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Improving activities and learning outcomes through the flipped classroom

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ABSTRACT

Learning Indonesian requires diverse learning resources to achieve optimal learning outcomes, especially when utilizing technology in education. To ensure effective learning outcomes, educators should be able to create innovations and select various learning strategies. Choosing the right and effective learning strategy will help students better understand the material. To address these challenges, the researcher implemented the Flipped Classroom strategy assisted by Google Sites, hoping that students would become more active, exchange ideas, and make classroom learning more meaningful. This research aims to analyze the effect of the Flipped Classroom learning strategy, supported by Google Sites, on the activities and learning outcomes of Grade X MIPA 3 students at SMA Negeri 1 Majene. The research method used was experimental research with a Pre-Experimental Design method. The research design was a Pretest-Posttest Design. This study involved two classes: the experimental class, which applied the Flipped Classroom learning strategy, and the control class, which did not use the Flipped Classroom strategy but followed a conventional teaching method. The results showed that the Flipped Classroom learning model, supported by Google Sites, had a positive and significant impact on the Indonesian learning outcomes of Grade XI MIPA 3 students at SMA Negeri 1 Majene.

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ABSTRAK

Pembelajaran Bahasa Indonesia membutuhkan sumber belajar yang variatif supaya memperoleh hasil belajar yang optimal terutama dalam pemanfaatan teknologi dalam pembelajaran. Supaya pembelajaran membuahkan hasil yang baik, pendidik seharusnya dapat membuat inovasi baru dan memilih berbagai variasi strategi pembelajaran. Pemilihan strategi pembelajaran yang tepat dan efektif akan membantu peserta didik dalam memahami materi. Mengatasi permasalahan tersebut peneliti menerapkan strategi pembelajaran Flipped Classroom berbantu Google Sites dengan harapan peserta didik dapat menjadi lebih aktif, saling bertukar pendapat sehingga menjadikan pembelajaran dikelas lebih bermakna, Penelitian ini bertujuan untuk menganalisis pengaruh strategi strategi pembelajaran flipped classroom dengan bantuan Google Sites terhadap aktivitas dan hasil belajar peserta didik kelas X MIPA 3 SMA Negeri 1 Majene. Metode penelitian yang digunakan adalah penelitian eksperimen dengan metode Pre-Experiment Design. Desain penelitian yang digunakan adalah Pretest-Posttest Design. Penelitian ini melibatkan dua kelas, yaitu kelas eksperimen yang menerapkan strategi pembelajaran flipped classroom dan kelas yang tidak menerapkan strategi pembelajaran flipped classroom atau dengan metode konvensional. Hasil penelitian menunjukkan bahwa ada pengaruh model pembelajaran flipped classroom dengan bantuan aplikasi google sites yang positif dan signifikan terhadap hasil belajar Bahasa Indonesia pada peserta didik kelas XI MIPA 3 SMA Negeri 1 Majene.

Kata Kunci: *flipped classroom; hasil belajar; strategi pembelajaran inovatif*

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INTRODUCTION

The development of digital technology today has provided many benefits for anyone accessing various information and connecting without borders, unrestricted by space and time. In education today, students spend much of their time using multiple technological media such as computers, laptops, and smartphones to interact with friends, teachers, and search for various learning references from the internet (Du et al, 2019). According to Collins and Halverson in a book titled "*Rethinking education in the age of technology: The digital revolution and schooling in America*," the positive impact of this technological growth has influenced the development of teaching technologies in the field of education and has replaced the use of blackboards and chalk with online video learning. With the presence of digital media, the learning process occurs not only in the classroom but also outside the classroom or anywhere students are, with just a device and internet access (Adarkwah, 2021).

In the current digital era, everyone can access various learning resources from the internet for free, such as instructional videos on YouTube, Khan Academy, or other educational websites (Ashary & Komara, 2022). Students can learn from this digital resource anytime and anywhere (Dwiningsih et al, 2018). The development of information technology has transformed the teaching and learning style from a passive learning approach to active learning and from a traditional classroom model to an innovative digital-based classroom model (Asfar & Zainuddin, 2015). Moreover, traditional learning approaches, which tend to focus on the teacher as the center of knowledge, are no longer relevant in the current digital era (Utomo & Wihartanti, 2019).

