LEARNING SCIENCE THROUGH ONLINE SYSTEM: WHATSAPP VS GOOGLE MEET PLATFORM

Meliana [1], Muhammad Junus [2], Nurul Fitriyah Sulaeman [3]
[123] Faculty of Teacher and Training Education, Mulawarman University
email: siagianmelianna@gmail.com

Abstract

During the pandemic of COVID-19, the utilization of online platforms is essential for the learning process. This research aims to determine differences in student learning outcomes using the Whatsapp and Google Meet platforms in distance learning during the Covid-19 pandemic with Energy Material in the Life System of Junior High School Students. The type of research is experimental research. This study's sample was class VII A students totaling 34 students and class VII B students totaling 33 students—data collection using multiple-choice questions to measure student learning outcomes (posttest) and confirmation through interview. The results showed no difference in student learning outcomes using the Whatsapp and Google Meet platforms in distance learning during the Covid-19 pandemic. Students show different engagement through the two platforms.

Keywords: Google meet, Science learning, Student's learning outcomes, Whatsapp group

1. INTRODUCTION

In the pandemic outbreak that hit the whole world, Indonesia suffers a significant impact. All segments of life were disrupted during the Covid-19 pandemic, especially in the education segment. All schools in Indonesia had to be closed to reduce the spread of the Covid-19 virus. Teachers must rack their brains to keep learning well even remotely but adjust the student's condition and background. Distance learning is the only learning solution in the face of the Covid-19 pandemic outbreak. According to Milman (2015) digital technology can enable the learning process even if it is different. Many platforms can support distance learning, such as Whatsapp and Google Meet.

At SMP Negeri 2 Bontang, about 40 teachers use Whatsapp in learning. Teachers give assignments to students with features on Whatsapp, and then students learn the material independently within a specific time limit then. The teacher gives assignments to students contained in the student handbook. According to Rahartri (2019), if Whatsapp is not controlled and supervised, it can cause various negative things that can reduce the quality of life. Therefore, Dewi (2020) added that there needs to be monitoring by teachers who coordinate with parents by sending photos or videos of children while doing learning activities at home.

The use of Google Meet platform has been felt by Mulawarman University students who implement KKN PLP in schools. Students who teach using Google Meet feel that it is more effective to teach using Google Meet compared to Whatsapp because students can directly assess students' understanding directly and come from themselves. Students who understand the material can certainly do the questions well which can be seen from the results of the study. Students also dare to ask questions when using Google Meet. According to Stewart et al (2011) with this application also teachers can control the behavior of students.

Whatsapp is generally an application used to exchange messages such as SMS function can even more than it can send photos, audio, as well as videos. By using this application, credit can be replaced with internet quota. The internet quota spent is also not as big as other applications. According to Ferdiana (2020), Whatsapp chat media facilitates group chat, photos, videos, voice messages, and documents. However, it does not consume many quotas. The network is stable, accessed anywhere,

and can repeat the material more effectively and efficiently. Nevertheless, keep in mind that Whatsapp does not contain literacy at all like other learning webs. According to Sahidillah (2019) Whatsapp is a social media for sending messages, photos, or documents that do not contain literacy at all. Google Meet is a platform used to conduct free video meetings or video conferences and is available to up to 100 people and holds meetings up to 60 minutes per meeting. Google Meet is now available not only on smartphones. Google Meet is an alternative medium for teaching and learning that is now much loved. According to Sawitri (2020) Google Meet is a Google Interface service with a daily usage rate increased 25-fold between January to March 2020, displayed on web applications, Android, and iOS applications. Google Meet works for free with light and fast sizes.

Moallem's research (2015) titled "The impact of synchronous and asynchronous communication tools on learner self-regulation, social presence, immediacy, intimacy and satisfaction in collaborative online learning" found that synchronous platforms (Google Meet) resulted in higher levels of member participation in discussions and quality of contributions than out-of-sync platforms (Whatsapp). Between the two platforms (synchronous and asynchronous), get the different average ratings of the quiz. Using the synchronous platform is higher at 85.78 compared to the asynchronous platform of 61.23.

