = 0.05. Because Fhitung > Ftabel, the H0 hypothesis was rejected and H1 accepted. This suggests that there is an interaction between the use of learning models and the independence of learning on students' learning outcomes. Because there are significant differences between the column (Learning Model) and interbaris (Learning Independence), to find out which among the average student learning outcomes($\bar{X}2$, $\bar{X}2$, $\bar{X}3$ and $\bar{X}4$) is significantly higher, further testing is needed using the Tukey Test. Therefore, here will be presented in detail the results of the Tukey advanced test, so that with this step can be known or obtained significantly whether the difference in learning model and learning independence really affects the learning outcome of students.

Tukey Test

Difference between Student Learning Outcomes taught using problem-based learning models with direct learning models (A1: A2)

The results of the first hypothesis test for the Tukey test, obtained the value Qh = 4.15 and the value Qt = 3.84 for the real level a = 0.05 with N = 30 and the degree of free = 4. When compared, it is obtained that the value of Qh > Qt at the real level a = 0.05 with N = 30. Thus it can be stated that there is a significant difference between student learning outcomes taught with problem-based learning models with google meet media and student learning outcomes taught with direct learning models without google meet media. The average score of student learning outcomes taught with a problem-based learning model with google meet media was higher compared to student learning outcomes taught with the direct learning model without google meet media, which was 81.9 > 72.1. Thus, in the economic learning of students of grade X of State High School 1 Lubuk Pakam, the use of a problem-based learning model with google meet media is better than the direct learning model without google meet media.

Difference between Learning Outcomes Of Students Who Have High and Low Learning Independence (B1: B2)

The second hypothesis test result for the Tukey test, obtained the value Qh = 3.94 and the value Qt = 3.84 for the real level a = 0.05 with N = 30 and the degree of free = 4. When compared, it is obtained that the value of Qh < Qt at the real level a = 0.05 with N = 30. Thus it can be stated that there is a significant difference between the learning outcomes of students who have high learning independence and the learning outcomes of students who have low learning independence. The average learning outcome score of students who had high learning independence was higher than the average score of students who had low learning independence, which was 80.06 > 70.76. Thus, in the economic learning of students of class X Of State High School 1 Lubuk Pakam, students who have high learning independence, must be different learning outcomes with students who have low learning independence.

Difference in Student Learning Outcomes (A1B1: A1B2)

The third hypothesis test result for the Tukey test, obtained the value Qh = 4.24 and the value Qt = 4.07 for the real level a = 0.05 with N = 15 and the free degree = 4. When compared, it is obtained that the value of Qh < Qt at the real level a = 0.05 with N = 15. Thus it can be stated that there is no significant difference between the learning outcomes of students who have high learning independence and the learning outcomes of students who have low learning independence taught with a problem-based learning model. That is, the problem-based learning model with google meet media affects student learning outcomes from students who have high learning independence with students who have low learning independence. The average learning outcome score of students who have high learning independence taught with a problem-based learning model with google meet media is higher with the average learning outcome score of students who have low learning independence, which is 85.8 > 71.66.

Difference in Student Learning Outcomes (A1B1: A2B1)

The fourth hypothesis test result for the Tukey test, obtained the value Qh = 4.44 and the value Qt = 4.07 for the real level a = 0.05 with N = 15 and the degree of free = 4. When compared, it is obtained that the value of Qh > Qt at the real level a = 0.05 with N = 15. Thus it can be stated that there is a significant difference between the learning outcomes of students who have high learning independence who are taught with a problem-based learning model with google meet media and student learning outcomes who have high learning independence taught with a direct learning model without google meet media. The average score of learning outcomes of students who have high learning independence taught with a problem-based learning model with google meet media results are higher when compared to the group of students who have high learning independence taught with a direct learning model without google meet media. It was 85.8 > 74.33.

Difference in Student Learning Outcomes (A1B1: A2B2)

The fifth hypothesis test result for the Tukey test, obtained the value Qh = 4.78 and the value Qt = 4.07 for the real level a = 0.05 with N = 15 and the degree of free = 4.When compared, it is obtained that the value of Qh > Qt at the real level a = 0.05 with N = 15. Thus it can be stated that there is a significant difference between the learning outcomes of students who have high learning independence taught with a problem-based learning model with google meet media and the learning outcomes of students who have low learning independence taught with a direct learning model without google meet media. The average learning outcome score of students who had high learning independence taught with a problem-based learning model with google meet media, the results were higher when

compared to the group of students who had low learning independence who were taught with the direct learning model without google meet media, which is 85.8 > 69.86.

