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THE EFFECT OF FLIPPED CLASSROOM LEARNING ON LEARNING OUTCOMES

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Abstract

The impact of flipped classroom learning on student learning outcomes is investigated in this study. The research technique is a scientific approach to data collection that aims to accomplish a particular objective. The quasi-experimental research approach will be the methodology employed in this investigation. The following are the variables in this study: The study's independent variable (free variable) is the learning model, specifically the traditional and flipped classroom models. In this study, student learning outcomes are the dependent variable (bound variable). The t-test and One-Way Anova are two examples of the quantitative analysis techniques used in data analysis to process field-sourced data using normality, homogeneity, and hypothesis tests. The significance value table (sig.) illustrates that the post-test value data in the social studies topic is normally distributed, as determined by the computations above. The post-test results indicate a value higher than 0.05, specifically 0.091 in the experimental class and 0.055 in the control class. According to the test requirements, t table = 1.99 and t count = 6.62. As a result, at a level of 0.05, 6.62>1.99, rejecting H0 and accepting Ha. It is possible to conclude that classes using the flipped classroom learning approach have a higher average value on the post-test of geography learning outcomes than classes utilizing the conventional method. With a 5% confidence level (α=0.05), the calculation of F count> F table (45.06> 3.97) indicates that there is a difference in the average value of learning outcomes (there is an influence on learning outcomes). Ho is rejected, while Ha is approved. It is possible to draw the following conclusion from the data analysis results: "The flipped classroom learning paradigm has a positive and significant influence on learning outcomes.

Keywords: Flipped, Classroom Learning, Learning Outcomes

Abstrak

Penelitian ini meneiti tentang Pengaruh Pembelajaran Flipped Classroom Terhadap Hasil Belajar Siswa. Metode penelitian merupakan cara ilmiah yang digunakan untuk memperoleh data dengan maksud untuk mencapai suatu tujuan tertentu. Metode yang akan digunakan dalam penelitian ini adalah metode penelitian eksperimen semu (Quasi experiment). Variabel pada penelitian ini yaitu: 1. Variabel Independen (Variabel bebas) pada penelitian ini model pembelajaran. yaitu model Pembelajaran flipped classroom dan model konvensional. Variabel Dependen (Variabel Terikat) pada penelitian ini hasil belajar siswa. Analisis data menggunakan teknik analisis kuantitatif untuk mengolah data yang telah diperoleh dari lapangan yang menggunakan uji normalitas, uji homogenitas dan uji hipotesis yang digunakan adalah uji –t dan One way Anova. Dari hasil

perhitungan diatas dijelaskan bahwa data nilai postes pada mata pelajaran IPS terdistribusi secara normal, dapat dilihat pada tabel nilai signifikansi (sig.)data postes menunjukkan angka lebih besar dari 0,05 yaitu pada kelas eksperimen 0.091 dan pada kelas kontrol 0,055. Berdasarkan kriteria uji, thitung = 6.62dan ttabel = 1,99. Dengan demikian, 6.62>1,99dengan taraf α = 0,05,sehingga H0 ditolak dan Ha diterima. Dapat disimpulkan terdapat perbedaan nilai rata-rata postes hasil belajar geografip ada kelas yang diberi perlakuan metode pembelajaranflipped classroom lebih tinggi dibandingkan dengan kelas yang diberi metode konvensional. penghitungan F hitung > F tabel (45.06 > 3.97), maka Ho ditolak maka Ha diterima yang berarti bahwa ada perbedaan nilai rata-rata hasil belajar (ada pengaruh pada hasil belajar) taraf kepercayaan 5% (α=0,05),. Berdasarkan hasil analisis data yang dilakukan diatas maka disimpulkan bahwa "Ada pengaruh yang positif dan signifikan pada model pembelajaran pembelajaranflipped classroom terhadap hasil belajar.

***Kata Kunci**: Flippes, Kelas Pembelajaran, Output Pembelajaran*

INTRODUCTION

Education is a key element in developing excellent human resources. One of the challenges in the field of education is finding effective teaching methods to enhance student's learning outcomes, particularly in the cognitive domain. Learning outcomes encompass students' abilities to understand, analyze, evaluate, and critically apply knowledge (Chen dkk., 2022). However, traditional teaching models often fail to provide sufficient opportunities for students to actively engage in the learning process, resulting in suboptimal learning outcomes (Zain & Andi, 2020). With the advancement of technology, technology-based learning innovations are increasingly being implemented to enhance the effectiveness of education. One model that has gained attention is the flipped classroom approach (Huang dkk., 2023). This model shifts the delivery of instructional materials outside the classroom through videos or digital resources that students access independently. Classroom time is then utilized for discussions, problem-solving, and collaborative learning activities, aiming to deepen conceptual understanding (Yunus dkk., 2023).

