

**EXPLORING THE USE OF BLENDED PBL IN GEOGRAPHY  
FOR ENHANCING STUDENTS' ANALYTICAL THINKING  
IN THE "NEW NORMAL" CONDITION**

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**ABSTRACT**

*This study aims to explore a PBL model combined with the Edmodo platform on students' analytical thinking skills during a pandemic. This study used a quasi-experimental design with a control and experimental group. Participants in this study were students of class XI at SMAN 1 Suboh Situbondo, each class consisting of 15 students. Data collection was carried out after the application of the PBL model with blended learning assisted by Edmodo platform. Data obtained from the results of the pretest-posttest in control and experimental class with analytical thinking skills questions. Data analysis was carried out on the gainscore of students' analytical thinking skills with the help of SPSS 24 for Windows. The results showed that the gainscore in the experimental class was higher than the control class. Gainscore in the experimental class is 22.66 while in the control class is 14.66, thus there is a difference of 8 points. The results of data analysis in this research indicate the sig value of the independent sample t-test is 0.018 <0.05. This means that there is an effect of the implementation of PBL with the Edmodo platform on students' analytical thinking skills during the new normal condition.*

**Keywords:** *Blended Learning; Problem-Based Learning; Analytical Thinking Ability*

**A. INTRODUCTION**

Indonesia has been hit by the Covid-19 pandemic since March 2, 2020 (Susilo et al., 2020). The Covid-19 pandemic gave a negative impact particularly on the education sector. On March 24, 2020 the Minister of Education and Culture of the Republic of Indonesia issued Circular Letter Number 4 of 2020 concerning Implementation of Education Policies in an Emergency for the Spread of COVID. The circular explained that the learning process during the pandemic period was carried out online or virtual (Mendikbud, 2020). Learning that was originally carried out in schools became online or

virtual. Learning that took place online had many drawbacks. The virtual learning interactions seemed ineffective. Supported by the results of research by Meisandy (2020) which stated that online learning tends to be ineffective due to limited internet access and difficulties in operating learning platforms.

In fact, the virtual learning had many shortcomings itself during the pandemic and the Covid-19 cases increasingly arose. On August 7, 2020, the government issued a new policy related to teaching learning process during the COVID-19 pandemic. The

policy explained that schools located in the yellow and green zones were allowed to carry out limited face-to-face learning by implemented the health protocols. At the high school (SMA) and SMK levels, face-to-face meetings were held with a total student population of 30-50 percent of class capacity (Kemdikbud, 2020). Thus, face-to-face learning was carried out in shifts or alternately every week.

The combination of face-to-face learning with virtual learning was often called as blended learning (Dziuban et al., 2018; Hilliard, 2015). Blended learning would provide new learning experiences and made it easier for students in their achievement. Not only were students faced directly or face-to-face learning process but they were also carried out a digital learning process assisted by an internet platform. Therefore, students have more opportunities to repeat learning material or asked questions about material that was not clear without being limited by time because it could be accessed whenever students needed it. In line with the implementation of limited face-to-face learning conducted in the yellow and green zones during the pandemic, it was hoped that the teaching and learning process could be more effectively done by adapting blended learning.

Edmodo is an internet platform that focuses on its development to support the digital learning process. Edmodo is an educational platform that is easy to operate owing to its similarity to social media Facebook (Oyelere et al., 2016). It has many features that could be used for discussions or sharing information in the form of learning materials, in the form of documents, videos, photos and online articles. Its similarity to social media Facebook will make it easier for students and teachers to operate and utilize the features available on the edmodo platform. Obviously, the students are able to use this platform well, without having any bothers.

Geography learning does not only emphasize on knowledge and understanding, but also the student skills (Bednarz et al., 2013). Geographical skills possessed by students will assist students in applying knowledge, understanding and analyzing a series of information in the analysis of important issues. This is closely related to the ease of access to information or knowledge that can be done by students. In the era of 21st century education, students must be equipped with good reasoning skills towards a phenomenon that is around them, including information presented through various media (Zubaidah, 2019).

