



The Effectiveness of Flipped Classroom Learning Model Assisted on Padlet Platform in Geography Lessons

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ABSTRACT

Flipped Classroom Model is a model in which teaching and learning activities are not carried out as usual. Before carrying out learning activities at school, students are given materials to study at home using Padlet platform. The purpose of this study is to see the influence of the use of Flipped Classroom model on the understanding of Atmosphere in Geography lessons. This research uses True Experiment Design with technique Randomized Subject Sampling, Control Group Pre-test Post-test Design. The population in this study were all tenth grade of social science (X IPS) students at Senior High School 2 Dayun, amounting to 68 students, and the sample used is class X IPS 1, amounting to 22 students and X IPS 2 totaling 22 students. The hypothesis test used in this study was the t-test, the results of the study obtained an average post-test score of the experiment class X IPS 2 of 85.54, while the average post-test score of the control class X IPS 1 was 77.00. Based on the data analysis on the t-test, the value of tcount = 6.187 and t table = 1.682. Because tcount is greater than ttable, there is a significant effect of using Flipped Classroom learning model assisted on Padlet Platform.

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INTRODUCTION

The industrial revolution 4.0 demands reliable Human Resources (HR) who can master technology in order to compete, including in the field of education. In carrying out learning activities, teachers and students are required to adapt to the development of information technology through the use of various digital applications that can be used in learning activities (Santos-Trigo & Reyes-Martínez, 2019). The rapid advancement of information technology systems has led to various kinds of changes in humans, which can be seen from the technology they use. The development of technology and information systems must be accompanied by the readiness of human resources, including educators and students (Margarisya & Lian, 2019). Teachers, in order to improve the quality of learning, should be able to create renewal, learning that was previously traditional to a form of learning that utilizes digital technology. This is in line with the demands of the era where today's young generation cannot be separated from technology and the use of digital applications such as android, gadgets, computers or laptops that are already connected online, they are very familiar with and spend a lot of their time on the internet, known as Generation Z.

Responding to the characteristics of generation Z, which is the age of high school students today, to become a teacher in the current era is highly required not only to have PCK (Pedagogical Content Knowledge), but teachers are also required to have TK (Technological Knowledge) skills. Technology is used as a tool to gain new knowledge and experience in learning activities.

The density of the material in the current curriculum is not proportional to the availability of time for face-to-face learning, where the final goal that must be prepared is graduates who have good quality and are competent (Parut & Buntari Agustini, 2019). If learning continues to be done conventionally, of course the educational goals will not be achieved optimally. Things that happen in the field, after students finish their education, many of them are unable to compete in the world of work because while following the learning process at school students do not fully understand the lessons, both theory and practice (Rachfall & Dressler, 2016).

In an effort to create active learning, there are factors that are less supportive, such as the readiness of students to face the learning process in the classroom, seen from the lack of response or reaction from students because these students do not yet have a stock of understanding of the material being studied (Agustiningrum, 2017). Students only expect the delivery of material from educators that is obtained at school when face to face with teachers and friends in class. To deal with these problems, the researchers tried to use a learning model using digital applications that can increase the effectiveness of conventional learning so far.

Learning model used is Flipped Classroom, which is a learning model that is included in the form of blended learning (the mixing of face-to-face interaction with virtual/online) or synchronous learning with independent learning (asynchronous). In synchronous learning, students can interact with educators and friends and can get direct feedback. Then asynchronous learning is a form of learning that is carried out independently which can be accessed with various forms of media on the internet platform digitally. Flipped Classroom Learning allows students to study subject matter at home before or after the face-to-face learning process in class (Jafar & Dinar, 2020). Flipped Classroom is very effective to use because it can increase the activity and skills of students who were previously passive and can increase a deeper understanding of the material being studied (Abushammala, 2019). Flipped classroom is a learning model in which there are subject matter that can be studied by students that have been previously designed by the teacher to be studied independently outside of face-to-face hours. Learning can be done anywhere, anytime and can be studied repeatedly until they understand depending on the student's will and are not limited by space and time. Learning is done with Flipped Classroom which combines classical teaching with a combination of online content to allow for fast feedback and increase motivation (Rachfall et al., 2014). With Flipped Classroom, students have a lot of time to learn by studying the material at home so that they have the prior knowledge before face to face in class with the teacher.

