Uniglobal of Journal Social Sciences and Humanities
Journal Homepage: www.ujssh.com

The Effect of Blended Learning on The Development of Student Learning Behavior and Class V Science Learning Outcomes at Ahmad Yani Bonang Cluster Elementary School During Covid-19 Pandemic

Khoiroh, Ummu[1*], Rismiyanto[2] & Ismaya[3]

[1,2,3]Teacher Training and Education Faculty, Muria Kudus University, Central Java, INDONESIA

*Corresponding Author: ummu.khoiroh002@gmail.com

Received 27 May 2023, Revised 10 June 2023, Accepted 24 June 2023, Available online 26 June 2023

To link to this article: https://doi.org/10.53797/ujssh.v2i1.3.2023

Abstract: The existence of the coronavirus has caused various impacts. One of them is in the field of education. With the coronavirus that has emerged, the learning process that was initially able to be carried out face-to-face must now be carried out remotely. Still, in circumstances like this, teachers must be able to carry out their obligations as teachers or educators, and it affects learning behavior and student learning outcomes.
This study aims to analyze the effect of Blended Learning during the Covid-19 pandemic on the development of student learning behavior. To investigate the impact of blended learning during the Covid-19 pandemic on learning outcomes for the fourth-grade science subjects at the Ahmad Yani Bonang Elementary School.
The approach method used in this research is quantitative, using the research design ex post facto. The population in this research is fourth-grade students at Public Elementary School Gugus Ahmad Yani, totaling 126 students; the sampling technique using the solving formula uses 96 samples. The instrument in this study used a questionnaire. Analysis of the data in this study using a test instrument consisting of content validity (Content Validity) and construct validity. The prerequisite tests consist of normality, linearity, homogeneity, and multicollinearity tests. Hypothesis testing consists of the coefficient of determination test (R2), Partial Effect Test (t), and simultaneous test (F test).
The results of the study are as follows: 1) There is an effect of Blended Learning during the Covid-19 pandemic on the development of student learning behavior at the Ahmad Yani Bonang Elementary School in the 2021/2022 academic year based on the t-count value obtained 8,200 > t-table 1.08693. In addition, sig obtained a significance value of 0.000. This shows that H0 is rejected and Ha is accepted. Because the significance value is smaller than 0.05, namely 0.00 (sig value 0.000 <0.05), from these results, it can be concluded that blended learning has a significant effect on the learning behavior of fourth-grade students at the Ahmad Yani Bonang Cluster Elementary School. The influence of blended learning on student learning behavior is 41.7%, and other factors influence the remaining 58.3%. 2) There is an effect of blended learning during the covid-19 pandemic on the learning outcomes of the fourth-grade science subject at the Ahmad Yani Bonang Elementary School in the 2021/2022 academic year based on the t-count value obtained 7.170 > t-table 1.08693 and the significance value is less than 0 .05 which is 0.00 (sig value 0.000 < 0.05). From these results, it can be concluded that there is a significant effect of blended learning on the learning outcomes of fourth-grade students at the Ahmad Yani Cluster Elementary School, Bonang. Based on the r-square value or correlation index of 0.354, the learning variable affects student learning behavior by 35.4%, and other factors influence the remaining 64.6%.

Keywords: Blended learning, covid-19, learning behavior development, learning outcomes

1. Introduction

The Corona Virus Disease 2019 (Covid-19) outbreak, which has hit 215 countries, presents challenges for educational institutions, especially elementary schools (Pratama et al., 2020). Through the Ministry of Education and Culture, the

*Corresponding author: ummu.khoiroh002@gmail.com

Government has prohibited educational institutions from carrying out face-to-face (conventional) learning and ordered to hold online learning or Online (Circular Letter of the Ministry of Education and Culture of Higher Education No. 1 of 2020).

The existence of the coronavirus has resulted in various impacts. One of them is in the field of education. With the coronavirus emerging, the learning process that could initially be carried out face-to-face must now be done remotely (Subramaniam et al., 2020). Still, in the circumstances like this, teachers must be able to carry out their obligations as teachers or educators, and it also affects learning behavior and student learning outcomes.

1.1 Conceptual Framework

The Blended Learning method is a method that uses two approaches at once. So, even though students and teachers are learning remotely, they can still interact with each other. Panambaian (2020) explained that increasing interaction between teachers and students is no less critical in the Blended Learning program.

