Implementation of Edmodo and Classdojo on the Activeness and Achievements of Students during Covid-19 Pandemic in Learning Mathematics

Rismi Annisa[1], Teguh Wibowo[2], Mujiyem Sapti[3]
[1,2,3] Universitas Muhammadiyah Purworejo, Indonesia

Corresponding Author ✉ twibowo@umpwr.ac.id

ABSTRACT

The transfer of learning in schools from online learning to online learning had a considerable impact in various sectors throughout the country. Education in Indonesia in particular, student activity and learning achievement are low along with the implementation of online learning. Students are more accustomed to learning task systems. This study analyzes student learning activity and achievement in learning mathematics during the Covid-19 pandemic with the help of the Edmodo and Classdojo platforms. This study aims to determine whether the active learning and learning achievement of students who are subject to learning using Edmodo is better than online learning using Classdojo. The research design used quantitative with quasi-experimental. Collecting data through questionnaires on learning activity and student achievement tests. The results of the multivariate t-test and univariate t-test showed that learning activity using Edmodo was better than student learning activity using Classdojo. The learning achievement of students who use Edmodo in learning mathematics is better than that of students who use Classdojo.

Keywords: *Learning Edmodo, Learning Classdojo, Online Learning*

INTRODUCTION

Education has become the foundation of every nation's development because its sustainability is very important for the growth and development of all nations (Owusu-Fordjour et al., 2020). However, with the spread of Covid-19, it presents its challenges for all sectors in the world. Wuhan is the city where Covid-19 was first discovered and quickly spread to countries nearby China (Huang et al., 2020). Medical experts in various countries have noted that the Covid-19 virus is deadly (Guo et al., 2020; Sohrabi et al., 2020). Various courses held offline are urged to be turned into virtual and implemented from home (Basilaia & Kvavadze, 2020). Universities and schools across the country were closed. Countries affected by Covid-19 have chosen to do lockdown and isolation to slow the spread of the outbreak (Weible et al., 2020).

The Indonesian government itself has issued various policies such as physical distancing, social distancing, and even large-scale social restrictions so that the transmission of Covid-19 does not get worse (Yunus & Rezki, 2020). This requires the Indonesian population to carry out all activities from home (Astini, 2020). The policies issued have a profound impact on education in Indonesia. The government's decision to leave students forcing learning activities in schools must be carried out from home by applying for the Work From Home (WFH) procedure (Mustakim, 2020). The challenge of learning online by involving technology in online learning requires the adaptation and struggle of teachers, students, and parents (Manullang & Satria, 2020). The ability of schools, teachers, and students to urge the implementation of online learning considering the negative impact on student activity and learning achievement. The results of the research by Yanti et al., (2015) stated that activity affects student achievement. Students who are active during learning will be more responsive in mastering the material discussed and able to build their knowledge.

Anugrahana (2020) revealed that there were only fully active students, active students, and very passive students when participating in online learning with a percentage of 50%, 33%, and 17%, respectively. The research results of Naziah et al., (2020) show that only one indicator of the six indicators of student learning activity is achieved during online learning. Some students are more likely to work on and submit assignments that have been given. The rest of the students were only passive during the discussion. Online learning using the WhatsApp application is considered less effective because of the difficulty of measuring affective and psychomotor aspects (Daheri et al., 2020). The results of researchers' observations which have been carried out for a long time at SMK Negeri 1 Karanganyar (Kebumen), researchers observed the learning process carried out through the WhatsApp application. Researchers found several problems, one of which was the use of WhatsApp which resulted in low learning activity and achievement.

In these conditions, the teacher has a responsibility in designing a learning atmosphere that can attract the attention of students. The teacher's role in the teaching and learning process can motivate and encourage active learning and student achievement because of their relatively high role in schools (Manizar, 2017). Seeing this, students need to sacrifice their time to focus on independent learning. Through this online class, students can learn independently and further explore problem concepts through the internet (Widjaja et al., 2021). So that students can interpret their thinking processes when solving a problem (Jatisunda & Nahdi, 2020). This problem can be solved by utilizing the Edmodo platform. Adequate infrastructure in the learning process contributes to the achievement of conducive learning. Online learning applications that are easily accessible and do not require a lot of quotas are a must-have tool for students (Apsari et al., 2020). The optimal use of Edmodo according to Mulyasidhi & Haq (2021) is designed to be able to adjust digital literacy skills where all components can be involved such as teachers, students, and parents. So that all these parties can operate easily and can support the implementation of online learning.

