Implementation of the Blended Learning Model to Increase Students' Motivation to Learn Mathematics

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Abstract

The problem of this research is the low motivation of students to learn mathematics, the ability of teachers to manage learning, student learning activities are low. To overcome this problem, a Blended Learning learning strategy was applied. The purpose of this study was to increase students' motivation to learn mathematics, improve teacher performance in managing learning and improve student learning activities by implementing the Blended Learning learning model at SMA N 6 Padangsidimpuan. This type of research is classroom action research (CAR). The subjects in this study were students of class X MIA 1 SMA N 6 Padangsidimpuan which consisted of 34 students. Data collection techniques are questionnaires and observations. Descriptive data analysis technique. The percentage of student questionnaire results in the first cycle was 50.15% to 89.97% in the second cycle and the increase in the percentage of student questionnaires was 39.82%. Student activity in learning increased, this was obtained from the percentage of 63.08% in the first cycle and 83.36% in the second cycle with an increase of 26.89%. Teacher performance activities increased with the acquisition of a percentage of 54.27% in the first cycle to 83.36% in the second cycle with an increase of 29.9%. So this research stopped in cycle II . The results of this study show that the Blended Learning learning model can increase students' learning motivation, can improve teacher performance and increase student learning activities at SMA N 6 Padangsidimpuan.

Keywords: *Blended Learning Model, Learning Motivation, Mathematics*

A. Introduction

Dewi (2020) said that online learning is implemented by adjusting the readiness of the school itself. However, we cannot deny that not all students, teachers or schools have the ability or readiness to do online learning. In addition, no matter how well the online learning process is implemented, it has not been able to replace the face-to-face learning process which is still more effective than online learning [1].

Rusman (2018) said that although online learning facilitates students to get learning anywhere and anytime easily, students as humans still have the desire to be in a real study group [2]. In 2021, almost the whole world is experiencing a covid 19 outbreak [3]. The existence of this covid 19 pandemic has a bad impact on various fields, one of which is face-to-face learning education is replaced by using online learning [4]. After a year of using online learning, in the new normal, some schools in Indonesia are again implementing face-to-face learning.

Learning plans during the pandemic need to be prepared with plans that are right on target and can be used and help students gain learning [5], [6]. One of the efforts to meet the learning needs of students in the current pandemic is by making lesson plans that combine online and face-to-face learning by designing learning models that can be applied today [7], [8]. Darmawan and Wahyudin (2018) learning models are designed and developed in such a way as to support the teaching and learning process well. The learning model has a major role in student achievement and motivation. Especially during the current COVID-19 pandemic. Teachers must be good at modifying learning with innovative and creative models. The learning implemented must be usable by students and teachers and comply with health protocols . One of the learning models that can be carried out under current conditions is a combination learning model known as Blended Learning [9].

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Dwiyanto (2020) also said that Blended Learning as a solution to the challenges in assembling learning and individual student guidance [10]. So it is very appropriate to use in the current situation. So blended learning is mixed learning or a combination of face-to-face learning with distance learning [11]–[15]. Through the application of this Blended Learning learning model, the teacher assesses that students will be more flexible to study the material independently by utilizing the materials available online. Students and teachers can also carry out discussions anytime and anywhere.

On October 21, 2021, researchers conducted observations and interviews with the deputy principal at SMA N 6 Padangsidimpuan with Mr. Syarif Muda. The information obtained, it is known that the school has implemented the Blended Learning learning model or better known at the school with the term combination learning, namely the combination of face-to-face learning and online learning. Where face-to-face learning is carried out three times a week by implementing a health protocol. Meanwhile, non-line learners are implemented flexibly. Through this Blended Learning learning model, the teacher assesses that students will be more flexible to study the material independently and be able to increase students' learning motivation, especially in mathematics..

B. Research Methods

This research is a type of classroom action research.

a. Test the validity of the Motivation Questionnaire

$$\% \text{ Motivation to learn} = \frac{\text{Total score of a Category}}{\text{Category max score}} \times 100\%$$

Table 1. The results of the interpretation of the results of the Student Learning Motivation questionnaire

Percentage of Learning Motivation	Interpretation
<40.00%	Very low
41,00% - 55,00%	Low
56,00% - 70,00%	Enough
71,00% - 85,00%	High
86,00% - 100%	Very High

b. Student Activity Observation Results

Observational data were analyzed by describing student activities during the learning activities. The format of this assessment is in the form of a rating scale made in the form of a checklist. The formula for knowing student learning activities

$$NP = \frac{R}{SM} \times 100$$

Information :
NP = expected percent value
R = raw score obtained by students
SM = max test score
From the above formula, the calculation results in the form of percentages are grouped as follows:

Table 2. Qualification Percentage of Student Activity

No.	Value	Criteria
1.	81% - 100%	Sangat Baik
2.	61% -80%	Baik
3.	41% - 60%	Cukup
4.	21% - 40%	Kurang
5.	$\leq$20%	Sangat Kurang

C.   Results and Discussion

Based on the implementation of classroom action research, data obtained that students' motivation to learn mathematics increased, student activity increased and teacher performance also increased. The results of the improvement in the implementation of the Blended Learning learning model can be seen in the following table:

Table 3. Student Motivation result data

Cycle I	Cycle II
50,15%	89,97%

Based on the results of the questionnaire on students' motivation to learn mathematics in the first cycle with a percentage of 50.15%, the percentage has not reached a minimum percentage of 71% and in the second cycle with a percentage of 89.97%, therefore it has reached ≥71% from cycle I to cycle II, an increase of 39.82 %. And it can be concluded that students' motivation to learn mathematics increased after the application of the Blended learning learning model was seen from the questionnaire sheet of students' motivation to learn mathematics in learning with a percentage of ≥80% of the aspects observed in the "Very High" category.

Table 4. Student observation data

Cycle I	Cycle II
63.08%	82.86%

Based on the results of the student activity observation sheet in the first cycle with the percentage of 63.08% not reaching the minimum percentage of 80% and in the second cycle an increase of 82.86% has reached the 80% percentage limit from the first cycle to the second cycle an increase of 26.89%. it can be concluded that student learning activities increase after the Blended Learning learning model is carried out in terms of the observation sheet on student activities in learning mathematics with a percentage of ≥80% of the aspects observed in the "Very Good" category.

Table 5. Teacher Performance Results Data

Cycle I	Cycle II
55.68%	82.86%

Based on the results of observations, the teacher's ability in the first cycle with a percentage of 55.68% has not reached a minimum percentage of 80% and in the second cycle there is an increase in the percentage to 82.86% and has reached a minimum percentage of 80%, from cycle I to cycle II it has increased by 29.09%. it can be concluded that the teacher's performance increases in managing learning with the Blended Learning learning model seen from the observation sheet of the teacher's ability in learning with a percentage of ≥ 80% of the aspects observed in the "Good" category

D.   Conclusion

Based on the results of the questionnaire on students' motivation to learn mathematics in the first cycle with a percentage of 50.15%, the percentage has not reached a minimum percentage of 71% and in the second cycle with a percentage of 89.97%, therefore it has reached ≥71% from cycle I to cycle II has increased by 39.82%. And it can be concluded that students' motivation to learn mathematics increased after the Blended learning learning model was applied, seen from the questionnaire sheet of students' mathematics learning motivation in learning with a percentage of ≥80% of the observed aspects in the "Very High" category.

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For further researchers, it is recommended to conduct similar research on other materials and schools, in order to obtain more comprehensive results so that the results of this research are useful as theories and reforms in the world of education, especially the learning process of life mathematics.

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