A learning model that can associate with learning material in real life or contextual is problem-based learning (Argaw, 2017). Sanjaya (2006) states that the problem-based learning model can be defined as a learning activity that emphasizes the process of solving a problem faced scientifically. (Allen, Deborah E; Donham, Richard S; Bernhardt, 2011) also explained that in problem-based learning students are faced with a problem that exists in the real world as a context for learning to think analytically in solving problems and to obtain essential knowledge and concepts from the subject matter.

In relation with blended learning, analytical thinking in learning is very necessary to obtain and process information appropriately from various sources. Through analytical thinking skills, students are expected to be able to process, assess and retrieve the information needed to face challenges in their environment. Analytical thinking skills can emerge through a series of problem-solving processes which are manifested in the form of problem-based learning (Parta, 2016).

The proficiency to think analytically is a demand in the era of modern education (Perdana & Rosana, 2019). Permendikbud number 69 of 2013

includes a change in learning from passive learning patterns to active-seeking learning. Active-seeking learning means students build understanding based on experience and relate it to new concepts independently. Therefore, active-seeking learning is further strengthened by a scientific approach. This approach focuses more on disclosure and problem-solving based activities.

Online learning during the pandemics has many disadvantages, including limitations of teachers in monitoring learning activities, limited interaction between students during the learning process, the learning process that returns to the teacher center, students are embarrassed to ask questions or express opinions in the learning process (Meisandy, 2020). The number of weaknesses in full online learning has a negative impact on the development of students' analytical thinking skills. The best solution to solve the problems that occur is by changing the learning models and methods that are more appropriate to the pandemic conditions. In line with the ministerial regulation that allows students in the Covid-19 green zone to enter school on a limited basis, it is possible to carry out blended learning.

Based on this description, to see the effectiveness of problem-based

Geography Learning through blended learning in the new normal era, it is necessary to conduct research related to the effect of problem-based geography learning through blended learning at SMAN 1 Suboh Situbondo. This study aims to see the effect of problem-based learning that is packaged in blended learning on students' analytical thinking skills in geography lessons. The effect of this learning can be seen based on the calculation of the mean score of the N-Gain score, if the N-Gain mean of the experimental score is higher than the control, so the learning carried out by PBL Blended learning could be said effective.

## **B. MATERIALS AND METHODS**

This research is a quasi-experimental research inasmuch as the researcher could not control all external variables that affect the experiment (Sugiyono, 2016). The research participants consisted of two homogenous classes and they have similarity in their achievement.

Before being treated, both of the students who belonged to experimental

and control classes were given pre-test in order to determine the students' initial analytical thinking skills. Then, they were given a different treatment based on their classes. In the experimental classes, a problem-based learning was applied by using Edmodo platform through blended learning, while in the control class, the researcher applied 5M method. The research participants of this study were XI IPS 1 and XI IPS 3 of SMA Negeri 1 Suboh. The determination of these two classes were chosen by considering the equal percentage among them and in addition, the number of each class was 15 students.

The instruments of this study were pre-test and post-test questions. The pre-test and post-test questions were in the form of subjective under the consideration the researcher could know the students' analytical thinking skills. Pretest and post-test scores describe the analytical thinking ability of students before and after treatment. Pretest and post-test scores can be calculated using the following equation (Purwanto, 2009).

$$n = \frac{\sum B}{ims} \times n \text{ max}$$

Description:

n = final score

$\sum B$  = correct amount (the students score that can achieve)

Ims = ideal maximum score (100)

N max = maximum score used (100)

Scores obtained based on the above equation are then presented in the frequency distribution following with the qualification of the range of values to

determine the level of analytical thinking skills. Qualification of the range of score, according to Purwanto et all (2012) can be seen in Table 1.

**Table 1.** Criteria for the Implementation of the Analytical Thinking Skill Test

Classification	Score	Qualification
A	85 – 100	Excellent
B	70 – 84	Good
C	55 – 69	Fairly Good
D	50 – 54	Poor
E	0 – 49	Very Poor

Source: adaptation from Arikunto (2006)

After scoring, the next step is processing the data using hypothesis testing. The results of the difference between the pre-test and post-test namely gain score would be used as hypothesis testing. Hypothesis testing was carryout out by using SPSS 24.0 for windows through Independent Samples T-test with a significance level of 0.05.

