The Effect of Online Learning Using Google Meet and Google Classroom on Students Learning Outcomes in Budi Murni 3 Senior High School

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Abstract. With Google Meet and Google Classroom as its base, this research aims to determine the influence of online learning on physics learning outcomes. Research similar to this is essentially an experiment. All Budi Murni 3 students in the X grade made up the study's population. Using the cluster random sampling technique, the sample was taken. A test of learning outcomes is the tool that is being employed. The two classes were evenly dispersed and pretested before receiving a distinct course of treatment. The students in the experimental class and the control class share the same pre-requisite skills. A post-test was conducted after both students had finished their learning, and it was discovered that the data from the two classes had normal and homogeneous distributions. the post-test t-test result was higher than the t-table. These findings support H_o, indicating that there is a difference in the learning outcomes.

Keywords: Google Meet, Google Class, Learning Outcomes.

1 Introduction

At the end of 2019, the coronavirus pandemic spread out in Wuhan, China, and then it began to strike all countries in the world including Indonesia. The spread of this virus was so fast, it has caused all affected countries to implement a lockdown policy to reduce and prevent the spread of the coronavirus. This epidemic has numerous effects, and one of them is on the educational system. On March 24th, 2020, the Ministry of Education and Culture of the Republic of Indonesia released Circular Letter Number 4 of 2020 concerning Education Policy during the Emergency Period for the Spread of Coronavirus, one of which includes the learning process carried out online/remotely while still providing students with meaningful learning experiences [1]. So, schools began to apply learning methods that were initially involved in the classroom into online learning or study from home to deal with this.

Internet technology is actually required in school to support learning activities during the Covid-19 pandemic, as seen by the change in online learning activities [2]. As a result, teachers must be

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good with technology, stay current on advances, and be able to adapt and integrate technology into instructional activities. Google Classroom, Google Meet, Zoom Meeting, and Whatsapp are examples of technologies that can assist online learning.

According to the researcher's observations at Budi Murni 3 Senior High School in Medan, where she teaches, teachers mostly use Google Classroom and WhatsApp for online instruction. Only a small percentage of teachers use other media, and they hardly ever. When it comes to assisting students in developing their skills and learning outcomes, the usage of Whatsapp and Google Classroom in online learning is still missing. Google Meet is one of the alternate digital platforms that can be used during the COVID-19 epidemic.

Google Meet is a face-to-face or video conference platform that enables interaction between instructors and students, including in-person meetings. Google created Google Meet, which enables users to hold unlimited video conferences with other attendees of a meeting. In other words, during the COVID-19 epidemic, Google Meet can be a substitute for traditional media in the teaching and learning process. [3]. According to [4], Google Meet has the potential to be an alternative media for the education and learning process, meetings with office friends, even work meetings from home). Thus the use of video conferencing in online learning activities will certainly be able to help teachers and students to continue to interact directly even though they are not side by side.

Through video conferencing, Google Meet is supposed to facilitate teaching and learning for both teachers and students. Through video conferencing services, Google Meet may be utilized as a tool to manage learning and rapidly and effectively provide material to students [5]. Based on the background above, to see how the effect of online learning by using Google meet and Google classroom, the researcher was encouraged to do this research. The research was entitled "The Effect of Online Learning Based on Google Meet and Google Classroom on Learning Outcomes of Budi Murni 3 Senior High School Medan"

2 Methods

It is a quasi-experimental style of research. A pretest-posttest design with two groups was used for this investigation. The control class receives instruction using online learning based on Google Classroom, whereas the experimental class receives instruction using online learning based on Google Meet. The tests given to the students before the treatment (T1) is known as the pretest, and the test given after the treatment (T2) is known as the posttest, were given with the knowledge of the learning outcomes attained with the two treatments.