2. RESEARCH METHOD

This study uses a quantitative approach with this type of experimental research. This research was conducted at SMP Negeri 2 Bontang from November to December 2020. The population in this study is all students of grade VII SMP Negeri 2 Bontang odd semester of the 2020/2021 school year with a total of 8 classes. This study's sample was class VII A students totaling 34 students and class VII B students totaling 33 students. The sample selection is using cluster sampling techniques. This study conducted the prerequisite test and hypothesis test.

1. Prerequisite Test
   a. Normality Test

   The normality test used to see data on each variable to be analyzed usually distributed or not. The test used Saphiro-Wilk test with SPSS Statistics 20 for Windows. The basis for decision making is if the significance value or probability value < 0.05, then the data is abnormally distributed. If the significance value or probability value > 0.05, then the data is normally distributed (Uyanto, 2006).

   b. Homogeneity Test

   The homogeneity test used to see data obtained comes from a homogeneous population or not. The test used the Anova test with SPSS Statistics 20 for Windows. The basis of decision making is if the significance value or Sig. < 0.05, then it is said that the variance of two or more population groups data are not the same (not homogeneous). If the value of significance or Sig. > 0.05, then it is said that the variance of two or more population groups data are the same (homogeneous) (Widiyanto, 2010).

2. Hypothesis Test

   To find out the difference in learning outcomes after treatment in both groups, conducted a difference test. Different test is conducted by t-test method. The method of t-test conducted in this study is the Independent t-Test.

   In addition to the prerequisite test and hypothesis test, the analysis results were carried out by considering interviews with several students during learning activities while using the Whatsapp and Google Meet platforms.

3. RESULTS AND DISCUSSION

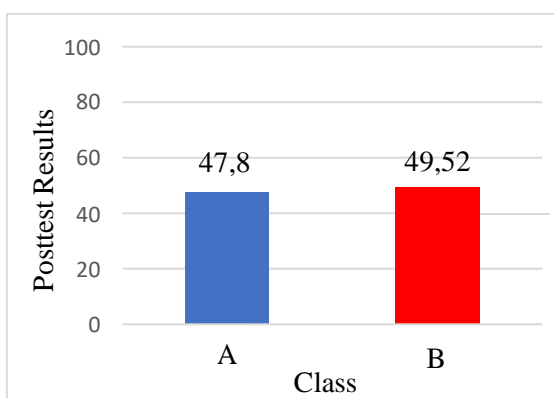Based on the posttest results from both classes, the data is obtained as follows:

Figure 1. Posttest results for Class A Students (Google Meet platform) and B (Whatsapp platform)

1. Prerequisite Test
    a. Normality Test
        The basis for decision making is if the significance value or probability value < 0.05, then the data is abnormally distributed. If the significance value or probability value > 0.05, then the data is normally distributed. The normality test calculation results using the average score data for daily tests before Semester 1 Middle Exam can be seen in Table 1 below.

Table 1. Results of Normality Test for Class A and B

Tests of Normality

	Class	Shapiro-Wilk		
		Statistic	df	Sig.
H	A	.966	34	.354
B	B	.944	31	.105

a. Lilliefors Significance Correction

The normality test shows that the significance value for class A is 0.354 > 0.05 and class B is 0.105 > 0.05. It means that the data on the average score of daily tests before the Middle Exam in Semester 1 in the experimental and control classes is normally distributed.

 b. Homogeneity Test

The basis of decision making is if the significance value or Sig. < 0.05, then it is said that the variance of two or more population groups data are not the same

(not homogeneous). If the value of significance or Sig. > 0.05, then it is said that the variance of two or more population groups data are the same (homogeneous). The homogeneity test calculation results using the average score data for daily tests before Semester 1 Middle Exam can be seen in Table 2 below.

Table 2. Results of Homogeneity Test for Class A and B

ANOVA

Learning outcomes

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	11.137	1	11.137	.926	.339
Within Groups	757.309	63	12.021		
Total	768.446	64			

The homogeneity test shows a significance value of 0.339 > 0.05. It means that the data on the average score of daily tests before the Middle Exam in Semester 1 of the experimental class and the control class have the same or homogeneous variance.