### C. RESULTS AND DISCUSSION

The student's initial ability was obtained from the results of tests

conducted in the control and experimental classes before receiving treatment. The initial ability test or pre-test aims to determine the extent of students' initial ability in analytical thinking. The following describes the test data for students' initial analytical thinking skills (pre-test) in the control class and the experimental class. Based on the tests conducted in the control class, the students' pre-test scores were obtained which were presented in table 2 below.

**Table 2.** Frequency Distribution of Control Class Students' Early-Stage Analytical Thinking Ability

Classification	Score	Qualification	Frequency	Percentage (%)
A	85 – 100	Excellent	0	0
B	70 – 84	Good	5	33,33
C	55 – 69	Fairly Good	8	53,33
D	50 – 54	Poor	2	13,33
E	0 – 49	Very Poor	0	0
<b>Total</b>			15	100

Based on table 2, it could be seen that 53.33% of students obtained scores of analytical thinking skills in qualifications that were fairly good. Besides, 13.33% of students obtained grades with poor qualifications and 33.33% of students obtained good grades. The average score obtained by students was 63.33. The maximum and minimum scores obtained were 80 and 50.

The pretest results of the control class' analytical thinking ability showed that most students had fairly good analytical thinking skills. This was evidenced by the number of students who had the ability to think analytically in good, fairly good and poor qualifications. The complete pretest score of analytical thinking skills in the experimental class could be seen in table 3.

**Table 3.** Frequency Distribution of Experimental Class Students' Early-Stage Analytical Thinking Ability

Classification	Score	Qualification	Frequency	Percentage (%)
A	85 – 100	Excellent	0	0
B	70 – 84	Good	6	40
C	55 – 69	Fairly Good	5	33,33
D	50 – 54	Poor	4	26,66
E	0 – 49	Very Poor	0	0
<b>Total</b>			15	100

Based on table 3, it could be seen that the largest percentage of students' early-stage analytical thinking skills in the experimental class is 40% with good qualifications. Analytical thinking skills with qualifications were fairly good amounted to 33.33%. Meanwhile, the ability to think analytically with poor qualifications was 26.66%. The average score obtained by students on the initial analytical thinking ability test was 62.33.

The maximum and minimum scores achieved by students were 80 and 50.

After the pre-test, students were given material on the problems of food security in Indonesia. Next, control class would be implemented 5M in the following week. While in the experimental class, the teaching learning process took place through problem-based learning model with blended learning assisted by the Edmodo platform. After that, the pos-

test was given. The final test or post-test aims to measure the final-stage analytical thinking ability after students received treatment of the learning material in both

the experimental class and the control class. The post-test score of students' analytical thinking skills could be seen in table 4.

**Table 4.** Frequency Distribution of Control Class Students' Final-Stage Analytical Thinking Ability

<b>Classification</b>	<b>Score</b>	<b>Qualification</b>	<b>Frequency</b>	<b>Percentage (%)</b>
A	85 – 100	Excellent	3	20
B	70 – 84	Good	12	80
C	55 – 69	Fairly Good	0	0
D	50 – 54	Poor	0	0
E	0 – 49	Very Poor	0	0
<b>Total</b>			15	100

Based on table 4, it could be seen that the final-stage analytical thinking ability of the control class was 80% of students who got good qualifications. Thus, 20% of students scored with excellent qualifications. The average score of students' final-stage analytical thinking

skills in the control class was 78. The maximum and minimum scores achieved by the students were 90 and 70. Meanwhile, the post-test scores of the experimental class analytical thinking ability could be seen in table 5.