Traditional learning tends to make students act passively, ultimately boring the teaching and learning process, such as listening to lengthy lectures by the instructor. Instructors, whether teachers or lecturers, who use conventional learning models tend to dominate the classroom and act more actively in delivering lectures (Utomo & Ubaidillah, 2018). Students listen to the instructor's lecture passively and occasionally ask questions or nod as a sign of understanding or pretending to understand (Amin et al., 2023; Hinz et al., 2022). Implementing a teacher-centered teaching and learning model provides little room for students to interact with their peers and hinders them from thinking critically and learning independently (Ghaleb, 2024; Hemmati & Aziz Malayeri, 2022; Luo, 2019). To solve these problems, learning activities in conventional classrooms, such as listening to lectures, should be shifted to educational videos; learners can study various materials from these educational videos anytime and anywhere (Tohari et al, 2019). Video-based lectures will significantly assist and make it easier for learners to review the learning materials according to their needs (Pal & Patra, 2021; Zainuddin et al., 2019).

As a professional teacher, one should be able to manage learning so that it becomes active and effective. Based on the preliminary research conducted during the odd semester of 2022**,** data was obtained regarding students who were less active in learning. During the learning process, we observed that some students remained passive, which reflects a lack of student engagement. They often engaged in activities unrelated to the lesson during the learning process. These issues were caused by another factor: even though teachers had used projectors and laptops as presentation media, classroom learning activities were still dominated by teachers delivering material. Following this, teachers gave assignments that students had to complete immediately.

The lack of students' readiness to receive new material presented by the teacher has become one factor triggering insufficient classroom learning time. The material presented also contributes to the limited time available for classroom learning. As a result, classroom learning issues cannot be thoroughly resolved, and the tasks are inevitably assigned as homework to be completed outside of class. This also causes students to be unable to receive immediate feedback when they face difficulties completing the tasks given by the teacher. Furthermore, we also found data showing a decline in students' learning independence.

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This is evidenced by the decreasing number of students submitting assignments or filling out the attendance form created by teachers on Google Forms. In Indonesian language learning, which is characterized by fostering and developing the knowledge and communication skills needed by students in their education and the professional world, the goal is for them to be able to listen, read, view, speak, and write. While some teachers have already used social media as a learning medium, we consider it not optimal because they only use WhatsApp Groups (WAG), which cannot directly record attendance and do not maximize the use of engaging learning media. As a result, the learning process becomes less interesting, and students tend to be less inclined to participate. If such a situation is allowed to continue, it will lead to a decline in students' academic performance.

Based on data collected during the odd semester of 2022, it was found that Indonesian language learning was not optimal due to the limited availability of learning resources, particularly the minimal use of technology in Indonesian language instruction. This limitation restricted students' experiences and engagement in learning and applying the language. To achieve better learning outcomes, teachers should innovate and select a variety of teaching strategies. Choosing the right and effective learning strategy will help students understand the material more effectively. To address the above issues, the researcher implemented the Flipped Classroom strategy assisted by Google Sites, hoping that students would become more active, exchange ideas, and make classroom learning more meaningful.

The flipped classroom is one of the latest digital-based learning models that uses educational videos as a learning medium outside the classroom. This learning model encourages students to study independently through educational videos before class. In-class activities are more focused on discussions, no longer centered around long lectures from the instructor (Alamri, 2019; Rosyiddin et al., 2023). According to Siti Mutmainah et al. in book titled "*Model Pembelajaran Flipped Classroom*", the concept of the Flipped Classroom is to reverse learning activities, where learning activities that are usually done in the classroom are conducted at home, and tasks that are typically completed at home are done in the classroom. Further research states that the flipped classroom learning strategy can increase students' activity and enhance interaction between students and teachers (Kuswidayani et al., 2024; Schultz, 2014). The flipped classroom or reversed learning approach is expected to replace the conventional full face-to-face learning model in schools with a model where students actively carry out learning activities at home using media and learning resources that have been prepared. Face-to-face activities with teachers then follow this to deepen the learning experiences they have already acquired (Basyah, 2018).

Based on several experts' opinions, it can be concluded that the Flipped Classroom is a Blended Learning-based approach, where material is delivered outside school hours online. At the same time, in the classroom, students engage in discussions and ask questions related to the material they have studied. This research aims to determine the effect of the Flipped Classroom learning strategy on the activities and learning outcomes of students in Class X MIPA 3 at SMA Negeri 1 Majene. The activities observed in this study include summarizing material, participating in discussions, answering questions, and asking questions.