Through Blended Learning, students are required to be more active. With involvement and participation in the learning process, Blended Learning can increase the sense of responsibility of learners. In addition, the interaction in the Blended Learning model motivates students to compete in learning. Several research results show that the Blended Learning model has a positive influence on learning, starting from the teaching and learning process (Baragash & Al-Samarraie, 2018; Ekawati et al., 2017), learning behavior, and learners' attitudes (Alsalhi et al., 2019; Utami, 2018; Luo et al., 2017). In addition, this learning model is very suitable when used as a learning model in the 21st century and future eras (Singh, 2021; Dakhi et al., 2020; Abdullah, 2018).

Behavior is one factor that affects the learning process and significantly affects the learning outcomes that students will obtain (Abbas et al., 2019). Each student has different characteristics, as well as the attitude tendencies he has. Good learning behavior will affect good learning outcomes and vice versa. Bad learning behavior will form a lousy personality for students (Noor et al., 2022).

Based on Panigrahi et al. (2018) that online learning can improve student learning outcomes. Yusuf (2021) also explained in the conclusion of his research that the Blended Learning model could improve student learning outcomes, as well as (Munir, 2020) and that the Blended Learning model during a pandemic can affect student behavior. Based on several previous research studies that the Blended Learning model can improve student learning outcomes.

By seeing the differences in learning behavior and student learning outcomes in Blended Learning during the Covid-19 pandemic, researchers finally felt the need to examine more deeply this problem to be researched. So finally, the author is interested in raising the title "The Influence of Blended Learning on the Development of Learning Behavior and Learning Outcomes of Class V.

1.2 Research Objectives

The research objectives taken based on the above problem formulation are as follows:

a. Analyzing the influence of Blended Learning during the Covid-19 pandemic on the development of student learning behavior in Ahmad Yani Bonang Cluster Elementary School.
b. Analyzing the effect of Blended Learning during the Covid-19 pandemic on the learning outcomes of grade V science maple at Ahmad Yani Bonang Cluster Elementary School.

2. Methodology

The design of this study is ex post facto. Simon & Goes (2013) states that ex-post facto research is research where independent variables have occurred when researchers start with observations of dependent variables in a study.

The approach used in this study is quantitative. Lerche (2012) quantitative methods can be interpreted as research methods based on the philosophy of positivism, used to examine populations or specific samples.

2.1 Sampling Technique

The sampling technique used in this study is proportional random sampling, which is a sampling technique by paying attention to the proportions in the sample area. To find out the number of samples that will be used by researchers using the Slovin formula (Tejada & Punzalan, 2012; Slovin, 1960), namely:

$$Equals = \frac{N}{1+Ne^2} \qquad (1)$$

Information:
n = sample size
N= population size
e= sample error rate of the population 5%

$$n = \frac{126}{1 + 126\ (0{,}05)^2}$$

$$n = \frac{126}{1 + 126\ (0{,}0025)}$$
$$n = \frac{126}{1 + 0{,}315}$$
$$n = \frac{126}{1{,}315}$$
$$n = 95{,}82\ \approx 96\ (rounded)$$

2.2 Hypothesis Testing

2.2.1 Test Coefficient of Determination (R^2)

According to Quinino et al. (2013), Test R^2 essentially measures how far the model can explain the variation of the dependent variable. The value of the coefficient of determination is between zero and one. If R2 approaches one, then the model is more robust in explaining the variation of the independent variable against the related variable. Moreover, if^{R2} is close to zero, then the independent variable's variation worsens in explaining the related variable.

2.2.2 Partial Effect Test (t)

The partial influence test (t) aims to determine the effect of financial literacy and financial behavior on the financial management of SMEs in Central Java. They are testing through the t-test by comparing the t count (observation) with the t table with a significance level of 5% or $\alpha = 0.05$. If the test results show that t counts > t table, then H0 is rejected. The independent variable may describe the dependent variable, or a significant influence exists between the two variables tested. or t count < t table, then H_0 is accepted. The independent variable cannot explain the dependent variable, or there is no significant influence between the two variables tested.