The flipped classroom offers a novel approach that maximizes classroom time for active learning activities, which is expected to improve students' cognitive learning outcomes. Several studies have shown that this method can enhance student engagement in learning, support independent learning, and help students grasp difficult concepts (Albar & Southcott, 2021). However, further in-depth studies are needed to understand the extent to which this model impacts cognitive learning outcomes across various educational contexts. The cognitive domain in learning, as defined by Amiullah, (2021) encompasses students' abilities to understand, apply, analyze, evaluate, and create knowledge. Learning outcomes are crucial as they reflect students' intellectual capacity to absorb and apply the knowledge they have acquired. However, traditional teaching models are often less effective in developing students' cognitive learning outcomes, as learning activities are predominantly teacher-centered and provide limited opportunities for students to think critically and learn independently (Budianto, 2024).

Previous studies have shown that the flipped classroom approach can enhance student engagement and encourage independent learning (Syakdiyah dkk., 2020). Additionally,

this model allows students to access materials at their own learning pace, improving understanding and learning outcomes (Tsai dkk., 2020). However, the direct impact of the flipped classroom on student learning outcomes still requires further investigation, particularly in various educational contexts. Therefore, this research aims to analyze the effect of flipped classroom learning on student learning outcomes. It is hoped that this research can contribute to the development of learning methods that are more relevant to the needs of modern education, as well as helping teachers to optimize students' learning potential.

METHOD

Research methods are scientific methods used to obtain data to achieve a certain goal. The method that will be used in this research is a quasi-experimental research method (Quasi experiment). The research design used in this study was a posttest-only control design. In this design, there are two groups, namely the experimental class and the control class. At the end of the lesson, students are given a posttest to determine students understanding of geography concepts after carrying out the learning process (Mulyadi, 2012). The research subject was MTs Sunan Ampel Palengaan Pamekasan. Sampling was carried out using a purposive sampling technique. Purposive sampling is a sampling technique that is based on certain objectives and considerations made by the researcher himself, based on previously known characteristics or characteristics of the population. The variables in this research are: 1. The Independent Variable (Free variable) in this research is the learning model. namely the flipped classroom learning model and the conventional model. The Dependent Variable (Dependent Variable) in this research is student learning outcomes. Data collection was carried out using test and documentation techniques. Testing instrument requirements in this research use validity tests, reliability tests, difficulty level tests, and different power tests. Data analysis uses quantitative analysis techniques to process data that has been obtained from the field using normality tests, homogeneity tests, and hypothesis tests used are the t-test and One way ANOVA.

RESULT AND DISCUSSION

The following are descriptive statistics of the research results.

Table. Descriptive statistics of the research results.

DESCRIPTION	EXPERIMENTAL CLASS GROUP	CONTROL CLASS GROUP
AVERAGE	80.43	**64.86**
STANDARD DEVIATION	9.34	**10.25**
MIN	50	**45**
MAX	**95**	**85**

The normality test is carried out to determine whether the distribution of sample data to be analyzed is normally distributed or not. Two groups will be tested for normalization, consisting of a group of students who were treated using flipped classroom learning

(experimental group) and a group of students who were treated using the conventional model (control group). The results of normality test calculations on social studies student learning outcomes data for the experimental class and control class are in the table below:

Table. Normality test of the average post-test learning outcomes data

NO	VARIABLE	SIG SCORE	DESCRIPTION	DECISIONS
1	X(*flipped classroom*)- Y	0,091	0,091 > 0,05	**NORMAL**
2	**X(CONVENSIONAL)–Y**	**0,055**	**0,055 > 0,05**	**NORMAL**

From the calculation results above, it is explained that the post-test scores in the Social Studies subject are normally distributed. This can be seen in the table of significance values (sig.), where the post-test data shows values greater than 0.05, namely 0.091 in the experimental class and 0.055 in

Table. Hypothesis 1 Testing Results

N_1	N_2	T_CALCULATED	TTABLE	TEST DECISION
35	**35**	**6,62**	**1,99**	**TOLAK H_0**

Based on the test criteria, tcalculated=6.62t_{calculated} = 6.62tcalculated=6.62 and ttable=1.99t_{table} = 1.99ttable=1.99. Thus, 6.62>1.996.62 > 1.996.62>1.99 at a significance level of α=0.05\alpha = 0.05α=0.05, indicating that H0H_0H0 is rejected and HaH_aHa is accepted. It can be concluded that there is a difference in the average post-test scores of geography learning outcomes, where the class using the flipped classroom learning method has higher scores compared to the class using the conventional method.