LITERATURE REVIEW

Flipped Classroom

The flipped learning model, also known as the flipped classroom, is a learning model that integrates technology-based teaching methods. The flipped learning model allows students to learn independently, both inside and outside the classroom (Altas & Mede, 2021). The Flipped Classroom learning model is one alternative to address students' low learning outcomes and make classroom activities more effective. As stated by Subagia, "*the use of the Flipped Classroom model can make the learning process more effective because learning activities that are typically completed in the classroom are done at home, and*

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vice versa, activities that are usually done at home are completed in the classroom. Thus, this learning model aligns with 21st-century education systems (Subagia, 2017). The use of the Flipped Classroom, as previously mentioned, provides significant benefits for students, as students who miss in-class sessions can still learn independently, ensuring they do not fall too far behind their peers. In addition, the learning process becomes more planned and systematic because the material is studied first by students at home before the classroom learning process takes place. Thus, the use of time is more effective compared to conventional learning. The Flipped Classroom learning model transforms the role of the teacher from being the primary source of knowledge for students to serving as a facilitator. The teacher's role is to manage all learning activities and processes so that students can achieve the desired learning objectives.

By using this application, teachers can share learning materials in videos, PowerPoint presentations, websites, and other resources related to the material. This allows students to access the learning materials anytime and anywhere. However, one challenge encountered during the research was that only some students responded when teachers shared the learning materials. This was because students faced difficulties accessing the materials on the Google Sites application due to the requirement for an internet connection. "However, this issue can be addressed through face-to-face learning in the classroom, where educators can clarify the learning material previously shared through the Google Sites application. Based on the results of the analysis, it can be concluded that using the Flipped Classroom model in the Indonesian language subject, with the topic of drama performance, affects students' learning outcomes. Similarly, previous research shows that implementing the Flipped Classroom model supported by Google Sites can increase student engagement (Waryana, 2021).

Through this learning model, activities typically conducted in the classroom are replaced with technology-supported homework. In contrast, classroom activities become more varied, such as discussions, Q&A sessions, presentations, and other communicative tasks guided by the teacher. In simple terms, it can be said that the flipped learning model involves shifting what is typically done in the classroom to outside the classroom. The flipped learning model consists of five elements: 1) Students are active in learning; 2) Technology facilitates the direct learning process; 3) Studying materials online before attending class; 4) Real-world problems are assigned to students; and 5) Classroom activities are focused on discussions and other communicative tasks that are directly guided by the teacher (Becker, 2013; Davies, et al., 2013). Technological advancements have transformed how teachers teach and students learn (Khaira et al., 2023). Today, teachers must integrate technology into their teaching, making the most of its advantages to achieve learning objectives. Integrating technology in learning will create a better learning environment for their students (Koehler et al., 2004; Lubis & Ariansyah, 2024).

Several studies have been related to implementing the flipped learning model. The first study is by Danker, who investigated using the flipped learning model approach to explore intensive learning in large classes. The study involved 33 first-year diploma students in the arts department. The results showed that with the flipped learning model, students became active learners, and the teacher’s role shifted to that of a facilitator by initiating classroom discussions to ensure that all students gained a deeper and more meaningful understanding, making learning more effective (Danker, 2015). According to Farangi et al., the second study examined the impact of the flipped learning model in the form of podcasting on sixty students in a speaking class within the EFL context. The students were divided into three groups: two experimental groups and one control group. The first experimental group engaged in creating podcasts through group discussions and uploading them to a podcasting platform. The second experimental group used web-based podcasts related to their discussion topics. Meanwhile, the control group followed communicative language teaching. The study results showed that flipped learning in the form of student-created podcasts positively affected the students' speaking skills, more so than the other two groups (Farangi et al., 2015).

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METHODS

The research method used is experimental research with the Pre-Experimental Design Method. The research design applied in this study is the One Group Pretest-Posttest Design, an experiment conducted on a single group without a control group for comparison. This design is not an actual experiment, or is also referred to as a Quasi-Experiment, because external variables still influence the formation of the dependent variable. The sample selection in this study was done using the random sampling technique. Random sampling is a method of selecting samples where each member of the population has an equal chance of being chosen as part of the sample. In random sampling, population members are selected randomly without considering specific characteristics. The design can be illustrated in **Table 1**.

Table 1. Research Design

Group	Measurement I *(Pre-Test)*	Treatment	Measurement I *(Post-Test)*
Experiment	O_1	X	O_1

Source: Results of the author's research 2023

Information:
O_1 = Pretest given before the treatment in the experimental class
O_2 = Posttest given after the treatment in the experimental class

Population

The population in this study, Table 2, consists of 150 XI MIPA students at SMA Negeri 1 Majene.

Table 2. The Student Population

Class	Total of students
XI MIPA I	37
XI MIPA 2	37
XI MIPA 3	38
XI MIPA 4	38
Total	**150**

Source: Results of the author's research 2023

Sample

The sample in this study**, Table 3,** is class XI MIPA 3, the experimental class, with a total of 38 students, 17 male and 21 female. The sampling technique used was random sampling, as there were no differences among the 150 students (4 classes). One class was then selected as the sample based on 0.25 % of the total population.