Table 1. Research Design *two group pretest-posttest design*

Class	Pretest	Treatment	Post-test
Experiment	T_1	X	T_1
Control	T_2	O	T_2

According to [6], a population is a group of individuals with qualities and characteristics that have been determined by the researcher. The populations in this study were all students of the tenth grade students of Budi Murni 3 Senior High School Medan who took physics in the odd semester of

2021/2022 academic year. The research sample consisted of 2 classes where the sample selection was carried out using cluster random sampling where the group selection was random and had the same opportunity to be carried out as a sample. One class is used as an experimental class, which is taught with online learning based on Google meet and the other is used as a control class, which is taught based on Google classroom.

The research variable consists of two variables, namely learning with Google meet and learning based on Google classroom as the independent variable, while the learning outcomes of physics as the dependent variable. A research instrument is a tool at the time of research using a method [7]. The instrument used in this study is a learning outcome instrument in the form of multiple choices. For data analysis techniques in this study using two part t-tests at $\alpha = 0,05$ significant level.

3 Result and Discussion

The study began by giving a pretest with the total of 15 items in the form of multiple choices to the experimental and the control class.

Table 2. Pretest Value Data for Experimental and Control Class

Value Interval	Experimental Class			Value Interval	Control Class		
	f	**$\bar{x}$**	**S**		***f***	**$\bar{x}$**	**S**
6 -12	3			6 -12	2		
13 - 19	4			13 - 19	6		
20 - 26	5			20 - 26	5		
27 - 33	11	26,40	12,09	27 - 33	13	25,97	11,86
34 - 40	4			34 - 40	0		
41 - 47	3			41 - 47	4		
Amount	30			Amount	30		

Based on Table 2, it can be obtained that the average score of pretest in the experimental class is 26.40 and the average score of the control class is 25.97.

After that, the two classes were given different treatments, the experimental class used online learning based on Google Meet and the control class used online learning based on Google Classroom. After the two classes were given a treatment, then a posttest was given to determine whether there were differences in learning outcomes due to different learning treatments.

Table 3. Posttest Value Data for Experimental and Control Class

Value Interval	Eksperimental Class			Value Interval	Control Class		
	f	x̄	S		*f*	x̄	S
53 -58	4			26 -33	9		
59 – 64	6			34 – 41	5		
65 – 70	5			42 -49	4		
71 – 76	5	69,31	10,21	50 -57	4	46,63	13,9
77 – 82	9			58 -65	4		
83 -88	1			66 – 73	4		
Amount	30			Amount	30		

Table 3 shows that the average posttest score for the experimental class is 69.30, compared to a score of 46.63 for the control class. According to statistics on student learning outcomes from the experimental class and the control class in Tables 2 and 3, the experimental class's pretest average is 26.40, and its posttest average is 69.31 after receiving therapy using online learning based on Google Meet. This demonstrates that after receiving treatment, learning results improve.

The average score for pretest of control class before being given learning was 25.97 and after being given treatment online learning based on Google classroom, the average score for posttest was 46.63. This shows that there is an increase in student learning outcomes after being given treatment. Although both classes showed an increase in learning outcomes, it can be seen that online learning using Google Meet showed better results compared to learning that only used Google Classroom.

The application of online learning based on Google meet provides better results because of direct interaction between students and teachers and can ask questions more quickly about lessons that have not been understood. This is also supported by [8] saying that with Google Classroom students can get information faster from the teacher about the material being taught.

To find out whether the distribution of data in the experimental class and control class is normally distributed or not, a normality test is carried out.

Table 4. Normality Test for Experimental and Control Class

Group	Pretest Data		Notif	Postest Data		Notif
	L_{test}	L_{table}		L_{test}	L_{table}	
Experimental	0,117	0,161	Normal	0,152	0,61	Normal
Control	0,126	0,161	Normal	0,149	0,61	Normal

Based on Table 4, we can see that all student learning outcomes data have a score that is $L_{Count} < L_{table}$ with $\alpha = 0.05$. So, it can be concluded that all data from both classes are normally distributed.

