

A Comparative Study of Students' Achievement on Conditional Sentences between Those Who Are Taught through WhatsApp and Google Meet

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ABSTRACT

This research aims at investigating the difference of students' achievement on conditional sentences between those who are taught through WhatsApp and Google Meet, and also finding out which one is more effective to improve students' achievement. The population of this research was all IPA students of SMA Negeri 1 Kendari at XI grade consisted of ten classes, while the samples were class XI IPA Unggul B and XI IPA 1 consisted of 35 students of each class. This research was conducted in quasi-experimental design. The researcher used pre-test and post-test to collect the data, while the treatment was done by using WhatsApp and Google Meet in two different classes. The result showed the students' mean score of WhatsApp class is 37.85 on the pre-test and 73.42 on the post-test, while the students' mean score of Google Meet class is 53.71 on pre-test and 75.14 on post-test. As result, there is an improvement of the students' mean score of each class in post-test. However, after calculating the N-Gain score for both of the classes, the mean score of the WhatsApp class is higher than the Google Meet class. To prove the hypothesis, the researcher takes the conclusion by comparing the Sig.2 tailed and Alpha value using T-Test. It shows that the Sig.2 tailed is less than Alpha value ($0.000 < 0.05$). Therefore, it can be concluded that there is a significant difference of students' achievement on conditional sentences between those who are taught through WhatsApp and Google Meet, also WhatsApp is proven to be more effective to improve students' conditional sentence achievement.

Keywords:

conditional sentence, WhatsApp, Google Meet.

1. Introduction

E-learning could be a huge contribution to classroom learning. E-learning will continue to develop as an integral part of academic and technical education (Zhang, Zhao, Zhou, & Nunamaker Jr, 2004). In addition, E-learning maximizes the use of mobile devices, especially internet-based devices such as computers and smartphones, to the point that teachers and students are no longer tied together in the same place. Furthermore, E-learning has become the only way for teachers and also students to do a learning process since the emergence and spread of a virus called COVID-19. Therefore, the teachers must create an atmosphere of learning from home or online learning and also must increase students' achievement of the subject better than conventional learning. In this case, the teachers have to find the proper E-learning application based on the subject that will be taught to improve the student's achievement of the subject.

WhatsApp is the most common application that has been used by teachers to do a learning process for the students since the phenomenon of COVID-19 pandemic. Basically, WhatsApp is just simply an application used for chatting via text messages (Dove, 2020). Furthermore, despite using other applications, WhatsApp is more in demand. It makes sense since WhatsApp's overall system allows teachers or students to create study groups, enroll students, send multimedia and document files, use cloud storage, and, most importantly, personal chat using smartphones and PC. Moreover, WhatsApp is more familiar to students since it is used by students in everyday life.

The use of WhatsApp during pandemic situation has been challenged by another application which is Google Meet. Google Meet is an updated version of Hangouts application for webinars and video conferencing (Chad Brooks, 2020). Recently, many teachers use Google Meet to do a learning process. It makes sense if the Google Meet application is widely used by teachers as one of the options in the learning process because the video conferencing feature in Google Meet can replace the face-to-face learning process. One of the features that can make it easier for teachers in the learning process is that teachers can share screens to present documents, spreadsheets, or presentations of the learning materials for students.

It has no doubt that E-Learning using WhatsApp and Google Meet have contributed to develop learning process. However, studies of these both of platforms have tendency to focus deeply on speaking, another subject, and other factors affecting intention, while the result of using WhatsApp and Google Meet on grammar teaching and learning is still questioned in the end. Further, looking at how important grammar consist of morphology rules and syntactic rules in helping English Language Learners to create well-formed language (Aarts, 2011), this study is considerably also important to conduct.

Moreover, WhatsApp and Google Meet are the applications that have been used by the researcher as media in teaching grammar especially conditional sentence since conditional sentence includes several types of tenses so tenses as the basic material of grammar can be covered and conditional sentence is also one of the learning materials which is written in the syllabus where it is indeed the learning material that should be taught to the second grade of senior high school students. Therefore, based on all of the reasons above, the researcher tried to compare both of these applications in conducting learning. The researcher also tried to find out what application that has the higher impact in improving students' achievement on conditional sentences effectively.

2. Methods

Quasi-experimental design was used in this research. Specifically, the comparison group, or can be said as the comparative study which is the other model of the experimental. This kind of experimental design only monitors two groups or classes by using different treatments than merely comparing two classes between treatment class and no treatment class (Ary et al., 2018). Therefore, the researcher focused on examining both groups by giving a pre-test, and a treatment using WhatsApp and Google Meet. Then, giving a post-test to measure the effectiveness.