Edmodo, which is a free and social network-based learning platform can connect teachers with students so that teachers can more easily sustainably manage their virtual classrooms (Balasubramanian et al., 2014). Teaching and learning activities are carried out through the features provided in Edmodo, namely, content sharing or sharing of teaching materials, assignments, quizzes, polls and allows discussion activities in the comments column. Teachers can also give points to students who are

active during learning. The feature used is the badge. Where students get feedback and rewards to stimulate students to be more active in virtual classes (Priowirjanto, 2013).

Edmodo, with its social media-based characteristics, has similarities to the Classdojo platform which has one feature in common, namely the feature that gives active points. Classdojo is a behavior management application or platform in the classroom that allows teachers to provide quick feedback to students regarding individual and group behavior (Cetin & Cetin, 2018). This platform makes it easier for teachers to keep the class motivated by providing feedback in the form of positive or negative skills (Hammonds et al., 2013). Easy and free access to learning platforms will support the implementation of conducive learning as a condition for selecting learning media. Thus students will be more interested to deepening their mathematical abilities because it provides confidence in using the platform(Alfansyur, 2019).

The use of technologhy to support online learning, especially at SMK Negeri 1 Karanganyar is still not entirely good. The learning held only utilizes WhatsApp which incidentally is not a learning platform but a social media platform. Several schools from primary to secondary levels still apply the platform in a monotonous pattern. Student activity, especially activeness and low learning achievement along with declining student interest in the learning platform used. This condition can make the online learning gap even stronger. However, among the various challenges posed, of course, there are still opportunities for using technology that teachers need to develop innovatively that will benefit the world of education. Therefore, this research is useful for responding to research questions regarding the use of technology as an online learning platform in the current pandemic era. Thus, the purpose of this study is to examine which learning activity and learning achievement are superior if the Edmodo and Classdojo platforms are applied to different classes. The results of this study can be used as literature for educators and prospective educators to determine a learning platform that is suitable for students' conditions and achieves maximum learning goals.

METHOD

This research is quantitative research with a quasi-experimental design. In this study, data collection was obtained from a questionnaire learning activity and tests. The data analysis technique in this study used normality test, homogeneity test, balance test, hypothesis test using multivariate t-test and descriptive analysis. The population of this study involved 468 students in class XI of SMK Negeri 1 Karanganyar in Kebumen, Central Java, and divided into 13 classes. Each class consists of 36 students. To determine the sample, the researcher used a simple random sampling technique. The samples taken were two classes, consisting of class XI Kuliner 1 as an experimental class 1 using the Edmodo platform and class XI Kuliner 2 using the Classdojo platform as an experimental class 2.

In general, there were several stages carried out by researchers starting from the preparation of proposals, making instruments, testing test instruments, collecting data, processing data, and concluding. The instrument in this study is a learning activity questionnaire consisting of 30 statements and a learning achievement test totaling 25 questions on trigonometric material that have been tested. Both instruments have gone through the validation and revision stages, so they can be used in data collection.

The results of the PAS values used in the pre-treatment test consisted of a balance test, normality test, and homogeneity test to determine the initial conditions of the two classes before treatment. The significance figure in the analysis of research data is 0.05

or 5%. The Liliefors method is used in the normality test with the formula $L_{maks} = |F(Z_i) - S(Z_i)|$.

Homogeneity test to obtain the assumption that the data taken from the research sample has the same variance. The F test was used in the homogeneity test of this study with the formula $F = \frac{Biggest\ Variance}{Smallest\ Variance}$.

While the balance test using the t-test aims to determine the two classes that previously received treatment in a balanced condition or vice versa. The t-test formula is $t = \frac{(\bar{X}_1 - \bar{X}_2) - d_0}{S_p \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$.