Table. Hypothesis Test Calculation 2

SAURCES	T_{CALCULATED} \)	*FTABLE*	TEST DECISION
BETWEEN GROUPS	**45.06**	**3.97**	**H_0 REJECTED**

The calculation shows that F calculated > F tableF_{calculated} > F_{table}Fcalculated >Ftable (45.06 > 3.97), meaning H0H_0H0 is rejected and HaH_aHa is accepted. This indicates that there is a difference in the average learning outcomes (an effect on learning outcomes) at a 5% significance level (α=0.05\alpha = 0.05α=0.05). Based on the data analysis conducted, it is concluded that "There is a positive and significant effect of the flipped classroom learning model on learning outcomes."

Research on the flipped classroom indicates that this approach has a positive impact on student learning outcomes. In an experimental study conducted by Abulhul, (2021), it was found that students learning through this method showed a significant improvement in academic performance compared to those receiving traditional instruction. This positive effect was particularly evident in subjects requiring active engagement, such as

mathematics and economics. The Flipped Classroom learning approach has a significant impact on students' learning outcomes because it transforms traditional learning patterns into a more interactive and student-centered model. By studying the material independently before attending class, students have the opportunity to understand the fundamentals of the content at their own pace (Syakdiyah dkk., 2020). This allows classroom time to be used for discussions, problem-solving, and collaborative activities, which enhance conceptual understanding and critical thinking skills.

Research shows that students participating in Flipped Classroom learning tend to achieve better academic performance compared to those taught through conventional methods. Moreover, this approach helps students develop independent learning skills, such as time management and initiative, which are essential for long-term success. However, the success of the Flipped Classroom heavily depends on adequate access to technology and the readiness of both students and teachers to adapt to this approach (Akbar, 2024). The flipped classroom approach also has a positive impact on increasing student engagement during the learning process. By studying the material at home beforehand, students come to class with foundational knowledge, making them better prepared to actively participate in discussions and collaborative activities. This model encourages students to engage more deeply with the practical applications of the theories they have learned, thereby enhancing their analytical and problem-solving skills (Al-Fraihat dkk., 2020). Additionally, the more interactive classroom environment enables teachers to provide personalized guidance to students who face difficulties, supporting improvements in individual learning outcomes. The emphasis on active learning not only boosts cognitive learning achievements but also fosters social skills such as communication, collaboration, and responsibility

The flipped classroom approach encourages students to engage more actively, both in preparation and during classroom discussions. Classroom activities focused on in-depth discussions and problem-solving help students achieve a deeper understanding of concepts. Additionally, the flexible timing allows students to learn at their own pace, accommodating individual learning needs (Cilliers dkk., 2020). However, research also shows that the success of this method heavily depends on students' readiness for independent learning and support from instructors. In some cases, students with low self-directed learning skills may struggle to fully benefit from this approach. This highlights the need for careful design in implementing the flipped classroom model, including the provision of clear supporting materials and well-structured classroom activities (Zhang dkk., 2020).

The flipped classroom is an innovative approach that shifts the traditional learning process. In this method, students independently study foundational materials outside of class, typically through videos or other digital resources. During class sessions, time is devoted to collaborative activities such as discussions, problem-solving, and group projects. This approach allows students to learn at their own pace, enhances active engagement in class, and deepens understanding. However, its success depends on students' readiness for self-directed learning and teachers' ability to design class activities that support deep learning.

DISCUSSION

Based on the research results that have been analyzed, it can be concluded that the application of the flipped classroom learning model significantly has a positive impact on student learning outcomes compared to conventional learning methods. Descriptive data shows that the average value of student learning outcomes in the experimental class, which is the class that uses the flipped classroom model, reaches 80.43 with a standard deviation of 9.34. In contrast, the control class that used the conventional learning method only reached an average of 64.86 with a standard deviation of 10.25. This significant difference in scores confirms that the flipped classroom model can improve student learning outcomes more effectively than the conventional method. The results of further analysis through the normality test show that both groups of learning outcomes data have a normal distribution. This is indicated by the significance value which is greater than 0.05, namely 0.091 for the experimental class and 0.055 for the control class. With normal data distribution, further statistical analysis can be done more validly. Hypothesis testing using the t-test resulted in a t-count value of 6.62, which is much greater than the t-table of 1.99 at the 5% significance level. Thus, H0 is rejected and Ha is accepted, which means that there is a significant difference between the learning outcomes of students who use the flipped classroom model and students who use conventional methods.

