

Effect of Blended Learning Model on Student Learning Outcomes in Material Structure and Function of Plant Tissues at SMA N 5 Yogyakarta

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Abstract: The COVID-19 pandemic has had a significant impact on various lines of life, including in the world of education. One of the policies made by the government is online learning which is commonly referred to as distance learning (PJJ). The state of the COVID-19 pandemic has begun to be resolved well, so distance learning was later modified into limited face-to-face learning (PTM). This system is carried out by dividing 50% of the students to carry out limited PTM in the classroom while still adhering to health protocols, and the other 50% of students take online learning at their homes. This learning model is called distance learning (PJJ). In practice, this learning will be carried out alternately between students. To increase students' understanding which is not only from a cognitive perspective, practicum activities are carried out to hone students' psychomotor skills in making fresh preparations independently with direct observations and portfolio assignments in the form of making practicum reports in order to create a good scientific spirit. This study examines the material on the structure and function of plant tissue with the sample of 4 classes in class XI students of SMA N 5 Yogyakarta. The purpose of this research was to find out how student learning outcomes using blended learning models with practicum activities. The method used in this research is a statistical method. The results of this research indicate that the blended learning model with practical work has a significant effect on student learning outcomes on the material of Plant Tissue Structure and Function.

Keywords: Blended Learning, COVID-19, Plant Tissue.

Introduction

Learning is an activity that has the aim of providing an understanding of someone in a field of science. Learning involves responsive interaction between teachers and students (schools), because in the learning process good interaction is needed between students and teachers, so that people no longer think that a teacher is an all-knowing person while a student is someone who does not know everything. However, learning is a two-way process, where students need feedback from teacher and vice versa, in order to obtain more effective learning outcomes. (Rusman, 2011). Learning methods and models are adapted to ongoing situations and conditions. Since the

outbreak of the COVID-19 Pandemic in the early 2020s, there have been technical changes in learning. Everything was remodeled into online learning from their respective homes also known as distance learning (DL), this was to minimize the spread of the COVID-19 virus chain through social restrictions. All activities related to interaction with one another are strictly limited and the term work from home (WFH) is applied.

The COVID-19 pandemic has greatly changed all activities in the world, including the scope of education, which requires the adaptation of online learning. This online learning does not escape by causing many obstacles such as internet connection, technology gaps, quotas, and the provision of material that is not issued optimally

such as in direct delivery of material. Like it or not, this must be done in adapting the world of education. By mid-2021 the situation had returned to normal. The government then issued a new policy in the technical adaptation of learning, namely allowing limited face-to-face learning guided by the implementation of health protocols. The face-to-face application is permitted for schools where the majority of students have been vaccinated. Face-to-face learning is carried out with a student attendance of 50 percent, others carry out online at home. The next day will then be rolled in departure to school. The learning is the implementation of blended learning.

Blended learning is a learning model that combines face of face learning and online learning (Garisson and Voughan, 2018). Online learning can be implemented by video streaming, online animated text, and virtual classes through Google Meet, Google Class, Zoom, and others. Blended learning will be more optimal if it is accompanied by practical activities that will make students obtain results in the form of facts, critical thinking, and skills. Practicum is a teaching method that provides opportunities for students to be actively involved. In a practicum, it consists of experimental steps to carry out tests aimed at obtaining results in the form of facts. Based on the description above, this research purpose is to determine the effect of blended learning on students learning outcomes that is accompanied by practicum on The Structure and Function of Plant Tissue Learning Materials.

Materials and Methods

This research uses statistical methods with several research instruments include the results of practicum reports, students' daily test scores, and questionnaires. Some of the instruments used are:

The Results of the Practicum Report

This instrument is used to measure students' psychomotor. In the practicum report, students write down the results of their practicum in accordance with the given format, namely:

- Title
- Purpose
- Basic theory
- Tools and materials
- Procedure
- Observation data
- Discussion
- Conclusion
- Question Answers
- Bibliography
- Attachment

The highest result in the report is given an A score.

Daily Test Results

This instrument is to measure students' cognitive fields. After students are given learning material in three meetings, then an assessment is given which tests how well students understand the material that has been delivered. The multiple-choice test consists of 25 questions with 4 points for each question.

Questionnaire

This instrument contains several questions related to student responses in blended learning in collaboration with practice on students' understanding of the material presented. The population in this study was class XI MIPA 1, XI MIPA 3, XI MIPA 5, and XI MIPA 6. The independent variable in this study was the influence of the blended learning model. While the dependent variable is student learning outcomes on the material structure and function of plant tissue at SMA N 5 Yogyakarta.