Basically, population of research is described as all members of every class of people, events, or things being examined in the research (Ary et al., 2018). Therefore, this research population consisted of the first-semester IPA students of SMA Negeri 1 Kendari at XI grade of 2021/2022 academic year. From this population, the researcher chose two classes which are XI IPA UNGGUL B and XI IPA 1 with the number of students in each class 35 students as the samples.

The technique of analyzing the data of this research was descriptive and inferential statistics. This research used descriptive statistics to describe the data of mean, standard deviation, minimum and maximum scores. On the other hand, inferential statistics were used to describe the result of independent-samples t-tests.

Before testing the hypothesis, the researchers analyzed the student's results using a scoring system in which students received 1 point for correct answers and 0 points for incorrect answers. The expression can be displayed as:

$$\text{Score} = \frac{\text{Total of Correct Answer}}{\text{Total of Question}} \times 100$$

(Sudjinah in Witra, 2015)

Table 1. The Criteria of Students' Score

Classification	Value
Very High	81-100
High	61-80
Enough	41-60
Low	21-40
Very Low	0-20

(Suhuri, 2008)

Table 2. The N-Gain Score Effectiveness Category

Classification	Value
Very High	81-100
High	61-80
Enough	41-60
Low	21-40
Very Low	0-20

(Arikunto in Nashiroh, 2020)

3. Result

In this section, the researcher described the data such as the mean, maximum, minimum score, and standard deviation. The researcher also described the result of an independent sample t-test.

Table 3. Comparison of Mean, Maximum, Minimum and Standard Deviation Score in Pre-test and Post-Test of WhatsApp Class

Pre-test		Post-test	
Mean Score	37.85	Mean Score	73.42
Maximum Score	65.00	Maximum Score	92.50
Minimum Score	25.00	Minimum Score	50.00
SD	1.13	SD	1.09

Based on the table above, the mean, maximum, and minimum score show significant improvement in the post-test. Moreover, the standard deviation is lower in the post-test.

Table 4. Comparison of Mean, Maximum, Minimum and Standard Deviation Score in Pre-test and Post-Test of Google Meet Class

Pre-test		Post-test	
Mean Score	53.71	Mean Score	75.14
Maximum Score	80.00	Maximum Score	92.50
Minimum Score	30.00	Minimum Score	52.50
SD	1.64	SD	1.05

As shown in the table above, the mean, maximum, and minimum score improved in the post-test. The standard deviation is also lower in the post-test.

Table 5. Paired Samples Test (WhatsApp)

	Paired Differences						T	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference					
				Lower	Upper				
Pair 1 Pre-Test - Post-Test E1	-3.55714	4.50023	.76068	-37.11731	-34.02554	-46.763	34	.000	

The table above shows the sig. (2-tailed) is (.000). In other words, the sig. 2-tailed is less than the alpha value (0.05). Thus, it can conclude that there is a significant difference and WhatsApp can improve the students' achievement on conditional sentences.

Table 6. Paired Samples Test (Google Meet)

	Paired Differences						t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference					
				Lower	Upper				
Pair 1 Pre-Test - Post-Test E1	-2.08571	7.27462	1.22964	-23.35606	-18.35822	-16.962	34	.000	

The table above shows the sig. (2-tailed) is (.000). In this case, the sig. 2-tailed is less than the alpha value (0.05). Therefore, it can conclude that there is a significant difference and Google Meet can improve the students' achievement on conditional sentences.

Table 7. N-Gain Score

Class		Statistic	Std. Error		
NGain_Percent	WhatsApp	Mean	58.9458	1.86304	
		95% Confidence Interval for Mean	Lower Bound	55.1596	
			Upper Bound	62.7319	
		5% Trimmed Mean	59.3237		
		Median	60.0000		
		Variance	121.482		
		Std. Deviation	1.10219E1		
		Minimum	33.33		
		Maximum	78.57		
		Range	45.24		
		Interquartile Range	19.57		
		Skewness	-.407	.398	
		Kurtosis	-.479	.778	
			Google Meet	Mean	46.2936
95% Confidence Interval for Mean	Lower Bound			44.1352	
	Upper Bound			48.4520	
5% Trimmed Mean	46.3296				
Median	45.4545				
Variance	39.481				
Std. Deviation	6.28337				
Minimum	32.14				
Maximum	62.50				
Range	30.36				
Interquartile Range	8.33				
Skewness	-.035			.398	
Kurtosis	.602			.778	

Based on the result of the N-Gain Score above, the mean score of WhatsApp class or XI IPA 1 is 58.94, Meanwhile, the mean score of the Google Meet class or XI IPA Unggul B is 46.29. In other words, the mean score of the WhatsApp class is categorized as "Quite Effective" because the average value of effectiveness of the WhatsApp class is in the range of 56-75. Meanwhile, the mean score of the Google Meet class is categorized as "Less Effective" because the average value of effectiveness of the Google Meet class is in the range of 40-55. Therefore, it can be concluded that WhatsApp is more effective to be used as a learning application to improve the student's achievement on conditional sentences rather than Google Meet.