Flipped Classroom method includes three activities which are activities before starting the class (pre-class), while in the class (in-class) and after the class (out of class). Flipped Classroom role occurs before the class starts where students first study the material that has been given by the teacher, at this stage the expected ability of students is to remember and understand the material. So, when the class starts, the students can apply and analyze learning materials with various interactive activities in class, then evaluate and create.

The results of previous studies stated that Flipped Classroom by using learning videos provides students to better understand than by lecturing method (Saputra & Mujib, 2018). Research conducted by (Usmadi & Ergusni, 2019) also gets a conclusion that by applying Flipped Classroom through a scientific approach, student learning outcomes, motivation and interest are higher than without applying it. (Rachfall et al., 2014) get results from his research on improving learning flipped classroom with blended learning that with flipped classroom motivation, response and independence of students increased, as evidenced by the willingness of students to do the exercises and a strong urge to learn. Likewise with the research conducted by (Damayanti & Utama, 2016) in his research on effectiveness flipped classroom on attitudes and learning skills, the results obtained that through the learning model Flipped Classroom can improve students' creative attitude, responsibility and skills compared to ordinary learning models.

The current research is different from the research that has been done before. In the research above, Flipped Classroom model associated with the use of videos, learning approaches, responses, motivations and attitudes of students, but in this study the author wants to examine the use of Flipped Classroom learning model by using Padlet Platform on Geography subject. Learning with the help of Padlet Platform is not only learning to use learning videos but also a lot of subject matter packaged in the form of slides, pictures, essay materials, voice notes, links and youtube. Students can also ask questions and comment via chat to the teacher through the comments page that has been provided in every material sent by the teacher on Padlet. Padlet functions as a whiteboard that can be used to write and provide various kinds of templates, so it is very interesting for students to learn it. Padlet can also be referred to as an online whiteboard and is a free online application. By downloading Padlet, teachers/educators can create as many 'walls' or whiteboards as needed. Padlet can be used easily and is a neutral device because it can be used on all types of devices such

as PC, tablet, Laptop, Smartphone. It means that it can be used in almost all schools that already utilize a variety of devices. The use of Padlet has various advantages including users can type, record letters, add links, send photos, and add various documents. Thus, in this study, learning activities are carried out using the Flipped Classroom which is synergized with a Padlet Platform with the aim of being able to improve students' cognitive learning outcomes on learning material about Atmosphere.

RESEARCH METHOD

This research was conducted at Senior High School 2 Dayun. This school is located in Dayun Village, Dayun District, Siak Regency, Riau Province. There are 12 study groups in this school, consisting of 4 classes of tenth graders (X), 4 classes of eleventh graders (XI) and 4 classes of twelfth graders (XII). The study was conducted from March 1, 2021 to March 26, 2021. For this research, the approach used is a quantitative approach with True Experimental Model Experiment as the method. In this true experiment, the researcher uses Randomized subject, Control Group Pre-test Post-test Design. Researchers in this case use one control group and one experimental group. The instrument used for this research is a test instrument (test on the ability to understand material on Atmosphere topic) in the form of a description or essay question of 10 items. The sample in this study was class X IPS 1 as a control class and X IPS 2 as an experiment class, students before being given treatment firstly given a pre-test both the control class and the experiment class, after that the researchers did the treatment by applying Flipped Classroom learning model by using Padlet Platform for the experiment class and the control class without treatment or learning was carried out using conventional methods. After the experiment class carried out, the treatment in learning activities carried out for 2 meetings, to see how the level of mastery of the subject matter about the atmosphere by the students, the researchers then gave a post-test to the experiment class as well as the control class. From the pre-test and post-test activities that have been given, there will be 'gain' or the difference between before and after carrying out Flipped Classroom learning, and also there is a difference in the results of the pre-test and post-test between the control class and the experiment class. Questions given in pre-test and post-test are the same questions, and this test is carried out to find out whether there is an increase or a difference in learning outcomes between the experiment class that is given treatment with Flipped Classroom learning model with Padlet platform with the control class without treatment (conventional learning).