Result and Discussion

Results of Practicum Report

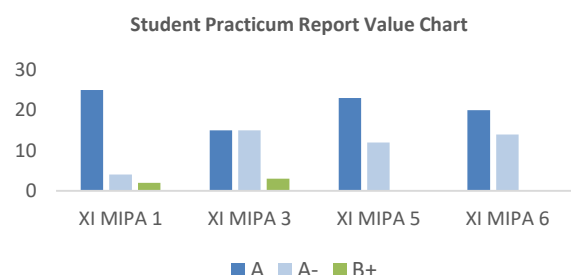


Figure 1. Student Practicum Report Value Chart.

Based on figure 1, it can be seen that the results of the practicum report scores for the 4 classes obtained scores of A, A-, and B+. A score dominates among other scores, while the standard value for the practicum report at SMA N 5 Yogyakarta is B. The four classes with a total of 133 students we know that students who get an A score are 83 students, students who get an A- score are 45 students, and students who get a B+ score are 5 students.

Table 1. Table of Average Report Score.

Average Report Score	Class			
	XI MIPA 1	XI MIPA 3	XI MIPA 5	XI MIPA 6
	A	A-	A	A-

Based on table 1, it can be seen that the average report scores for the four classes are A and A-. Class XI MIPA 1 has an average of A score, class XI MIPA 3 has an average of A- score, class XI MIPA 5 has an average of A score, and class XI MIPA 6 has an average of A- score.

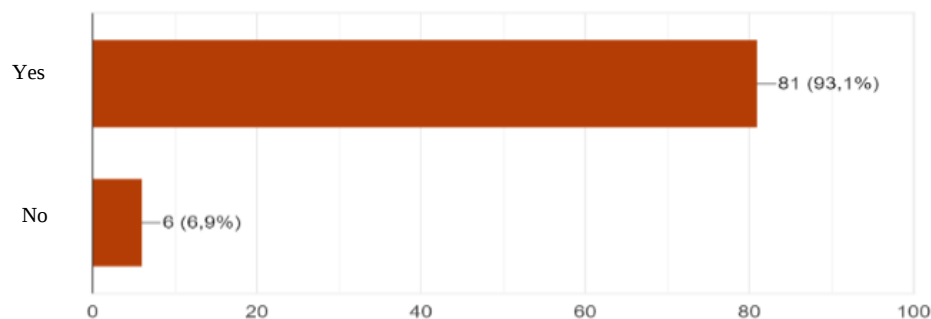
The chart and table above illustrates the value of the practicum reports from the four classes. There are three groups of points, namely A, A-, and B+. The standard of the minimum score at the school is B. So the grades for the four classes are above the standard of all. And this means that practicum provides significant things in influencing student learning.

Questionnaire

Table 2. Result of Questionnaire.

No.	Result of Questionnaire
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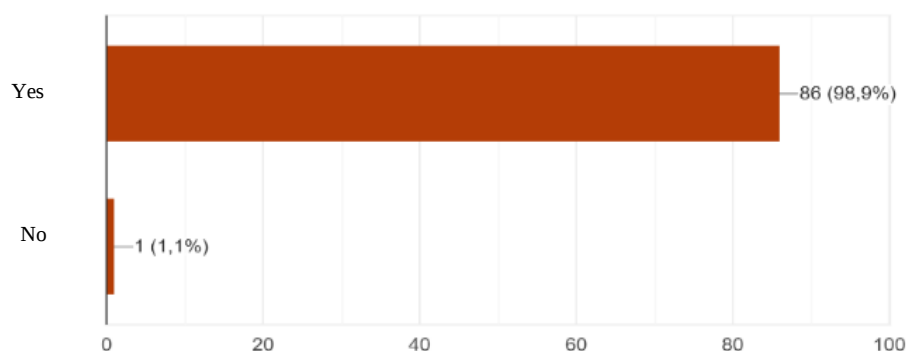
1.



The percentage of "Yes" answers is more than the "No" answers.

Blended learning (PTM and PJJ) has a positive impact on students during the covid-19 pandemic compared to full online. The results of the questionnaire with the question "Blended learning (PTM and PJJ) have a positive impact on students during the covid-19 pandemic compared to full online learning" getting the answer "Yes" as much as 93.3% and the answer "No" as much as 6.7% .

2.

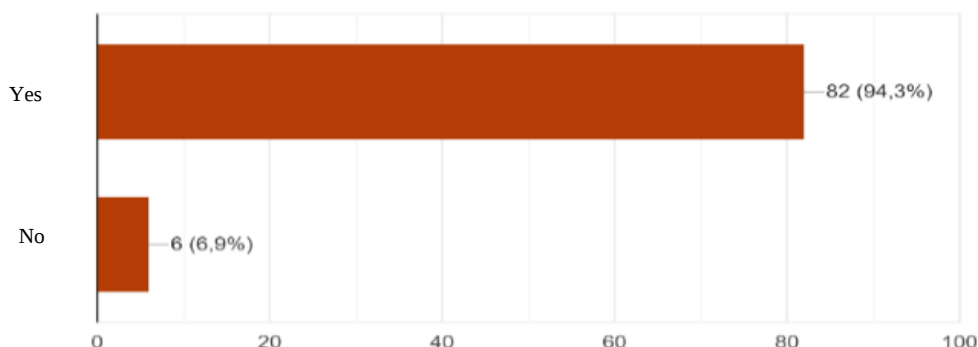


The percentage of "Yes" answers is more than the "No" answers.

