

The Effect Of Blended Learning Model On Student Learning Outcomes In Class Viii Spldv Learning At SMP Negeri 4 Touluaan

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Abstract. *This study sought to examine and evaluate the average learning outcomes of students who received instruction in a system of two-variable linear equations using either the direct learning model or the blended learning model. The research employed the posttest-only control design. The participants in this study comprised of two groups: class VIII-A, an Experimental class consisting of 17 students, and class VIII-B, a control class consisting of 17 students at SMP Negeri 4 Touluaan. The data collected pertains to the posttest outcomes in both the Experiment and Control groups, indicating an average learning outcome of 85.29 for the Experiment group and 77.94 for the Control group. The normality test for the data is satisfied when the data follows a normal distribution. The study yielded results indicating a significant level of 0.05, with the obtained t-value of 1.89098 being greater than the critical t-value of 1.694. According to the findings of this study, students who engage in Blended Learning exhibit superior learning outcomes in the context of acquiring proficiency in solving systems of linear equations with two variables, as compared to students who rely solely on direct instruction.*

Keywords: *Blended Learning, Mathematics Learning Outcomes System Linear Equations Of Two Variables.*

Abstrak. Penelitian ini bertujuan untuk menguji dan mengevaluasi rata-rata hasil belajar siswa yang memperoleh pembelajaran sistem persamaan linear dua variabel baik dengan menggunakan model pembelajaran langsung maupun model blended learning. Penelitian ini menggunakan desain kontrol posttest-only. Partisipan dalam penelitian ini terdiri dari dua kelompok yaitu kelas VIII-A, kelas Eksperimen yang berjumlah 17 siswa, dan kelas VIII-B, kelas kontrol yang terdiri dari 17 siswa di SMP Negeri 4 Touluaan. Data yang dikumpulkan merupakan hasil posttest pada kelompok Eksperimen dan Kontrol, yang menunjukkan rata-rata hasil belajar pada kelompok Eksperimen sebesar 85,29 dan pada kelompok Kontrol sebesar 77,94. Uji normalitas data terpenuhi jika data mengikuti distribusi normal. Penelitian tersebut membuahkan hasil yang menunjukkan tingkat signifikansi sebesar 0,05, dengan nilai t yang diperoleh sebesar 1,89098 lebih besar dari nilai t kritis sebesar 1,694. Berdasarkan temuan penelitian ini, siswa yang mengikuti Pembelajaran Campuran menunjukkan hasil belajar yang lebih unggul dalam konteks memperoleh kemahiran dalam menyelesaikan sistem persamaan linear dengan dua variabel, dibandingkan dengan siswa yang hanya mengandalkan pengajaran langsung.

Kata kunci : *Blended Learning, Hasil belajar Matematika, Sistem persamaan linear dua variabel.*

INTRODUCTION

Education today is a benchmark for a nation in improving quality human resources. A country needs to have quality education because one of the factors that is the progress of a nation can be seen from the quality of education (Hasbullah, 2014). Therefore, systematic and directed learning is needed to achieve educational goals (Hakim, 2016). Through the learning process, students can develop the ability to think critically in mathematics (Khoiroh, 2018). The inclusion of mathematics in the curriculum is essential for providing students with the necessary skills to engage in logical, analytical, systematic, critical, and creative thinking, as well as fostering collaborative abilities (Lolombulan, 2017).

Mathematics is a subject that can develop critical thinking skills. Therefore, mathematics has an essential role at every level of education. However, the reality is that many students

believe that "mathematics is difficult" and is a frightening lesson among other subjects. Also, mathematics is a subject that takes more work to teach. or learned (Maharani, 2017)

Based on the observations of researchers conducted at Touluaan 4 Public Middle School at the end of the 2021/2022 semester, the teacher explained that there were still many students, especially in class VIII, whose mathematics learning outcomes still needed to be improved. Many students still needed to meet the Minimum Completeness Criteria (KKM) determined by the school, namely 75. Approximately there are around 60% of students who have yet to reach the KKM. So, it is necessary to do remedial in order to achieve the specified KKM value. This is also based on the ability of individual students who have difficulty understanding abstract mathematical concepts, where their level of thinking is still at a concrete level. Also, while learning mathematics, students still depend on the teacher's explanation, and very few students ask questions during learning; students also do not dare to express their opinions. Especially in the matter of a system of two-variable linear equations, many students still need help understanding word problems, such as transforming word problems into mathematical models and errors in elimination and substitution, which can result in unsatisfactory student learning outcomes.