2. Hypothesis Test
    The independent t-test method was used to determine student posttest learning outcomes in the control class and the experimental class.
    Determine the hypothesis first:
    H0: There is no difference in learning outcomes between the experimental classand the control class
    H1: There are differences in learning outcomes between the experimental classand the control class
    If the value is Sig. (2-tailed) > 0.05 then H0 is accepted and H1 is rejected.
    If the value is Sig. (2-tailed) < 0.05 then H0 is rejected and H1 is accepted.

The results of the hypothesis test calculation can be seen in table 3 and table 4 below.

Table 3. Average Score for Class A and B
Group Statistics

	Class	N	Mean
Results	A	25	47.800
	B	21	49.524

Based on the table above, statistically descriptive, it can be concluded that there is a difference in the average student learning outcomes between class A and B. Furthermore, to prove whether there is a significant difference or not, it is necessary to interpret the Independent Sample Test's output.

Table 4. Hypothesis Test Results
Independent Samples Test

		t	df	Sig. (2-tailed)
Results	Equal variances assumed	-.383	44	.704
	Equal variances not assumed	-.399	40.351	.692

Hypothesis testing shows the value of Sig. (2-tailed), namely 0.692> 0.05, H0 is accepted, and H1 is rejected, which means that there is no difference in learning outcomes between the experimental and control classes.

During the study, students argued that the Whatsapp platform used by grade VII B students was more accessible because students were already familiar with this platform in their daily lives, so that students could more easily reach learning from the teacher. Then if something is left behind in learning, students can easily open groups on Whatsapp. Students think that they are more daring to ask questions via Whatsapp. This platform can be used on less stable networks. Nevertheless, there are drawbacks to using

this platform, namely, some students who do not focus on using the Whatsapp platform because messages enter very quickly and messages from researchers are immediately buried, so that students often miss the researchers' questions. Besides, using this platform is quite challenging to see how many students are active. It can be seen in Figure 2 below that there were several incoming messages at the same minute.
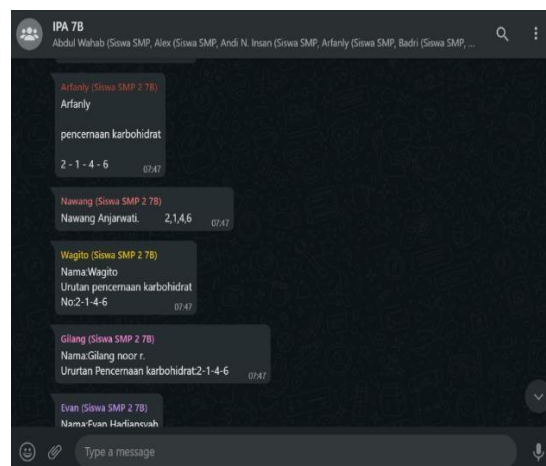

Figure 2. Students' Enthusiasm in Using Whatsapp Groups

Student involvement is an essential focus in implementing science learning (Sulaeman et al., 2020). Students argued that the Google Meet platform used by grade A students was quite easy to use during the research. Students who listened to explanations directly from researchers argued that they understood better using the Google Meet platform. However, not many students ask. Students admit to being embarrassed because they follow their friends who also do not ask questions, and some are afraid of their questions are considered too easy.

There are drawbacks to using this platform. The researcher's voice will be intermittent and even leave the meeting when the internet network is unstable. Researchers have also experienced this, so they spend enough time going to meetings again. Students who listen to the researcher's voice intermittently and even get out of the meeting, of course, do not listen to the material optimally and leave some material behind.