After being declared balanced, the treatment was carried out in four meetings. The last meeting was used for tests and giving questionnaires on student learning activities. The data were obtained from activeness questionnaires and student achievement tests on trigonometry material. A multivariate t-test was used in this research hypothesis test because it consisted of two dependent variables. The formula used is $F = \frac{n_1 + n_2 - p - 1}{(n_1 + n_2 - 2)p} T^2$. Then proceed with a univariate t-test on each dependent variable to get a conclusion $t = \frac{(\bar{X}_1 - \bar{X}_2) - d_0}{S_p \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$.

RESULT AND DISCUSSION

Pre-treatment prerequisite test using the results of the previous Semester Final Assessment. The normality test in each class showed $L_{count} = 0.1344$ and $0,0676$ with $L_{table} = 0,1477$. The homogeneity test $F_{count} = 1,2902$ with $F_{table} = 1,7571$. While the balance test resulted in $t_{count} = -0,0185$ with $t_{table} = 1,9944$. So, the initial conditions of the two classes are in a balanced state and have equal initial abilities.

The data from the questionnaire is changed or transformed to interval data using the Successive Interval Method so that it can be used in hypothesis testing. The results of the value of the active dependent variable are summarized in the following table.

Tabel 1. Student Activity Results

Class	Average	Standard Deviation	Highest	Lowest
Experiment 1	80,05	10,98	97,48	44,43
Experiment 2	72,95	11,69	95,75	45,74

Based on the table above, the normality test which uses the Liliefors test shows $L_{count} = 0,996$ and $L_{table} = 0,1477$ so that $L_{count} < L_{table}$ the data on student learning activity in the experimental class 1 is normally distributed. In the experimental class 2 shows $L_{count} = 0,1032$ and $L_{table} = 0,1477$, so that the data on student learning activity in the experimental class 2 is normally distributed. The homogeneity test using the F test shows $F_{count} = 0,8817$ and $F_{table} = 1,7571$ so that $F_{count} < F_{table}$ the data on student learning activities has the same variance (homogeneous). The results of student achievement tests on trigonometric material are presented in Table 2 to help calculate the normality test, homogeneity test, and hypothesis testing.

Tabel 2. Student Achievement Results

Class	Average	Standard Deviation	Highest	Lowest
Experiment 1	65	14,51	92	44
Experiment 2	57,78	13,02	80	32

From Table 2, the normality test in experimental class 1 using the Liliefors test is obtained $L_{count} = 0,1331$ with $L_{table} = 0,1477$, so that $L_{count} < L_{table}$ the experimental class 1 achievement data is normally distributed. In the experimental class 2 produces $L_{count} = 0,665$ and so that the student achievement data in class XI Kuliner 2 (experiment 2) is normally distributed. The homogeneity test used the F test which showed $F_{count} = 1,2422$ and $F_{table} = 1,7571$. So $F_{count} < F_{table}$, means that the student achievement data has the same variance (homogeneous).

The hypothesis test shows $F_{count} = 7,4384$ and $F_{table} = 3,13$ then it is rejected. So that the learning activity and learning achievement of students on trigonometry in mathematics lessons using Edmodo is not as good or different from the learning activities and learning achievements of students using Classdojo. The univariate t-test on the dependent variable of activity showed that the experimental class 1 showed $t_{count} = 2,6556 > t_{table} = 1,66691$. This means that students' learning activities in the mathematics learning process using Edmodo are better or superior to students' learning activities using Classdojo.

Following up on the results of the hypothesis test, it is necessary to analyze each indicator of learning activity. The analysis of each indicator of student learning activity is calculated using a percentage with five intervals, namely the very low, low, medium, high, and very high categories. The calculation of the percentage of each indicator is presented in the following table.