**Table 5.** Frequency Distribution of Experimental Class Students' Final-Stage Analytical Thinking Ability

<b>Classification</b>	<b>Score</b>	<b>Qualification</b>	<b>Frequency</b>	<b>Percentage (%)</b>
A	85 – 100	Excellent	3	73,33
B	70 – 84	Good	4	26,66
C	55 – 69	Fairly Good	0	0
D	50 – 54	Poor	0	0
E	0 – 49	Very Poor	0	0
<b>Total</b>			15	100

Based on table 5, it could be seen that the highest percentage of students' scores was 73.33% with excellent qualifications. The scores of students with good qualifications were 26.66% while none of the students scored with fairly good, poor and very poor frequencies. The average score obtained by students was 85 with a maximum score of 90 and a

minimum score of 75. Based on the results of the post-test of the two classes, it could be seen that a significant and maximum enhancement occurred in the experimental class using the blended learning model with a percentage of 73% of students who had highly qualified analytical thinking skills.

Based on the pre-test and post-test scores on the control class analytical thinking ability and experimental class above, it could be seen that there were difference results or scores in each class.

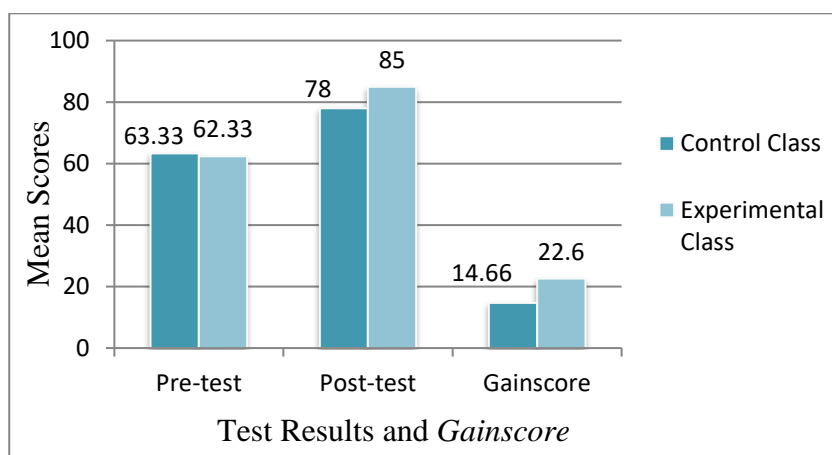
The different score in each class called as the gain score. The gain score of students' proficiencies to solve geography problems could be seen in table 6.

**Table 6.** The Description of Gain Score in Analytical Thinking Ability

Class	The Average of Pre-Test Score	The Average of Post-Test Score	The Average of Gain Score
Control	63,33	78	14,66
Experimental	62,33	85	22,66

Based on table 6 above, it could be seen that the pre-test mean score of the control class was higher than the experimental class, but students' initial analytical thinking ability was relatively similar, and only 1.0 score separated themselves. After being given treatment through the application of different

learning models between the experimental and control classes. The post-test mean score in the experimental class was better than control class. The comparison of the pre-test, post-test, and gain score of students' abilities to solve geography problems could be seen in the following diagram below.



**Figure 1.** Diagram of Average Pre-test, Post-test and Gain Score of Analytical Thinking Ability in the Experimental Class and Control Class

Figure 1 showed that the students' mean analytical thinking ability (gain score) in the experimental class was higher than the control class. The average gain score of the experimental class was 22.66,

while the average gain score for the control class was 14.66, so a difference of 8.00 points was obtained. This showed that there was a difference in the final



results of the treatment given both in the experimental class and the control class.

The prerequisite test in this study was conducted to determine the validity of the data, which consisted of a normality

test and a homogeneity test. The normality test used the Kolmogorov-Smirnov test using the help of the SPSS 24 for windows program with a significance level of 0.05.

**Table 7.** The Normality Result of the Students' Analytical Thinking (Gain Score) Proficiency

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
PBL Blended learning	,207	15	,082	,863	15	,026
5M TLP Method	,202	15	,102	,890	15	,066

Based on table 7, it was known that the sig gain score of the control class was 0.102 and the experimental class was 0.082. Thus, it could be concluded that the gain score data was normally distributed. This could be seen from the

sig of each data > 0.05. This homogeneity test using the SPSS 24 for windows program with a significance level of 0.05 obtained results as presented in table 8 below.