Data analysis activities for this research use statistical analysis through Statistical Product and Service Solution (SPSS). The first step is to calculate and analyze the pre-test and post-test scores of the experiment class and the control class which aims to see the increase in students' ability in understanding the material by calculating the gain or difference between the pre-test and post-test results. The second step is to perform the Normality Test to see whether the data is normally distributed or not. The normality test used is Kolmogorof Smirnov test. Requirements in test Kolmogorof Smirnov is if the significance value < 0.05 then the data is not normally distributed, but if the significance value > 0.05 then the data is normally distributed. The third step is to perform the homogeneity test which is carried out using the 2-variance similarity test.

$$F = \frac{\text{The biggest variance}}{\text{The smallest variance}}$$

Criteria, if $F_{\text{count}} \leq F_{\text{table}}$, then H_0 is Homogeneous, $H_0 : \sigma_1 = \sigma_2$, that H_0 is accepted (homogeneous data), $H_1 : \sigma_1 \neq \sigma_2$, that H_1 is rejected (data is not homogeneous).

The fourth step is Hypothesis Testing, carried out to find out whether the hypothesis is accepted or rejected. Hypothesis testing is used to compare the results of the pre-test and post-test after treatment using the learning model Flipped Classroom. The criteria used to test this hypothesis is if the value of $t_{\text{count}} < t_{\text{table}}$ then H_0 accepted and H_1 rejected, whereas if $t_{\text{count}} > t_{\text{table}}$ then H_1 accepted and H_0 rejected (two parties test) with a significance level of $\alpha = 0.05$.

RESULTS AND DISCUSSION

This research was conducted for 4 meetings with details for the experiment class: 1 meeting is given for the pre-test, 2 learning meetings for the application of Flipped Classroom model through Padlet, and 1 meeting for giving post-test. For the control class, 1 meeting was given for pre-test, 2 meetings for learning without treatment (conventional learning) and 1 meeting for post-test.

The mean values of the pre-test and post-test of the experiment class and the control class are presented as follows:

Table 1.
Average of Pre-test and Post-test of Experiment class and Control class

Group	Pretest Mean	Posttest Mean	Improvement
Experiment	67.77	85.54	17.77
Control	64.68	77	12.32

Source: Research Results, 2021

From table 1, for the experiment class, the average pre-test score is 67.77, and the Post-test average is 85.54, so there is an increase of 17.77 while for the control class, the average pre-test score is 64.68 and the post-test average is 77. Thus, the increase occurred by 12.32. The results of the normality test carried out on the experiment class and control class can be seen in the following table:

Table 2.
Normality Test of Experiment Class and Control Class

Class	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Pre-Test in Experiment Class	.133	22	.200*	.945	22	.250
Post-Test in Experiment Class	.121	22	.200*	.948	22	.291
Pre-Test in Control Class	.109	22	.200*	.965	22	.591
Post Test Control Class	.174	22	.083	.953	22	.365

Source: Research Results, 2021

From table 2, the results of the Kolmogorof-Smirnov and Shapiro-Wilk tests, it is obtained that the significance value of the experiment class pre-test 0.200 and $0.250 > 0.05$, it can be concluded that the data is normally distributed, the control class pre-test

is 0.200 and $0.591 > 0.05$, it can be concluded that the data is distributed normal, post-test experiment class 0.200 and $0.291 > 0.05$ then it can be concluded that the data is normally distributed and post-test control class is 0.083 and $0.365 > 0.05$ then it can be concluded that the data is normally distributed. The homogeneity test on the results of the control class and experiment class is presented in the following table:

Table 3.
Pre-test Homogeneity Test of Experiment Class and Control Class

Group	Statistics Level	N	df1	df2	Sig.
Experiment	0.811	22	1	42	.373
Control	0.811	22	1	42	.373

Source: Research Results, 2021

The output of the SPSS one way ANOVA test obtained a significance value of 0.373 because the significance value > 0.05 , it can be concluded that the Pre-Test values for the experiment class and the control class are the same or homogeneous. After the experiment class was treated, it was continued with the Post-test. To see the level of homogeneity, it can be seen in the table below:

Table 4.
Post-test Homogeneity Test of Experiment Class and Control Class.