Table 8. 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
Result	Equal variances assumed	13.450	.000	5.900	68	.000	12.65220	2.14451	8.37289	16.93151
	Equal variances not assumed			5.900	53.988	.000	12.65220	2.14451	8.35269	16.95171

Based on the result of the independent sample t-test above, the sig. 2-tailed is 0.000 which is smaller than the alpha value 0.05 ($0.000 < 0.05$). Therefore, it can conclude that H0 is rejected and H1 is accepted, means that there is a significant difference in students' achievement on conditional sentences between WhatsApp and Google Meet class.

4. Discussion

The objective of this research was to investigate the difference in students' achievement on conditional sentences between those who are taught through WhatsApp and Google Meet. Moreover, between WhatsApp and Google Meet applications, the researcher also tried to find out which application became more effective in improving students' achievement on conditional sentences. The result of this research showed that the students' pre-test scores of two classes had improved in the post-test after being taught by using WhatsApp and Google Meet. The mean score in the pre-test of each class also increased in the post-test. Moreover, the result of the test after calculating the pre-test and post-test scores also showed that there is a significant difference in students' achievement on conditional sentences after being taught by both applications. In other words, both applications can improve the students' achievement of conditional sentences. However, after comparing the students' scores in the two classes, the result indicates that there is a significant difference in students' achievement on conditional sentences between those two classes. Furthermore, after calculating the N-Gain score for both of the classes, the mean score of the WhatsApp class is higher and categorized as "Quite Effective" rather than the mean score of the Google Meet class which is categorized as "Less Effective". Therefore, it can be concluded that WhatsApp is more effective to be used as a learning application to improve the student's achievement on conditional sentences rather than Google Meet.

Concerning the finding of this research, some factors might support the improvement of students' achievement on conditional sentences after being taught by WhatsApp is better than Google Meet such as the implementation of online learning, motivation of the students, and also the richness of the media. The first factor is the

implementation of online learning. Online learning is a learning system in education that utilizes technology in the learning process. Yuliansyah & Ayu (2021) also defined online learning as a learning system that takes place over the internet instead of in the physical classroom. In this case, online learning does not need everyone to meet in the same room at the same time in the learning process because that thing can be done easily through the internet anytime and anywhere.

Using WhatsApp in doing the online learning process for senior high school students gives several advantages such as ease of use, and easy access to the learning materials, and also minimizes the use of excess quota. The researcher got positive responses from the students when implementing online learning using WhatsApp. The students found it easier to learn using WhatsApp since they are no longer unfamiliar with its features in it. It was also not a hard thing for the researcher and the students to send or download the learning materials since it can be done easily with some clicks anytime. The use of a less quota is also an advantage of using WhatsApp because the students do not have to worry if they have to keep up in the learning process for hours with a less remaining quota. Therefore, during the learning process, all students are always on standby and pay attention to the WhatsApp group for everything that had been sent to the group and respond to it. In other words, WhatsApp makes them active equally.

On the other hand, using Google Meet in doing the learning process for senior high school students does not make them active equally. Some students did not join the room meeting at the same time and many students left the room meeting quite a long time before the learning process ended. This made the researcher not easy to explain the learning materials or asked the students to re-explain them because the researcher can not hold or mention them to stay in the meeting room. In this case, it was a hard thing for the researcher to monitor and ensure that all the students listened to the explanation and instructions well. This becomes one of the disadvantages of using Google Meet.

Another disadvantage is the difficulty of using this application. The researcher got a negative response toward Google Meet in the learning process. This is because, at the beginning, the students were not very excited to learn using Google Meet. The students also found it harder to use Google Meet since they have to download the application first and have to send their worksheet answers twice due to the limited number of letters that can be sent in the room chat of Google Meet. However, the advantage of Google Meet is that there is no difficult thing in accessing the learning materials. The teachers can easily share screen the learning materials with the students with a click so that the students can easily take a screenshot of the learning materials and listened to the explanation at the same time.

The second factor is the motivation of the students. Basically, motivation is an impulse possessed by an individual as a reason for a person in doing something. It is supported by Kong, Y (2009) who states that motivation is an inner cause that can push students to learn more with enthusiasm. In this case, motivation is one of the things which needed in the learning process. Students who are motivated to learn tend to have a more positive learning attitude. In other words, if the students are already motivated, they must have a high interest in the learning materials so that they spent their time understanding the materials, then became active in the learning process.