Tabel 5. The Test of Data Homogeneity of the Two Sample Groups

Data	F_{test}	F_{table}	Conclusion
Pretest	1,048	1,95	Homogeneous
Posttest	1,85		

Based on Table 5, we can see that $F_{count} < F_{table}$ with $\alpha = 0.05$. So, it can be concluded that the pretest and posttest data from the two samples are homogeneous.

Following the completion of the homogeneity and normality tests, the hypothesis was examined using a one-part and two-part hypothesis test. To examine the level of average similarity between the experimental class and the control class, the two-parts hypothesis test was applied.

Table 6. The Hypothesis Testing Pretest Data

Pretest Data	Average Score	T_{test}	t_{table}	Conclusion
Experimental class	26, 40	0,18	1,84	Both classes have the same preliminary ability
Control class	25,97			

The hypothesis test shown in table 6 shows that $t_{count} < t_{table}$ with $\alpha = 0.05$. So we can conclude that the experimental class and the control class students have the same preliminary ability.

The one-part hypothesis test was used to determine the differences in student physics learning outcomes between the experimental class using Google Meet-based online learning and the control class using Google classroom-based online learning.

Table 7. The Hypothesis Testing Posttest Data

Postest Data	Average Score	t_{test}	t_{table}	Conclusion
Experimental class	69,31	7,7	1,59	There is an influence
Control class	46,63			

Based on Table.7 we can see that $t_{count} > t_{table}$ for $\alpha = 0.05$. Thus, we can draw the conclusion that the physics learning outcomes of the tenth grade students at Budi Murni 3 Senior High School in Medan are impacted by online instruction based on Google Meet. This is reinforced by research findings showing that Google Meet can replace face-to-face instruction, which was often performed in a classroom setting, without lowering the quality of the provided information [9].

The online learning based on Google Meet shows better results compared to classes that use Google Classroom because of the direct interaction between teachers and students during learning. In Google Meet, there are several features that teachers can use during learning, for example, to share the material on the screen, the teacher can display a share screen so that students can see the material presented. There is also a chat column for students to take attendance or to submit ideas or questions related to the material being studied. In addition, Google Meet is also equipped with audio-visual features that make it easy for teachers and students to interact in learning during this

pandemic. During learning the teacher can directly observe the condition of students, both active and passive students in learning, and teachers can evaluate students' attitudes, both spiritual and social attitudes when interacting with the material being studied. The audio-visual feature on Google Meet helps the learning process so that the quality of learning becomes good or as expected [10].

Although the use of Google Meet can improve learning outcomes during the covid-19 pandemic, during the learning process there are still obstacles such as limited signals that some students have, so sometimes teachers have to repeat so that students can understand. Then the next obstacle is the activity of the students is still lacking. There are still many students who do not participate in spending their opinions, there is a tendency to only rely on a few active friends.

Based on the obstacles in online learning based on Google Meet, for the next Google Meet learning, it is better to combine learning models that can make active learning. It can also be collaborated with other assistive media in online learning such as the use of Phet or other media, so that students' understanding of physics lessons is increasing and student activity at home can also increase because of the assistive media.

4 Conclusion

Based on the results of the research and the discussion described, the following conclusions are obtained:

1. The average score for the pretest of the experimental class before being given learning was 26.40 and after being given treatment using online learning based on Google Meet, the average score for the posttest was 69.31. This shows that there is an increase in learning outcomes after being given treatment.

2. The average score for pretest of control class before being given learning was 25.97 and after being given treatment using online learning based on Google classroom, the average score of posttest was 46.63. This shows that there is an increase in student learning outcomes after being given treatment.

3. There is a correlation between the results of the one-part t test score and the outcomes of the physics studies completed by Senior High School Budi Murni 3 students in the tenth grade. (Posttest) at $\alpha = 0{,}05$ significant level obtained $t_{test} > t_{table} = 7{,}7 > 1{,}59$, so there is an effect.

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