**Table 8.** The Homogeneity Result of the Students' Analytical Thinking (Gain Score) Proficiency

		Levene Statistic	Sig.
Analytical Thinking	Based on Mean	2,380	,134
	Based on Median	,879	,356
	Based on Median and with adjusted df	,879	,358
	Based on trimmed mean	2,390	,133

Based on table 8, it showed that the sig gain score of the experimental and control classes was 0.134. Therefore, it could be concluded that students' analytical thinking skills had a homogeneous variety. This conclusion could be seen from the sig gain score that was higher than 0.05.

Based on the prerequisite test that has been carried out, it was known that the data was normally distributed and homogeneous, so a hypothesis could be tested by using (t-test) which two samples were not paired (independent samples t-test) with a significance level of  $\alpha = 0.05$ . Meanwhile, the hypothesis test results were presented in table 9 below.

**Table 9.** The Hypothesis Result of the Students' Analytical Thinking

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	2,380	,134	2,520	28	,018	8,000	3,175	1,497	14,503
Equal variances not assumed			2,520	26,107	,018	8,000	3,175	1,475	14,525

From the table 9, it was known that the significance scores of the independent sample t-test was 0.018 <0.05. It means that between the control and experimental classes had differences. In other words, it could be concluded that the utilization of problem-based geography learning through blended learning assisted by the Edmodo platform affected the students' analytical thinking skills.

Analytical thinking skills must be possessed by the students in the 21st century, because the challenges that exist in the environment around the student will be increasingly diverse and complex (Bednarz et al., 2013). Students must be equipped with analytical thinking skills. It is intended that students are able to solve problems in their environment wisely through the use of technology that is currently developing. The existence of problem-based learning through blended learning using the Edmodo platform helps and supports students in the learning

process to improve their analytical thinking skills.

Based on the results of data analysis on the students' analytical thinking proficiency in SMA Negeri 1 Suboh Situbondo, it showed that problem-based geography learning through blended learning by using Edmodo platform had a significant effect on students' analytical thinking skills. This was evidenced by an increasement in the average score of students' analytical thinking skills was higher than the students who were given the 5M learning treatment.

In the problem-based learning through blended learning, students were required to be active in solving a problem around them, especially on food security material. Not only through discussions in class, students could also openly do online question and answer on the Edmodo platform. Besides, the students could freely ask many things that had not been understood either to teachers or peers. Therefore, problem-based learning

combined with online learning was considered more effective in improving students' analytical thinking skills, especially during the new normal COVID-19, which only allowed face-to-face learning by considering only 30-50% of students from class capacity (Kemdikbud, 2020).

Blended learning is a learning method that is closely related to the use of information and communication technology that is currently developing, namely the internet (Anthony et al., 2020). In its assembling, the teacher acts as a facilitator in face-to-face learning and as a stimulator in virtual classroom discussions. Therefore, in the Edmodo online platform students can also access geography learning materials regarding food security issues. Students can carry out discussions or ask questions about difficulties or misunderstanding of the material presented up to the preparation stage of the investigation in the problem-solving process. In line with Sandi's (2012) and Dziuban et al. (2018) opinion which states that through learning by applying blended learning will take place more meaningfully because the material presented is designed in such a way as to make it easier for students to understand. Students can learn at any time so that the

material students learn will be more meaningful.

Through the stages of problem-based geography learning through blended learning, the students can determine the sequences in solving problems analytically. The main stage in problem-based learning is determining the solution to a problem through investigations carried out in groups (Savin-baden, 2000). Students are given the opportunity to carry out investigations related to food security problems in the surrounding environment. Furthermore, discussing these phenomena either face to face or virtually through the Edmodo platform to determine the best solution.