Another drawback when providing learning using this platform is that students do not want to turn on the camera so that it is difficult to monitor what students are doing behind the camera, whether they are actually taking notes and listening to learning or not can be seen in Figure 3 below.
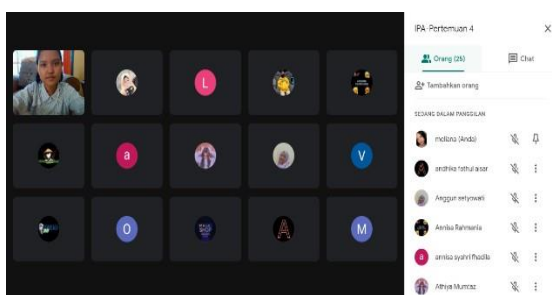

Figure 3. Students Who Do Not Turn On the Camera While Using Google Meet

The learning outcomes (posttest) of class B (control class) were higher than class A (experimental class) because the Whatsapp Group platform was felt to be more effective for teaching and had more advantages. Average learning outcomes (posttest) class VII A and VII B using the Google Meet platform or the Whatsapp platform gets intermediate score for several reasons. Students are nervous about working on questions, their ability to read questions is low, no one asks about the correct answers or answers every time a question exercise is carried out in every meeting, and there is a lack of enthusiasm and interest in learning.

4. CONCLUSIONS

Based on the results of research and data analysis conducted at SMP Negeri 2 Bontang in grades VII A and VII, it can be concluded that:

There is no difference in student learning outcomes (posttest) using the Whatsapp and Google Meet platforms in distance learning during the Covid-19 pandemic with Energy Material in the Life System of Junior High School Students.

Meanwhile, from the interviews with several students and observations during learning, it was found that there were differences in student involvement in learning. The Whatsapp platform tends to be simpler, but students can easily interact with the teacher at any time. Meanwhile, the Google Meet platform can only interact with teachers during the meeting.

5. REFERENCE

Dewi, W. A. F. (2020). Dampak Covid-19 terhadap Implementasi Pembelajaran Daring di Sekolah Dasar. *Jurnal Ilmu Pendidikan*, *2*(1), 55-61.

Ferdiana, S. (2020). Persepsi Mahasiswa tentang Penggunaan Media Daring pada Program Studi S1 Ilmu Gizi Sekolah Tinggi Ilmu Kesehatan Surabaya selama Masa Pandemi *Corona Virus Disease* (COVID-19). *Indonesian Journal of Science Learning, 1*(1), 5-12.

Milman, N. B. (2015). Distance Education. *International Encyclopedia of the Social & Behavioral Sciences: Second Edition,* 567-570. Doi: https://doi.org/10.1016/B978-0-08-097086-8.92001-4

Moallem, M. (2015). The Impact of Synchronous and Asynchronous Comunnication Tools on Learner Self-Regulation, Social Presence, Immediacy, Intimacy and Satisfaction in Collaborative Online Learning. *The Online Journal of Distance Education and e-Learning*, *3*(3), 55-77.

Rahartri. (2019). Whatsapp Media Komunikasi Efektif Masa Kini (Studi Kasus pada Layanan Jasa Informasi Ilmiah di Kawasan PUSPITEK. *Visi Pustaka*, *21*(2), 147-155.

Sahidillah, M. W., & Miftahurrisqi, P. (2019). Whatsapp sebagai Media Literasi Digital Siswa. *Jurnal Varia Pendidikan*, *31*(1), 52-57.

Sawitri, D. (2020). Penggunaan Google Meet untuk Work From Home di Era Pandemi Coronavirus Disease 2019 (Covid-19). *Jurnal Pengabdian Masyarakat*, *2*(1), 13-21.

Stewart, A. R., Harlow, D. B., & DeBacco, K. (2011). Students' experience of synchronous learning in distributed environments. Distance Education, 32(3), 357-381. Doi: https://doi.org/10.1080/01587919.2011.610289

Sulaeman, N. F., Putra, P. D., Mineta, I., Hakamada, H., Takahashi, M., Ide, Y., & Kumano, Y. (2020). Engaging STEM Education for High School Student in Japan: Exploration of Perception to Engineer Profession. *Jurnal Penelitian Dan Pembelajaran IPA*, *6*(2), 189–205. Doi: https://doi.org/10.30870/jppi.v6i2.844

9

Uyanto, S. S. (2006). *Pedoman Analisis Data dengan SPSS*. Yogyakarta: Graha Ilmu.

Widiyanto, J. (2010). *SPSS for Windows Untuk Analisis Data Statistik dan Penelitian.* Surakarta: Badan Penerbit FKIP UMS.