2.2.3 Simultaneous Test (Test F)

The F test is used to test the significant degree of influence of the independent variable simultaneously on the dependent variable (Dickhaus, 2014). This F test analysis compares F count with the F table with an alpha confidence level of 5%, determined by F count with F table, i.e., if F count > F table or p-value < a, then H0 is rejected and H1 is accepted. This means that the independent variable simultaneously influences the dependent variable. Conversely, if F counts < F table or P value > a, H0 is accepted, and H1 is rejected. The result is insignificant, meaning that the independent variable does not influence the dependent variable.

2.3 Population and Sample

The population is the entire subject or object to be used as research. The population in this study was all grade V students in Ahmad Yani Cluster, Bonang District, Demak Regency. The number of class V students in the Ahmad Yani Cluster is 126, with the following details.

a. Public Elementary School No. 1 Gebangarum, class V has 25 students
b. Public Elementary School No. 2 Gebangarum, class V has 18 students
c. Public Elementary School No. 1 Gebang, class V has 18 students
d. Public Elementary School No. 3 Gebang, class V has 22 students
e. Public Elementary School Margolinduk, class V has 24 students
f. Public Elementary School Morodemak, class V has 19 students

The sample in this study was class V Public Elementary School No. 1 Gebangarum, as experimental class 1. Class V Public Elementary School No. 2 Gebangarum, as experimental class 2. While Public Elementary School No. 1 Gebang, as an experimental class 3.

2.4 Data Collection Techniques

This study's data collection methods were observation, documentation, and questionnaire.

2.5 Research Instruments

This research instrument uses questionnaires. The measurement scale used is the Likert scale with a continuous range of 1–5 (one-five). According to the Likert Scale (2011), scoring from the results of respondents' answers can be explained as follows: SS (strongly agree) = 5, S (agree) = 4, N (Neutral) = 3, TS (disagree) = 2, STS (strongly disagree) = 1. This data collection technique uses questionnaires in the form of sentences.

Table 1. Research instrument grille

Variable	Indicator	Question
Blended learning	online learning	1-5
	personalized learning	6-10
	customized learning	11-15
Learning Behavior	Attitude	1-5
	Action	6-10
	Responds	11-15
Learning outcomes	Cognitive realm	1-5
	Affective realm	6-10
	Psychomotor realm	11-15

3. Findings and Discussion

3.1 The Influence of Blended Learning on The Development of Student Learning Behavior in Ahmad Yani Bonang Cluster Elementary School During The COVID-19 Pandemic

The first hypothesis to be tested in this study is that Blended Learning has an effect on student learning behavior in Ahmad Yani Bonang Cluster Elementary School. The test used simple linear regression analysis. Based on the research data obtained using the help of the SPSS program version 24.0, a summary of the results of a simple regression analysis X with Y1 can be seen in the Table 2:

Table 2. Coefficients X-Y1

Coefficients[a]						
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Itself.
1	(Constant)	22.436	4.042		5.551	.000
	Blended Learning	.653	.080	.646	8.200	.000

a. Dependent Variable: Learning Behavior
Sources: Output SPSS

Based on the Table 2, a regression coefficient of 0 is obtained. 653 and *a* constant value of 22,436. Then the form of the regression equation y= 22.436 + 0. 653X1. This means that if Blended Learning increases quality by one point, then learning behavior will increase by 0. 653. Medium t-count value obtained 8.200 > t-table 1.08693. This means that Blended Learning affects student learning behavior in Ahmad Yani Bonang Cluster Elementary School Reinforcing the above statement is then compared with the significant value in the following ANOVA Table 3.

Table 3. ANOVA X-Y1

ANOVA[a]						
Model		Sum of Squares	Df	Mean Square	F	Itself.
1	Regression	4297.988	1	4297.988	67.235	.000[b]
	Residual	6008.970	94	63.925		
	Total	10306.958	95			

a. Dependent Variable: Learning Behavior
b. Predictors: (Constant), Blended Learning

The sig column obtained a value based on the SPSS ANOVA output above. Significance of 0.000. This indicates that H0 is rejected and Ha is accepted. Because the significance value is smaller than 0.05, which is 0.00 (sig value 0.000 < 0.05), these results show a significant influence of Blended Learning on the learning behavior of grade V students in Ahmad Yani Bonang Cluster Elementary School.

The influence of Blended Learning on the learning behavior of grade V students in Ahmad Yani Bonang Cluster Elementary School is explained in the following Table 4.