The teacher's role to guide students in conducting investigations is very essential. The teacher provides a discussion class through the Edmodo platform that can be accessed by the students by online, at any time during the investigation process. Meaning that the students can consult or ask the teacher anytime, anywhere without being limited by face-to-face learning time. Through the Edmodo platform students can also express opinions about questions given by other students so as to produce active learning. This statement is supported by Anthony et al. (2020) and Sandi (2012) which state that through blended learning

students will play a more active role in the learning process and teachers play more creative in create a joyful learning without having boredom.

Problem-based learning activities through blended learning is fully involving the student's creativity (Anthony et al., 2020; Hilliard, 2015). Student creativity emerges from the problem orientation stage, investigation, up to developing and presenting the results. Through PBL, students can freely seek a basic theory from a variety of sources and establishing an observation in the environment with pre-determined problems directly. This stage triggers students to develop a good analytical thinking skill, because students can independently find the solutions of the problems every day. This means that students understand their learning needs.

In line with Dart (2009) and Savery (2006) who suggest that through PBL, the students can do more practice and be more comfortable in learning, the role of the teacher in learning is not too dominating. Meaning that the students are required to take greater responsibility in the learning, knowledge, skills and procedures required. This treatment is able to make students more trained and confident.

Based on the stages of problem-based geography learning through blended

learning by using the Edmodo platform, it is very logical that this learning affects students' analytical thinking skills. Problem-based learning aims to make the students can think analytically in an effort to solve a problem. The problems provided are the basis for students to formulate, analyze and solve them. Moreover, Nafiah and Suyanto (2014) explained that problem-based learning makes students able to present authentic problems, convey problems orally, have skills in collecting and analyzing data and summarizing and finding everything.

The problem-based learning method in use has advantages that could be seen in the experimental class, namely the activeness of students in group collaboration, both at the problem orientation stage and the problem-solving stage. Through PBL students could also construct their own knowledge at the stage of finding a theoretical basis in problem solving. This means that students had a responsibility in the learning process and having the freedom to be creative in problem solving. Besides, this method could make the students more interested on that. Another advantage is the ability of students to associate and apply geography learning theory about food security through food security problems in their environment.

The advantage of using Edmodo compared to other platforms located in its ease of operation (Al-Said, 2015; Inel Ekici, 2017). The user interface on the Edmodo platform is similar to the user interface on Facebook social media which is quite familiar to students. This similarity makes it easier for students to adjust in using Edmodo as a virtual classroom support platform. Through Edmodo, students can also access learning without being bound by the time and a place using a device connected to the internet. Edmodo is able to facilitate interaction between students to students, or students to teachers in an online discussion forum. Teachers can also check student learning progress. Another advantage is each of the students has a personal account so that can increase an independent learning process, and triggers students to focus on learning.

Through a combination of problem-based geography learning through blended learning by using the Edmodo platform, students learned based on the real problems. Then, they do an analysis either by a field observation or collect some data by internet widely. Problem-based learning, which is known for its long stages, can be optimally carried out using blended learning because students can learn anytime and anywhere. Students' analytical thinking skills can develop as

the learning process is carried out characterized by the students' skills in formulating hypotheses from existing problems, providing arguments about problem-solving solutions, associating an existing problem through the facts that exist in daily life and also finding problem solutions appropriately.

#### **D. CONCLUSIONS**

Based on both the results of research and data analysis, it could be concluded that the problem-based learning model through blended learning by using the Edmodo platform had an effect on students' geographical analytical thinking skills. The results of hypothesis testing indicated that the problem-based learning model by using Edmodo platform had a significant effect on students' analytical thinking skills. These statements were supported by the average score of analytical thinking skills in the experimental class was higher than the average score of analytical thinking skills in the control class.

Suggestions that can be used by a geography teacher who carry out limited learning in the yellow and green zones during the pandemic are suggested to use a problem-based learning model combined with virtual learning by using the Edmodo platform. Moreover, the purpose of this

method is improving analytical thinking skills and optimizing meetings in teaching and learning activities both face-to-face and virtual. In conclusion, this research can be used as a reference for future researchers in order to develop blended learning based PBL learning models with other learning models so as to create a learning model that is more appropriate to the new normal learning conditions.

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