Difference in Student Learning Outcomes (A1B2: A2B1)

The sixth hypothesis test result for the Tukey test, obtained the value Qh = - 0.80 and the value Qt = 4.07 for the real level a = 0.05 with N = 15 and the degree of free = 4. When compared, it is obtained that the value of Qh < Qt at the real level a = 0.05 with N = 15. Thus it can be stated that there is no significant difference between the learning outcomes of students who have low learning independence who are taught with a problem-based learning model with googe meet media with students who have high learning independence taught with a direct learning model without google meet media. The average score of learning outcomes of students who had low learning independence taught with a problem-based learning model with google meet media resulted lower when compared to the group of students who had high learning independence who were taught with the direct learning model without google meet media, which is 74.33 < 71.66.

Difference in Student Learning Outcomes (A1B2: A2B2)

The seventh hypothesis test result for the Tukey test, obtained the value Qh = 0.54 and the value Qt = 4.07 for the real level a = 0.05 with N = 15 and the degree of free = 4. When compared, it is obtained that the value of Qh < Qt at the real level a = 0.05 with N = 15. Thus it can be stated that there is no significant difference between the learning outcomes of students who have low learning independence who are taught with a problem-based learning model with google meet media with students who have low learning independence taught with a direct learning model without google meet media. The average score of learning outcomes of students who had low learning independence taught with a problem-based learning model with google meet media resulted lower when compared to the group of students who had low learning independence taught with the direct learning model without google meet media, which was 71.66 < 69.86.

Difference in Student Learning Outcomes (A2B1: A2B2)

The results of the eighth hypothesis test for the Tukey test, obtained the value Qh = - 1.34 and the value Qt = 4.07 for the real level a = 0.05 with N = 15 and the degree of free = 4. When compared, it is obtained that the value of Qh < Qt at the real level a = 0.05 with N = 15. Thus it can be stated that there is no significant difference between the learning outcomes of students who have high learning independence and students who have low learning independence who are taught with a direct learning model without google meet media. The average score of students who have high martial independence is lower when compared to the average score of students who have low independence taught with a direct learning model without google meet media, which is 74.33 < 69.86.

CONCLUSION

Based on the analysis of data that has been done with the calculation of TWO-track ANAVA, Fhitung obtained for problem-based learning models with google meet media and direct learning models without google meet media of 4435.85, while Ftabel with db numerator 1 and db denominator 56 at the level of α = 0.05 is known to be 0.05. 4.01. Tukey test results, obtained value Qh = 4.15 and value Qt = 3.84 for real level a = 0.05 with N = 30 and degree free = 4. When compared, it is obtained that the value of Qh > Qt at the real level a = 0.05 with N = 30. The average score of student learning outcomes taught with a problem-based learning model with google meet media was higher compared to student learning outcomes taught with the direct learning model without google meet media, which was 81.9 > 72.1. Thus, in the economic learning of students of grade X of State High School 1 Lubuk

Pakam, the use of a problem-based learning model with google meet media is better than the direct learning model without google meet media, (2) Based on an ANAVA calculation two pathways obtained Fhitung for learning independence (in line) of 16.53, while Ftabel with db numerator 1 and db denominator 56 at the level of α = 0.05 is known at 4.01. The second hypothesis test result for the Tukey test, obtained the value Qh = 3.94 and the value Qt = 3.84 for the real level a = 0.05 with N = 30 and the degree of free = 4. When compared, it is obtained that the value of Qh < Qt at the real level a = 0.05 with N = 30. The average learning outcome score of students who had high learning independence was higher than the average score of students who had low learning independence, which was 80.06 > 70.76. Thus, in the economic learning of students of class X Of State High School 1 Lubuk Pakam, students who have high learning independence, must differ their learning outcomes with students who have low learning independence, (3) Based on the results of ANAVA calculations it can be seen that Fhitung for interaction factor 4.46 greater than Ftabel which is 4.01 at the level of significance of α = 0.05. Because Fhitung > Ftabel, the H0 hypothesis was rejected and H1 accepted. This suggests that there is an interaction between the use of learning models and the independence of learning on students' learning outcomes.

ACKNOWLEDGMENT

First of all I thank God Almighty and I also say a lot of Thanks To Father, Mama, Brother, Brother, Sister who is always Motivating as well as for Brother Ummi and my friends who I can not mention one by one his name is petrified in my thesis proposal work.

REFERENCES

Abdurrahman, Mulyono. (2003). *Pendidikan Bagi Anak Berkesulitan Belajar*. Jakarta: Rineka Cipta.

Ali, Mohammad dan Mohammad Asrori. (2009). *Psikologi Remaja Perkembangan Peserta Didik*,. Jakarta: Bumi Aksara.