The learning process is still centred on the teacher (teacher-centred). During the learning activities, the teacher is more active in explaining the material given to students than giving some practice questions. Especially in learning a system of two-variable linear equations where previously students made mistakes in solving word problems, such as transforming word problems into mathematical models, and errors in doing elimination and substitution. This learning process ultimately results in students not having much of a role and not being actively involved in the learning process. Moreover, the use of technology in the learning process still needs to be improved, and there is no blended learning-based mathematics learning process that uses online learning media such as Google Classroom.

Therefore, the teacher has an essential role in realizing the achievement of learning goals in mathematics. A teacher not only imparts knowledge to students but must create a compelling and enjoyable learning atmosphere so that students can follow the mathematics learning process well.

To overcome this problem, finding a solution and a way out is necessary. One of them is blended learning. With e-learning facilities combined with the teacher's teaching methods in class, students will be more interested in learning the material. The blended learning model is one of the right solutions for synergizing technology to form an effective and efficient learning process. Fauzan and Fitria (2018) stated that the Blended Learning learning model

refers to the student learning process, which is not limited to face-to-face in the classroom but to a flexible learning process that can be carried out anytime and anywhere and can lead to active student learning (Pradana, 2016).

According to Zaharah Hussin (2015), Blended Learning is a learning model that will strengthen conventional (direct) learning models through the development of educational technology. M Kusni (2010) explained that the application of blended learning combines direct and online learning, thus requiring an e-learning portal as an additional virtual class (Pramesti, 2016).

Blended Learning is an emerging pedagogical approach that integrates both in-person and online learning modalities, effectively amalgamating conventional instructional methods with computer-mediated activities facilitated through devices such as tablets, smartphones, and other technological tools. Online learning is more likely to generate greater student enthusiasm compared to traditional face-to-face instruction. According to Capone, De Caterina, and Mazza (2017), the study was conducted exclusively online.

In blended Learning, technology-based learning media can be used and accessed online. For this reason, an adequate e-learning portal is needed as a virtual class; in this case, Google Classroom can be used as an appropriate reference in supporting the implementation of blended learning-based Learning (Putra, 2015; Yanti, 2016). In using Google Classroom, students can open subject matter and do assignments given by the teacher and are not required to have a computer or laptop but can use a smartphone (Rusmono, 2012; Winardi, 2018).

According to Herman (Wiladatus Salamah, 2020), the existence of a Google Classroom is an appropriate reference because Google Classroom is an application that allows the creation of classrooms in cyberspace. The Google Classroom function can be used as access to task management between teachers and students (Sudjana, 2009; Sutrisno, 2015)

In general, it can be identified that the problem in learning mathematics in junior high schools is the teaching and learning process, which is still teacher-centred; most of the students can only memorize formulas or material, so there is a lack of student exploration in understanding mathematics, as well as monotonous learning patterns and lack of activity. Students respond to the teacher's material (Sugiyono, 2012; Sjukur, 2013).

Based on this background description, this research was conducted titled "The Influence of the Blended Learning Learning Model on Student Learning Outcomes in Class VIII SPLDV learning at SMP Negeri 4 Touluaan."

METHOD

This quasi-experimental research examines student learning outcomes using a blended learning model in class VIII SMP Negeri 4 Touluaan. The population when conducting the research were all students of SMP Negeri 4 Touluaan; the sample that the researcher chose was all students of SMP class VIII and the one the researchers made for the experimental class, namely class VIII A, which consisted of 17 students and VIII B as the control class, totalled 17 students so that the total of All students who were sampled were 34 students.

Researchers used the Posttest-Only Control Group Design design. (Sugiyono, 2010). The research procedure, namely compiling learning tools in the form of learning implementation plans (RPP) and learning modules. In addition, SPLDV material is provided through direct learning models and blended learning. Next, collect student learning outcomes by giving a posttest to the experimental class or blended learning and the control class or direct learning. The research instrument consisted of descriptions given to two classes, namely the experimental and control classes, as a test of learning outcomes. The researcher tested the hypothesis and prerequisites for the data beforehand. The average difference test was 2 (t-test) to find out whether the data was average using the Liliefors test (L) or homogeneous using the Fhiser test (F).

The data collection technique is to give a post-test to students in the experimental and control classes in the form of essay questions. The questions given to both the experimental and control classes were the same. A statistical test will be used to see differences in learning outcomes between students using blended learning and students who only use direct learning.

RESULT AND DISCUSSION

Description of research data

This research was carried out at SMP Negeri 4 Touluaan. Research data was obtained from class VIII A, with 17 students, and class VIII B, with 17 students. Class VIII A (experimental class) is taught using the blended learning model, and class VIII B (control class) is taught using direct learning—research data obtained from posttest results.