This thing happened in the learning process of XI IPA 1 or the class which was being taught by WhatsApp in this research. All of the students of XI IPA 1 were always ready with the simple questions that the researcher asked in the middle of the explanation. They are also always ready to listen to the voice note that had been sent by the researcher and also responds to it by using a voice note. These kinds of things they did showed that they had a positive learning attitude and an intrinsic motivation toward the learning process.

Meanwhile, the students of XI IPA Unggul B, or the class which was being taught by Google Meet did not do the same thing. Most of the students take a long time to answer the question that had been given by the researcher. It is because they did not stay in the room meeting so they did not hear the explanations, directions, or questions that had been asked by the researcher during the learning process. These things showed that it seemed like they did not have an interest in the learning process using Google Meet. In other words, the students of XI IPA Unggul B did not have a positive learning attitude and also intrinsic motivation in the learning process.

The richness of the media becomes the third factor in improving students' achievement in this research. The richness here means the capacity of media in facilitating a person to learn something. In other words, the more features a media or application has, the richer the media or application will be. It is supported by Rahayu, Poerana & Lubis (2020) who describe media richness as a theory that states that all media have various capabilities to make it easier for users to communicate and change understanding. By comparing the features of the two applications that had been used in this research, WhatsApp is more able to facilitate online learning even though this application is implemented asynchronously. The group chat feature in WhatsApp is the main advantage of this application since this feature makes it easier for the researcher and students in doing the learning process. This feature allows the researcher and the students to send or download the learning material in any type of file in the group which it will also be automatically saved to their phones.

Not only the chat feature, the voice note is also one of the features that facilitated the researcher and students in the learning process. This kind of feature had been used by the researcher and students in discussing the topic of the learning material. This feature makes it easier for the researcher and students to ask, answer questions, or re-explain the learning materials by simply recording their voices without the need to do the long typing. Furthermore, there is no time limit in voice notes, no letter restrictions in the chat feature and no session restrictions in the WhatsApp group are also advantages of this application since all students will always stay in the same group whether the learning hours have ended or not. In this case, WhatsApp united the whole students of a class wherever they were only by joining the group.

Moreover, all of the conversations in the group will continue to be saved in WhatsApp as long as the users have not deleted them. In this case, this is such an advantage for the students since they can repeat the learning material at any time in a detailed explanation. Then, there is also a feature that allowed the researcher as an admin to set whether the students can send a text or not in the group becomes another advantage of this application since the researcher was easily control the situation in

learning so that it was still conducive, especially an explanation. Thus, this kind of feature in WhatsApp made the researcher was easier to implement online learning.

Furthermore, several previous studies have also compared WhatsApp and Google Meet in terms of effectiveness. The previous research that had been conducted by Amaniyah, I., Rahmawati, I., Lailiyah, S., & Fatkhurrozi, A (2021) shows that there is a difference in the effectiveness of online learning using two applications to improve students' mathematic achievement where WhatsApp has a higher average of effectiveness rather than Google Meet. WhatsApp also has a higher average of students' biology learning outcomes than Google Meet, in other words, learning biology using WhatsApp is better (Permana, F. H., Sukma, E., & Wahyono, P, 2021). On the other hand, the previous research that had been conducted by Emanuel, E. P. L., Meidiana, Y. G., & Suhartono, S (2021) shows that there is a difference in the average score of students and Google Meet is better to be used as media in learning mathematics rather than WhatsApp Group. The different result is also shown in the previous research that was conducted by Meliana, M., Junus, M., & Sulaeman, N. F (2021) where the result of this research shows that there is no difference in students' learning outcomes using WhatsApp and Google Meet. In other words, these two applications have actually been compared and several possible outcomes can occur in this research. In this case, one of these two applications has the same possibility to be effective in the online learning process.

Therefore, based on the final score and explanation above, the result of this research indicates that there is a significant difference in students' achievement on conditional sentences between those who are taught through WhatsApp and Google Meet, then, WhatsApp is the application that is more effective in improving students' achievement on conditional sentences.

5. Conclusion

WhatsApp and Google Meet were used as media of teaching and learning in this research. The researcher sought to investigate if there was a significant difference of students' conditional sentences achievement between those who taught through these two applications, and also to find out which application was more effective to improve students' conditional sentence achievement. Based on statistical calculations, the results showed the mean score of WhatsApp was higher than the mean score of Google Meet class. In hypothesis testing, the probability value is lower than the alpha ($0.000 < 0.05$) or H_1 was accepted. In other words, there is a significant difference of students' conditional sentence achievement between students who are taught through WhatsApp and Google Meet. Furthermore, improvements in students' achievement on conditional sentences in WhatsApp class did not directly occur without supporting factors such as the online learning implementation, students' motivation, and the richness of the media itself.

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