Alma, Bukhari. (2005). *Pemasaran Stratejik Jasa Pendidikan.* Bandung: ALFABETA.

Amir, M. Taufiq. (2009). *Inovasi Pendidikan Melalui Problem Based learning.* Jakarta: Kencana Prenada Media Group.

Arikunto, S. (2010). *Prosedur Penelitian Suatu Pendekatan Praktik. Edisi Revisi* 2010. Jakarta: PT. Rineka Cipta.

Ara Hidayat & Imam Machali. (2012)*Pengelolaam Pendidikan: Konsep, Prinsip,* dan *Aplikasi Dalam Mengelola Sekolah dan Madrasah.* Yogyakarta: Kaukaba.

Arends, R.I., & Kilcher, A. (2001). *Teaching for student learning*. New York: Routledge.

Asiyah, N. (2013). Pola Asuh Demokratis, Kepercayaan Diri dan Kemandirian Mahasiswa Baru. *Persona:Jurnal Psikologi Indonesia*, *2*(2), 108–121.

Basri, Hasan. (2000). *Remaja Berkualitas (Problematika Remaja dan Solusinya).* Yogyakarta: Pustaka Pelajar.

Dimyati dan Mudjiono. (2006). *Belajar dan Pembelajaran*. Bandung: Alfabeta.

Eggen Khauchak. (2012). *Strategi dan Model pembelajaran*. Jakarta: PT Indeks.

Hamalik, Oemar. (2007). *Proses Belajar Mengajar Jakarta*: Bumi Aksara.

Jamil & Suprihatiningrum. (2013). *Strategi Pembelajaran Teori & Aplikasi*. Jogjakarta: Ar-Ruzz Media.

Mulyasa. (2015).*Guru dalam Implementasi Kurikulum 2013.* Bandung: Remaja Rosdakarya.

Nata, Abuddin. (2009). *Perspektif Islam Tentang Strategi Pembelajaran*. Jakarta: Kencana Prenada Media Group

Nelfiyanti & Didi Sunardi. (2017). Penerapan Metode *Problem Based Learning* dalam Pelajaran Al-Islam II dI Fakultas Teknik Universitas Muhammadiyah Jakarta. *Spektrum Industri*, 2017, Vol. 15, No. 1, 1–119 ISSN: 1963-6590 (Print) ISSN : 2442-2630 (Online).

Paul. Eggen, Don. Kauchak. (2012). *Strategi dan Model Pembelajaran*. Jakarta Barat: Indeks.

Purwanto.*(* 2010)*. Evaluasi Hasil Belajar.* Yogyakarta: Pustaka Pelajar.

Rahmadani. (2019). Metode Penerapan Model Pembelajaran *Problem Based Learning* (PBL). *Lantanida Journal*, Vol. 7 No. 1 (2019) 1-100.

Rusman. (2013). *Model-model Pembelajaran.* Jakarta: Rajawali Pers.

Riyanto, Yatim. (2012). *Paradigma Baru Pembelajaran.* Jakarta: Kencana Prenada.

Rohman, Arif. (2009). *Memahami Pendidikan dan Ilmu Pendidikan*. Yogjakarta: Laks Bang Mediatama.

Sanjana, Wina. (2011). *Pembelajaran dalam Implementasi Kurikulum Berbasis Kompetensi*. Jakarta: Kencana.

Sanjaya, Wina. (2006). *Strategi Pembelajaran Berorientasi Standar Proses Pendidikan.* Jakarta: Kencana Prenada Media Group.

Sevilla. (1993). *Pengantar Metode Penelitian.* Jakarta: UI-PRESS.

Sidik, Moch Ilham & Hendri Winata. (2016). Meningkatkanhasil belajar siswa melalui penerapan model pembelajaran direct instruction*. Jurnal Pendidikan Manajemen Perkantoran* Vol. 1 No. 1, Agustus 2016, Hal. 49- 60.

Sudjana, Nana. (2009). Penilain *Hasil Proses Belajar Mengajar*, Bandung: Remaja Rosdakarya.

Sugiyono. (2013). *Metode Penelitian Pendidikan Pendekatan Kuantitatif, Kualitatif, dan R&D*. Bandung: Alfabeta.

Sopiatin, Popi. (2010). Manajemen Belajar Berbasis Kepusan Siswa. Bogor: Ghalia Indonesia.

Slameto. (2010). Belajar dan faktor-faktor yang Mempengaruhinya. Jakarta: PT. Rineka Cipta.

Syarif,I. (2012). Pengaruh Model Blended Learning terhadap Motivasi dan Prestasi Belajar Siswa SMK. Jurnal Pendidikan Vokasi. vol. 2, no. 2. 2012. Hlm. 234-248.