Table 1. Summary of learning outcome data in the experimental class

Statistics	Statistics Value
Minimum Score	65
Maximum Score	100
Average	85,29
Standard Deviation	11,52

Variance	132,7206
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Table 2. Summary of learning outcome data in the control class

Statistics	Statistics Value
Minimum Score	60
Maximum Score	95
Average	77,94
Standard Deviation	11,05
Variance	122,0588

Prerequisite Analysis Test

1. Data Normality Test

The normality test results for the posttest values in the experimental class show that, based on the results of the normality test for experimental class learning outcomes data, $L_{\text{count}} = 0.108250 < L_{\text{table}} = 0.206$ indicates H_0 is accepted. This shows that H_0 is a normally distributed sample. In other words, the experimental class learning result data is usually distributed.

Then, to test the normality of the control class learning result data, $L_{\text{count}} = 0.116733 < L_{\text{table}} = 0.206$ was obtained so that H_0 was accepted. This shows that H_0 is normally distributed. In other words, the control class learning outcomes data is normally distributed.

2. Variance Homogeneity Test

Based on the homogeneity test of the experimental class and the control class, the value of $F_{\text{count}} = 1.0873 < F_{\text{table}} = 2.33$ was obtained. Then accept $H_0 : \sigma_1^2 = \sigma_2^2$. H_0 is the variance ($\sigma_1^2 = \sigma_2^2$) and H_1 is the variance is unequal ($\sigma_1^2 \neq \sigma_2^2$). So, it can be concluded that the variance of the experimental class and control class data is homogeneous (same).

3. Hypothesis Test

The test criteria used are based on the t-test obtained $t_{\text{count}} = 1.89098 > t_{\text{table}} = 1.694$, thus rejecting H_0 and accepting H_1 . This means that the average learning outcomes of students who are taught using blended learning are higher than those of students who are taught with direct learning.

Discussion

Based on the results of experimental class research using blended learning on two-variable linear equation systems at SMP Negeri 4 Touluaan, there are general differences in student learning outcomes from the tests given by the experimental and control classes.

This is shown in Table 1 and Table 2 above; the average learning outcomes of students from the tests given in the two classes, namely the average learning outcomes of experimental class students, are higher than the average learning outcomes of control class students. This shows that the material on systems of linear equations in two variables taught using blended learning is better than direct learning.

Based on the theory described, Blended means a good mixture or combination. Blended learning is a combination of the advantages of face-to-face and virtual learning. According to Bielawski and Metcalf (Husamah, 2014, p. 16), Blended Learning is a new concept in learning where material delivery can be done in class or online. The combination is carried out face-to-face or virtually between teachers and students, either in person or through online media, which can be accessed at any time.

Based on the explanation above, it can be said that Blended Learning is two-way learning using the internet. This learning is presented in digital form, allowing students to study independently anytime and anywhere online. Furthermore, there are relevant research results by Sulihin, research conducted by Izzudin Syarif in the Yogyakarta State University Journal entitled "The Influence of the Blended Learning Model on Student Motivation and Learning Achievement at SMKN 1 Paringin, Balangan.

The method used in this research is quantitative research with a quasi-experimental design approach. This research aims to determine the differences in student motivation and learning achievement between face-to-face learning and blended learning and increasing motivation and learning achievement due to the influence of implementing the learning model. The results of this research are that student motivation and learning achievement increase due to the influence of implementing the blended learning model.

Based on the research results described from start to finish, accompanied by discussion and supported by previous researchers, the experimental research entitled "The Influence of the Blended Learning Learning Model on Student Learning Outcomes in Class VIII SPLDV Learning," which was carried out at SMP Negeri 4 Touluaan, can be It was concluded that the use of blended learning was proven to affect improving students' mathematics learning outcomes on SPLDV material. This shows that blended learning can create an effective, enjoyable learning atmosphere and involve active students in learning independently or in groups by utilizing online media that supports the learning process, such as Google Classroom.

Thus, this shows that the material on two-variable linear equation systems with blended learning is influential and higher than direct learning.

CONCLUSIONS AND RECOMMENDATIONS

Based on the results of research conducted at SMP Negeri 4 Touluaan. The following conclusions can be obtained from the analysis of research data and discussion of research results: Student learning outcomes using blended learning on two-variable linear equation systems material are higher than student learning outcomes using the direct learning model.

From this conclusion, blended learning on the material System of Linear Equations in Two Variables in class VIII at SMP Negeri 4 Touluaan can be satisfactory, so it is recommended as follows:

1. This exploration is helpful as information material for educators in implementing blended learning-based learning, which is teaching and learning in the study room to increase knowledge in educational experiences.
2. It is believed that students can further develop mathematics learning outcomes and motivate students to be more dynamic and imaginative in learning mathematics.
3. Experts are expected to benefit from the use of blended learning.

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