Theoretically, these results are in line with previous research conducted Tsai dkk., (2020), who found that the flipped classroom method significantly improved students' academic performance. In the study, students who learned with the flipped classroom method showed deeper understanding and better achievement, especially in subjects that require active engagement such as math and economics. The flipped classroom concept allows students to learn basic materials independently outside of class through videos or other digital resources. This gives them the freedom to learn at their own pace and prepare better before class sessions. In class sessions, time can be utilized for in-depth discussions, problem-solving, and collaborative activities that support conceptual understanding and critical thinking skills. Sungurtekin, (2021) explains that using class time for interactive activities such as group discussions and problem-solving can enrich students' learning experiences and increase their motivation to learn. Thus, students not only passively receive knowledge but are also actively involved in the learning process, which ultimately improves learning outcomes.

The advantage of the flipped classroom model also lies in its ability to build students' learning independence. Syakdiyah dkk., (2020) emphasizes that this method helps students develop time management skills and initiative, which are crucial for long-term success. Students who are familiar with this model tend to be better equipped to manage their learning process, a skill that is much needed in higher education and the workforce. In addition, teachers have more opportunities to provide individualized guidance to students who are having difficulties, which can help improve individual learning outcomes significantly. From the results of this study, it can be seen that students in the flipped classroom had a higher maximum score of 95, compared to the maximum score in the conventional class which only reached 85. This shows that the flipped classroom method has the potential to help students achieve more optimal learning outcomes. In

addition, the minimum score in the experimental class was 50, which was higher than the control class which had a minimum score of 45. This difference shows that the flipped classroom method not only improves average learning outcomes but also helps reduce the risk of students getting low learning outcomes.

Furthermore, the results of the second hypothesis test using analysis of variance (ANOVA) showed that the F-count of 45.06 was greater than the F-table of 3.97 at the 5% significance level. The rejection of H0 and acceptance of Ha in this test strengthens the conclusion that there is a significant effect of the flipped classroom model on student learning outcomes. In other words, the application of the flipped classroom consistently produces better learning outcomes than the conventional method. This finding is also supported by research conducted by Albar & Southcott, (2021), which states that the flipped classroom model creates a more interactive and collaborative learning environment. Students who have studied the material independently before class tend to be more prepared to actively participate in discussions and group activities. This not only improves conceptual understanding but also social skills such as communication and cooperation. Thus, the flipped classroom model not only impacts cognitive learning outcomes but also the development of important interpersonal skills. However, the success of the flipped classroom model largely depends on students' readiness to learn independently and teachers' readiness to design classroom activities that support deep learning. Akbari & Sahibzada, (2020) emphasize that students with low self-learning skills may have difficulties in making optimal use of this method. Therefore, teachers need to provide clear supporting materials and well-structured classroom activities so that all students can benefit from this method. In addition, adequate access to technology is also an important factor in the successful implementation of the flipped classroom.

CONCLUSION

Based on the research results that have been analyzed, it can be concluded that the application of the flipped classroom model significantly improves student learning outcomes compared to conventional learning methods. This is indicated by the average post-test score of students in the experimental class of 80.43, which is higher than the control class which only reached 64.86. The t-test results show that the t-count of 6.62 is greater than the t-table of 1.99, which means there is a significant difference between the two groups. In addition, the results of the analysis of variance with an F-count of 45.06 is greater than the F-table of 3.97, confirming that the flipped classroom model has a significant positive effect on student learning outcomes.

The flipped classroom model allows students to study the material independently before class sessions so that in-class time can be used for discussion, problem-solving, and collaborative activities. This approach helps students understand concepts more deeply, improve critical thinking skills, and build learning independence. In addition, more intensive interaction between teachers and students supports individual understanding and minimizes learning gaps. However, the success of this method requires students' readiness to learn independently, adequate technological support, and teachers' ability to design effective learning. With proper implementation, the flipped classroom model can

be an innovative alternative to improve the quality of learning and student learning outcomes at various levels of education.

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