Table 3. Student Learning Activity Questionnaire Results

Indicators	Experiment Class 1	Experiment Class 2
Reading the material presented	72,7 % (High)	65 % (Medium)
Gathering information for solving a problem	69 % (Medium)	64 % (Medium)
Asking questions to the teacher	72 % (High)	68 % (Medium)
Answering the teacher's questions	91 % (Very High)	88 % (Very High)
Expressing opinions in problems solving	75,2 % (High)	69 % (Medium)
Completing conclusions	25 % (Very Low)	23% (Very Low)
Listening to the presentation of material	83 % (High)	81 % (High)
Carrying out learning tasks	81 % (High)	75 % (High)
Summarizing the material and learning outcomes	80 % (High)	80 % (High)

Reflecting on the results that have been obtained during learning	77 % (High)	69 % (Medium)

Student activities in Edmodo and Classdojo begin with starting teaching and learning activities on time from their respective homes, providing news, reviewing the subject, discussing fulfilling the task, to discuss the difficulties faced by students with the teacher or other friends. These activities are included in the learning activity indicators used. During the treatment carried out in each class, questions were presented in the form of questions that triggered students to actively discuss. In line with the opinion of Halik & Aini (2020) which states that students' verbal activity in distance learning shows a figure of 68.52%. The rest show indicators in the medium to high category. The activities in the very low category are activities to complete conclusions. Students tend to be silent, shy, and leave learning because they think that learning has been completed when the task has been given. This assumption is one of the factors causing the low activity of concluding in online learning. The results of Melati et al., (2021) stated that several things affect the decline in student character in online learning, both external and internal factors. In this case, these factors contribute to the low activity of students during online learning.

In experimental class 1 obtained an average learning activity of 72.5% in the high category, while the average learning activity of students in experimental class 2 showed 68.12% in the medium category. This proves that students are more interested in implementing social media-based Edmodo because it is easier to use and accessible. This is supported by the results of Kadir's research (2020) which revealed that Edmodo is a Facebook-like learning platform that can attract students' interest to be more active during online learning so that student responses are positive. Kadir's research (2020) conducted at MAN Lhokseumawe has shown the use of Edmodo which has an impact on increasing student learning activity. In line with Sarie's research (2020) at SD 1 Tanjungkarang Jati Kudus, it shows that students feel happy learning while playing social media, namely Edmodo.

In this regard, the use of badges in Edmodo in this study turned out to have a positive impact on student activities so that they are more active during online learning. The badge feature that is used can foster student learning motivation to be more enthusiastic and serious in learning to use Edmodo (Arifin & Ekayati, 2019). In this study, student learning activities have been combined with Sudjana's (2017) and Paul D. Dierich's indicators of student activity in Hamalik (2004). Due to the limitations of online learning, these activities are adapted to the characteristics of each online learning platform.

However, this is different from the experimental class 2 which uses Classdojo. Classdojo is a platform that focuses on monitoring psychological characteristics, attitudes, personality, and behavior that does not fully influence the experimental class 2. Classdojo has been popular in European and American countries contributing to the channel of children's psychological, social and emotional concepts (OECD, 2015; van Dijk, 2016; Friedli & Stearn, 2015; Williamson, 2017). The appearance that is presented with animated characters has an impact on the low enthusiasm of the experimental class 2 students and considers it too childish. They do not fully believe in the use of Classdojo which is still rarely used in Indonesian schools. The weakness of Classdojo which has limited storage capacity has an impact on the difficulty of students in

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collecting large and large numbers of assignments. Therefore, the active learning of students in experimental class 2 only resulted in three high category active learning activities.

In the univariate t-test, student learning achievement was obtained by $t_{count} = 2,2226 > t_{table} = 1,66691$. So, student learning achievement in teaching and learning mathematics using Edmodo was better than student learning activity using Classdojo. Even though the average score for the class that was taught using Edmodo was only 65, this figure is still better than the average score for the experimental class 2 (Classdojo) achievement test. In line with Kadir's opinion (2020) that the social media-based Edmodo platform has an impact on the completeness of test scores in class XII MAN Lhokseumawe. The results of Ekawati (2018) also show a positive impact on the use of Edmodo on the learning process in class VIII F MTs Negeri Magelang in 2015/2016. The study showed an increase in the evaluation score and student achievement with an average of 88.