Table 3. The Student Sample

Group	Class	Total of students
Experiment	XI MIPA 3	38

Source: Results of the author's research 2023

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Data Collection Technique

Test

The data collection techniques used in this study consist of test and non-test methods. The test technique applied involves objective tests, which consist of items answered by selecting one of the available answer choices or providing the correct answer. The type of objective test used in this study is a multiple-choice test with 25 questions and four answer choices: A, B, C, and D. The test is conducted twice, namely the pretest and posttest.

Observation

This observation was conducted by directly observing the events that occur, with the aim of obtaining accurate information and data and gaining a deeper understanding of the teaching and learning process using the Flipped Classroom model.

Data Analysis Technique

The data collection techniques include documentation, observation, attitude assessment rubrics, skills, and tests. All data from observations and literature studies in the form of notes, documents, and assessments about developing the Flipped Classroom learning model draft supported by Google Sites are collected. In this case, the average score, standard deviation, highest score (maximum), lowest score (minimum), and frequency distribution of students learning outcomes in the three aspects of learning outcomes are used. The average score is obtained from the following formula in **Table 4**.

Table 4. Criteria for assessing learning outcomes

Aspects Analyzed	Predicate	Category
93 - 100	A	Very Good
84 - 92	B	Good
57 - 83	C	Fair
< 56	D	Poor

Source: Results of the author's research 2023

Table 5 shows the minimum completeness criteria (KKM) used for the Indonesian language subject at SMA Negeri 1 Majene.

Table 5. Minimum passing criteria

Score	Criteria
>75	Achieved
<75	Not Achieved

Source: Results of the author's research 2023

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RESULT AND DISCUSSION

Descriptive Statistical Data Analysis

Description of Student Activities

Data on student activities were obtained through an observation instrument conducted during the direct learning process. The data from the observation of student activities are presented in **Table 6**.

Table 6. Student Observation Results

Session	Percentage (%)	Criteria
I	58,06	Quite Active
II	65,70	Active
III	68,06	Active
IV	72,36	Active
Mean Number	**66,05**	**Active**

Source: Results of the author's research 2023

The table above shows that 66.05% of student learning activity is active.

Descriptive Analysis of Indonesian Language Learning Outcomes for Students

The learning outcomes of the experimental class are based on the data obtained using the learning achievement test given to students before (pretest) and after (posttest) the treatment was applied in the experimental class, (see **Table 7**).

Table 7. Descriptive statistics of the test scores of students in the experimental class

Descriptive statistics	Score	
	Pre-Test	Post-Test
Maximum	81	89
Minimum	78	80
Mean	80.54	82.59
Median	81	82

Source: Results of the author's research 2023

In **Table 7**, the descriptive statistics data show low learning outcomes for students in the experimental class before the treatment was applied (pretest). Then, there was an improvement after the treatment (posttest) with the implementation of the flipped classroom learning model. Based on the explanation from the descriptive statistics of student learning outcomes in the experimental class, it is evident that there was a significant difference in the learning outcomes before and after the treatment was applied. This can be seen from the average pretest score of 80.54 and the posttest score of 82.59.

Inferential Statistical Data Analysis

Normality Test

The normality **Table 8** test was conducted using the Kolmogorov-Smirnov test with Microsoft Excell 2021.

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Table 8. Normality Test of the Experimental Class

Statistics	Learning achievement test	
	Pre-Test	Post-Tes
Sig	1,97	0,08
Uji Kolmogorov-Smirnov	0,224	0,224
Conclusion	Normal	Normal

Source: Results of the author's research 2023

Homogeneity Test

The homogeneity value **in Table 9 was obtained using Microsoft Excel 2021. The significance criterion is that** if the calculation result is >0.05, it means the variance in each population is the same (homogeneous).

Table 9. Homogeneity test of learning achievement test for the experimental class

Statistics	Learning achievement test of students in the experimental class
T-Count	0,386
T-Table	1,447
Conclusion	**Homogeneity**

Source: Results of the author's research 2023

This study aims to determine the effect of the Flipped Classroom learning model assisted by Google Sites on students' activities and learning outcomes in Indonesian language lessons with drama-playing material. Several factors that influence why the Flipped Classroom has a significant impact on activities and learning outcomes. With access to materials before class and learning materials before class through videos or online study materials, students can prepare themselves before entering the classroom. This makes them more ready to engage in discussions and learning activities in class, thereby increasing their participation and learning. Understanding the material by independently studying the material beforehand, students can grasp basic concepts and information. They can ask more specific questions in class and focus on deep understanding and applying concepts, rather than just taking notes.