Blended learning coupled with practicum makes it easier for students to understand the material. The results of the

questionnaire with the question "Blended learning interspersed with practicum makes it easier for students to understand the material on the Structure and Function of Plant Tissues." get answers "Yes" as much as 98.9% and answers "No" as much as 1.1%.

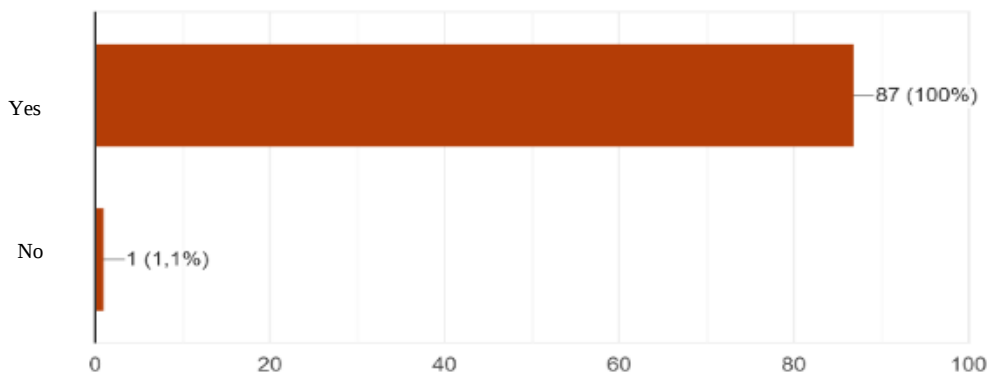
3.



The percentage of "Yes" answers is more than the "No" answers.

The use of a portfolio in the form of a practicum report helps students understand the material. The results of the questionnaire with the question "Providing a portfolio in the form of a practicum report helps students understand more deeply the material on the Structure and Function of Tissues in Plants." get the answer "Yes" as much as 94.4% and answer "No" as much as 6.7%.

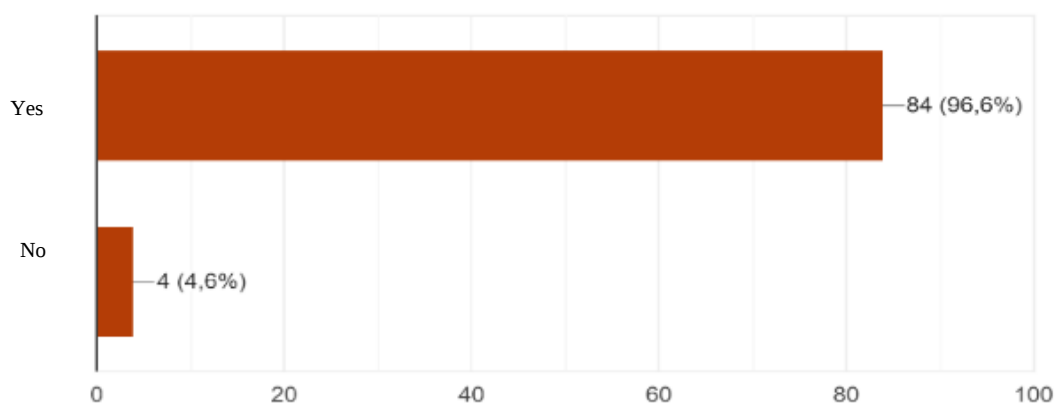
4.



The percentage of "Yes" answers is more than the "No" answers.

The practice of making fresh preparations trains students psychomotor skills in biology subjects. The results of the questionnaire with the question "Practicum of making fresh preparations trains students' psychomotor (skills) in biology subjects." get 100% "Yes" answers and 1.1% "No" answers.

5.



The percentage of "Yes" answers is more than the "No" answers.

Hands-on practice makes students more interested in learning biology. The results of the questionnaire with the question "Learning with practical work makes students more interested in learning Biology." get the answer "Yes" as much as 96.7% and answer "No" as much as 4.4%.

Conclusion

Based on the data we have taken through 3 instruments, we get very significant results. From the sample to the four classes, the results of the practicum report obtained an average value of A, the value is above the school standard, namely B. The daily test score also obtained the average score of the four classes was 84.31, the value was above the school KKM standard of 75. Then through In the questionnaire, the percentage of students who chose the answer "Yes" from the 5 questions was 96.58%. So it can be concluded that the effect of blended learning interspersed with practicum has a good impact on student learning outcomes.

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