The treatment in this study applied trigonometry material. Students' understanding of the trigonometric material is quite good, marked by the ability of students to discuss several problems and complete the tasks presented. This is in line with the findings of Ompusunggu & Sari (2019) which showed that the use of Edmodo in online learning was better than those who did not use Edmodo, indicated by the deepening of mathematics material for grades 2B41 and 2B42 PGSD Quality University in Medan was in the high category. The results of Hidayati et al., (2020) who researched the use of Quizizz in trigonometry material showed that the average score in each class increased and the wider understanding of students was marked by the learning outcomes of each student. The use of Quizizz as an e-learning platform for trigonometry material is considered effective along with the increase in student achievement. Various types of platforms can be applied to online learning with trigonometry material. So, Edmodo is an online learning platform that is suitable to be applied to this material. On the other hand, according to (Williamson, 2017). Classdojo can be used to develop a mindset. However, experimental class 2 students have not developed completely so that their learning achievement is low.

From the discussion above, the main finding in this study is that the use of the Edmodo platform greatly supports online learning which is characterized by student activity and learning achievement which is better than learning using the Classdojo platform. Edmodo which is used as an online learning platform can attract students' attention so that it has an impact on student activity and learning achievement. This condition is supported by the practicality of the Edmodo platform which consists of features with a simple appearance and easy access even though the connection is less stable, to increase students' confidence in providing comments or responses that are included in student learning activities. The application of the Edmodo platform can provide a conducive learning atmosphere and create quality teachers and students who can cultivate technological sophistication. Therefore, the Edmodo platform is very suitable to be used for online learning through various devices at all school levels because it can increase student activity and learning achievement.

Similar research states that the use of Edmodo provides new experiences so that they are more expressive and create a more relaxed learning atmosphere (Pratama & Ismiyati, 2019). In online learning during the Covid-19 pandemic, Edmodo was able to increase learning motivation by 76.24% (Alifia & Pradipta, 2021). Thus, interest in learning and student learning outcomes continues to increase than the use of

WhatsApp (Listiqowati et all., 2021; Fauziyah & Triyono, 2020). Student participation also increased by 89.18% and was high in line with the effectiveness of online learning using Edmodo (Halil, 2020). Edmodo-based interactive learning is considered more effective in improving student learning outcomes and improving students' critical thinking than using Google Classroom (Suharti, 2021; Masnur & Ismail, 2021). On the other hand, the application of Edmodo in problem-based learning is considered capable of increasing student learning independence (Aulia et al., 2019). The blended learning model with Edmodo is also believed to have better individual value and quality than those using WhatsApp, Instagram, Zoom, Google Meet, and Google Classroom (Purba, 2021). Thus, the application of Edmodo makes effective lessons that affect the learning process in terms of activity and achievement of learning objectives (Surahman, 2019) and has a positive influence on student learning outcomes (Pradja & Julaeha, 2019). From the results of these studies, what distinguishes this research lies in the use of the features presented on the Edmodo platform. In this study, using all the features and prioritizing the use of the badge feature can give positive points to student activity, so that it attracts students' attention to be more active during online learning. In contrast to previous research, this study focuses on student activity and achievement compared to the implementation of the Classdojo platform. This research is only used in trigonometry material which is often considered difficult by students.

The contribution of the results of this study in the teaching and learning process can be used as consideration for schools to determine online learning platforms in improving student achievement and active learning. The flexible Edmodo can be combined with other learning platforms so that learning is not monotonous such as Kahoot or Liveworksheet. In addition, the implementation of the Edmodo platform can be complemented by effective online learning methods such as project-based learning and home visit methods. So that student learning activities and achievements continue to increase.

CONCLUSION

From the results of the research and discussion, it is stated that the activeness and learning achievement of students who use Edmodo in learning mathematics, especially in trigonometry material is better than the activeness and learning achievement of students who use Classdojo. The activeness of students in the class using Edmodo showed an average of 72.5% in the high category and the average activeness in the class using Classdojo showed 68.12% in the medium category. Activities conclude learning outcomes are still very low. So it is necessary to do further research that is more specifically related to student learning activities with other approaches. The results of this study can be used as a reference for teachers and prospective teachers in choosing an online learning platform that is by the teaching materials presented and students' circumstances and can be explored further regarding the evaluation of features in Edmodo with different variables for future researchers.

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