Discussion and collaboration, the Flipped Classroom allows students to engage more in discussions and collaborate with fellow students and educators. Active discussions and collaboration can enhance understanding of the material and boost students' confidence in expressing their opinions. Focus on mastery of material in the Flipped Classroom, class time is more focused on activities that support deep understanding and mastery of the material, such as discussions, completing tasks, and projects. This can improve the quality of students' learning and help them focus and contribute more during learning activities.

The Flipped Classroom method encourages active learning, where students are more actively involved in the learning process than just listening to teacher explanations. This more active learning engagement can improve understanding and retention of information. Educators support the implementation of the Flipped Classroom, and educators act as facilitators and mentors for students in their learning. Support and guidance from educators can increase students' motivation and engagement in the learning process. Individuals' understanding of the Flipped Classroom enables students to learn the material at their own pace and in their preferred learning style. This allows educators to understand individual students' needs better and provide appropriate guidance to maximize their learning outcomes.

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Based on the results of inferential statistical analysis for the normality test using the Kolmogorov-Smirnov test in the MS Excel program, **Table 4** shows that the data obtained is greater than the significance criteria of the test. This indicates that the pretest and posttest data of students' Indonesian language learning outcomes in the experimental class are normally distributed. Meanwhile, the results of the homogeneity test using the Homogeneity of Variance test with Microsoft Excel 2021, in **Table 5**, show that the experimental class comes from a homogeneous population because the calculation results are more significant than the significance criteria of the test. In addition, the Flipped Classroom learning model has also become an alternative method to address the issue of low student learning outcomes. Flipped Classroom can be concluded that applying the Flipped Classroom learning model affects students' learning outcomes (Mandasari & Wahyudin, 2021). With this learning model, classroom activities become more effective. As stated by Subagia, "*The use of the Flipped Classroom learning model can make the learning process more effective because learning activities that are usually completed in class are done at home, and vice versa, activities that are typically done at home are completed in class. This learning model aligns with the 21st-century education system. The use of the Flipped Classroom, as previously mentioned, provides significant benefits for students, as students who miss class meetings can still learn independently and therefore do not fall too far behind their peers* (Subagia, 2017).

By using this application, educators can share learning materials in videos, PowerPoint presentations, websites, and other resources related to the subject being taught. Flipped Classroom allows students to access learning materials anytime and anywhere (Gopalan et al., 2022). However, one challenge encountered during the study was that only some students responded when the educator shared learning materials. This was due to difficulties accessing the materials available on Google Sites, as an internet connection was required. Nevertheless, this issue can be addressed through face-to-face classroom learning, where educators can further clarify previously shared materials. Based on this analysis, it can be concluded that using the Flipped Classroom model in the Indonesian language subject, specifically in drama performance lessons, influences students' learning outcomes. This finding aligns with Waryana's research that implementing the Flipped Classroom model with Google Sites can enhance student engagement (Waryana, 2021).

CONCLUSION

The implementation of the flipped classroom learning model at our school is structured and organized. Before attending class, students are given access to learning materials through videos or other resources available on the learning platform. These materials include explanations, examples, and pre-class assignments that students must complete. Most of the time is dedicated to discussions and completing tasks related to the learning materials during class. Educators facilitate group discussions, collaborate with students, and provide guidance as needed. Classroom activities involve projects, simulations, or creative activities that encourage students to think critically and actively participate in the learning process. This method allows students to become more independent in their learning and fosters a sense of responsibility for their education. Learning outcomes are evaluated through exams or tests and performance-based assessments, projects, and presentations. Students are more actively engaged in learning because they are responsible for their learning. They can manage their time to study, revisit challenging materials, and complete assigned tasks. As a result, they become more active and involved in the learning process.

The use of the flipped classroom strategy has a positive impact on students' learning outcomes. After participating in learning with the flipped classroom strategy, students achieved better learning outcomes compared to those who did not implement this strategy. Implementing the flipped classroom learning strategy positively impacts learning outcomes through student activities. By adopting the flipped classroom

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strategy, students become more active in learning, independently accessing materials beforehand and participating in discussions and tasks during face-to-face sessions. They are noticeably more engaged in learning, and these activities enable them to develop a deeper understanding of concepts while enhancing their problem-solving skills. As a result, there is an improvement in students' academic achievements, demonstrating that the flipped classroom is an effective learning strategy for achieving better learning outcomes.

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