Table 4. Model summary X-Y1

Model Summary				
Model	R	R Square	Adjusted R Square	Std. The error in the Estimate
1	.646[a]	.417	.411	7.995
a. Predictors: (Constant), Blended Learning				

Sources: Output SPSS

Based on the output above, the *r-square* value or indexes correlation is 0.417, meaning that learning variables affect student learning behavior by 41.7% and other factors influence the remaining 58.3%.

3.2 Effect of Blended Learning on the learning outcomes of Grade V Science at Ahmad Yani Bonang Cluster Elementary School during the Covid-19 Pandemic

The second hypothesis to be tested in this study is that Blended Learning l has an effect on student learning outcomes in grade V science subjects at Ahmad Yani Bonang Cluster Elementary School. The test uses simple linear regression analysis. Based on the research data obtained using the help of the SPSS program version 24.0, a summary of the results of a simple regression analysis X with Y2 can be seen in the Table 5:

Table 5. Coefficients X-Y2

Coefficients[a]						
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Itself.
1	(Constant)	23.803	7.002		3.399	.001
	Blended Learning	.989	.138	.595	7.170	.000

Based on the table above, a regression coefficient of 0 is obtained. 989 and a constant value of 23,803. Then the form of the regression equation y = 23.803 + 0. 989X1. This means that if Blended Learning increases quality by one point, learning outcomes will increase by 0. 989. Medium t-count value obtained 7.170 > t-table 1.08693. This means Blended Learning affects student learning outcomes in class V science subjects at Ahmad Yani Bonang Cluster Elementary School. Strengthening the above statement is then compared with the significance values in the following ANOVA Table 6:

Table 6. ANOVA X-Y2

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Itself.
1	Regression	9864.668	1	9864.668	51.415	.000[b]
	Residual	18035.290	94	191.865		
	Total	27899.958	95			
a. Dependent Variable: Learning Outcomes						
b. Predictors: (Constant), Blended Learning						

Based on the SPSS ANOVA output above, the sig column obtained a significance value of 0.00 0. This indicates that H0 is rejected and Ha is accepted. Because the significance value is smaller than 0.05, which is 0.00 (sig value 0.000 < 0.05), these results show a significant influence of Blended Learning on the learning outcomes of grade V students in Ahmad Yani Bonang Cluster Elementary School. The magnitude of the influence of Blended Learning on the learning outcomes of grade V students in Ahmad Yani Bonang Cluster Elementary School is explained in the following Table 7.

Table 7. Model Summary X-Y2

Model Summary				
Model	R	R Square	Adjusted R Square	Std. The error in the Estimate

1	.595[a]	.354	.347	13.852

Based on the output above, the *r-square* value or indexes correlation is 0. 354, which means that learning variables affect student learning behavior by 35.4% and other factors influence the remaining 64.6%.

4. Conclusion

Based on the discussion in this study, conclusions can be drawn as a result of the following research:
There is an influence of Blended Learning during the COVID-19 pandemic on the development of student learning behavior in Ahmad Yani Bonang Cluster Elementary School for the 2021/2022 academic year based on t-count values obtained 8,200 t-table > 1.08693. In addition, the sig obtained a significance value of 0.00 0. This indicates that H0 is rejected and Ha is accepted. Because the significance value is smaller than 0.05, which is 0.00 (sig value 0.000 < 0.05), these results show a significant influence of blended learning on the learning behavior of grade V students in Ahmad Yani Bonang Cluster Elementary School. The amount of influence given by Blended Learning on student learning behavior is 41.7%, and other factors influence the remaining 58.3%.

There is an influence of Blended Learning during the Covid-19 pandemic on the results of learning grade V science maple at Ahmad Yani Bonang Cluster Elementary School for the 2021/2022 academic year based on the t-count value obtained 7,170 t-table > 1.08693 and a significance value smaller than 0.05, which is 0.00 (sig value 0.000 < 0.05). These results can be concluded that Blended Learning significantly influences the learning outcomes of grade V students in Ahmad Yani Bonang Cluster Elementary School. Based on the r-square value or correlation indexes of 0. 354, learning variables affect student learning behavior by 35.4%, and other factors influence the remaining 64.6%.

Acknowledgement

The authors would like to express their gratitude to the Muria Kudus University for their support in providing both facilities and financial assistance for this research.

Conflict of Interest

The authors declare no conflicts of interest.

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