Group	Statistics Level	N	df1	df2	Sig.
Experiment	1.019	22	1	42	.318
Control	1.019	22	1	42	.318

Source: Research Results, 2021

Based on SPSS output, the "Test of Homogeneity of Variance" is obtained a significance value of 0.318 . Because the significant value > 0.05 , it can be concluded that the post-test scores of the Experimental and Control classes are the same or homogeneous.

Hypothesis testing on differences in student learning outcomes on Atmospheric material can be done using the t-test, because the data is normal and the variance value is the same. Calculations can be seen in table 5:

Table 5.
T Test Results

Independent Samples Test										
		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
Post Test Results	Equal variances assumed	1.019	.318	6.187	42	.000	8.54545	1.38127	5.75794	11.33297
	Equal variances not assumed			6.187	36,489	.000	8.54545	1.38127	5.74541	11.34550

Source: Research Results, 2021

Based on the t-test conducted on the post-test results for the experiment class and control class, the same results were obtained, namely the value of Sig. (2-tailed) $0.000 < 0.05$, then H_0 is rejected. Because H_1 is accepted, it can be concluded that there is a significant difference from the average student learning outcomes who receive the learning model treatment by using Flipped Classroom with Padlet platform.

In this study, the instrument used has been tested for validity and reliability. Students in the control class and the experiment class were given a pre-test before being treated to the experiment class. The results obtained from the pre-test conducted in the control class and experiment class obtained an average value that is almost the same, namely 67.77 for the experiment class and 64.68 for the control class. Then the normality and homogeneity prerequisite tests were carried out, these two samples were normally distributed and had homogeneity so that research could be carried out on these two samples.

The research was carried out in 2 meetings, both the control class and the experiment class. Experiment class using learning Flipped Classroom with the help of the Padlet Platform on topic of Atmosphere, while for the control class learning is carried out conventionally without Flipped Classroom model. To test the hypothesis, it is used t-test, and the results obtained are $t_{count} = 6.187$ with $dk = 42$, with a significant level = 5%, it is obtained $t_{table} = 1.682$. Because t_{count} is greater than t_{table} , then it means that H_0 is rejected, and H_1 is accepted, so it can be concluded that student learning outcomes in the experiment class are greater than in the control class.

There is a significant difference in this study, namely in student learning outcomes using Flipped Classroom learning model in the experiment class with students who use conventional learning model in the control class, with an average score of post-test is 85.54 for experiment class and 77.00 for control class. Based on the explanation above, it can be stated that giving different treatments has a different effect on student learning outcomes.

CONCLUSIONS

From the results of the research conducted, it shows that the application of the Flipped Classroom learning model with the help of Padlet Platform is effective on student learning outcomes in the topic of Atmosphere in Geography class of X IPS 2 Senior High School 2 Dayun. With the results of hypothesis testing using the T test, it is obtained that t_{count} is 6.187 with $dk = 42$, with a significant level of 5% , it is obtained t_{table} as 1.682. Because $t_{count} 6.187 > t_{table} 1.682$ then the hypothesis H_0 is rejected, and H_1 is accepted, so it can be said that there are differences in learning outcomes between the experiment class and the control class. Based on the existing data, it can be concluded that Flipped Classroom learning model with the help of Padlet Platform is effective in improving student learning outcomes in the topic of

Atmosphere in Geography lessons in class X IPS 2 Senior High School 2 Dayun. Student learning outcomes which use Flipped Classroom learning model with Padlet Platform are better than those which not use Flipped Classroom learning model with Padlet Platforms.

REKOMENDATIONS

Based on the conclusions that have been described previously, the authors try to provide some things that can be used as recommendations in the learning process, namely Flipped Classroom model with Padlet Platform that can be used as an effective learning model for learning activities in the classroom, especially in learning Geography.

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