The Effect of Using Google Classroom and Whatsapp Group Applications on Students' Interest and Learning outcomes In Chemistry During The Covid-19 Pandemic

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Abstract

This study aimed to determine the effect Google Classroom and WhatsApp Group applications on the interest and learning outcomes in chemistry during the Covid-19 pandemic at SMA Negeri 1 Ampibabo. It was a quasi-experimental study. The sample was students of class X MIA D and X MIA E for the 2021/2022 academic year, totaling 66 students. The interest in learning and learning outcomes were tested statistically using analysis t-test two parties. The results of data analysis showed that the mean score of student learning outcomes in the experimental class was 78.5, while in the control class was 86. The data analysis of questionnaires on students' learning interest showed that the experimental class was in a "Undecided" attitude with a positive category of 63, 2% and the control class is in the "Strongly Agree" attitude with a positive category of 82.1%. The results of the normality test for each data set revealed that all data groups of interest and learning outcomes in both the experimental and control classes were normally distributed, as indicated by a significant probability value> (0.05). Similarly, the homogeneity assumption test results revealed that all data groups in observation variables were homogeneous, with a significant probability value> (0.05). Thus, there was an effect of using the Google Classroom and WhatsApp Group applications on students' interest and learning outcomes in chemistry during the Covid-19 Pandemic at SMA Negeri 1 Ampibabo.

Keywords: Google Classroom, WhatssApp Group; Learning interest; Learning outcome

I. Introduction

The emergence of the Covid-19 pandemic has stimulated the minds of a number of education experts to develop novel ideas in the learning process, such as the use of technology in online learning media (e-learning) models of teaching and learning facilities such as WhatsApp, Google Classroom, and the use of Zoom [1].

Online learning is an activity that conducts learning classes on the internet with a large and broad target group coverage [2]. Online learning also allows an easy access to information both via the

internet and hardware devices such as laptops, mobile phones and can be done anytime and anywhere [3].

The online learning process is carried out through a variety of activities that support the learning process, beginning with meetings via Zoom, Google Meet, and other platforms such as Google Classroom and WhatsApp Group. [4]. Learning media can be very helpful in supplementing real-world learning. The use of learning media will make it easier for the teacher or lecturer to convey the material. All learning is more interactive and interesting when it is packaged in electronic media in the form of a laptop or computer, which will also display pictures, videos, music, and motivational words in this day and age where everything is starting to rely on technology.[5]

Google Classroom is a mixed learning media tool for educators that can help teachers create, share, and classify each paperless assignment [6]. It is supported by [7], that Google Classroom is a blended learning platform developed by Google for schools or other educational institutions that aims to simplify paperless creation, distribution, and assignment of assignments.

WhatsApp is a messaging app that allows users to exchange information such as text messages, pictures, videos, and even phone calls. According to this viewpoint, WhatsApp facilitates the transmission of information [8]. According to [9] Using WhatsApp will make it easier for users to convey information more quickly and effectively. So, WhatsApp provides effectiveness in communicating, interacting easily and quickly, especially in conveying learning information. The teacher's ability to innovate in designing and concocting what material, learning methods, and applications are appropriate to the material and methods is the teacher's success in carrying out online learning in the Covid-19 pandemic situation [10].

Chemistry is one of the subjects that students consider difficult, which reduces students' interest in learning chemistry. Students had difficulty understanding the material due to a decrease in their interest in chemistry. There are several reasons why chemistry is regarded as a difficult subject, including the use of inappropriate teaching methods and the presentation of material that causes students to become bored quickly. Students, particularly during a pandemic, conduct their learning at home without teacher supervision [11].

Learning interest can affect other aspects such as learning motivation. Additionally, interest influences other aspects such as learning achievement and student learning outcomes [12]. Using interactive learning media is one way to increase student interest in learning. The use of interactive learning media in the classroom has been shown to increase student motivation [13].

Learning outcomes are essentially changes in behavior that occur as a result of the learning process. These changes manifest as knowledge, understanding, skills, and attitudes, which typically cover the cognitive, affective, and psychomotor domains.” [14].

One of the schools that has used Google Classroom and WhatsApp Group as learning media is SMA Negeri 1 Ampibabo. However, many students are still unfamiliar with online learning; therefore, the researchers were interested in conducting research on "The Influence of Using the Google Classroom and WhatsApp Group Applications Against Chemistry Interests and Learning Outcomes During the Covid-19 Pandemic at SMA Negeri 1 Ampibabo, 2022/2023 Academic Year."

II. Method

This research was a type of quasi-experimental research. Quasi experiments are those that include treatments, impact measurements, and experimental units but do not employ a random system. This study reveals a causal relationship by comparing differences between a control group and an experimental group in order to conclude changes caused by treatment [13].

III. Result and Discussions

The instrument used to assess the learning interest of class X students at SMA Negeri 1 Ampibabo was a learning interest questionnaire with 23 questions for the control group and 26 questions for the experimental group, each of which contains four indicators of interest in learning, namely indicators of feeling happy, student interest, acceptance, and student engagement, and had been validated. The instrument used to assess the learning outcomes of class X students at SMA Negeri 1 Ampibabo was a written test with 25 multiple choice questions with 5 answer choices (a, b, c, d, e) that were then tested for validity, reliability, level of difficulty, and discriminating power. Valid questions were distributed to assess students' cognitive abilities with regard to redox reaction material.

a. Research Result

1. Data Description

The data were students' learning interests as measured by a questionnaire, and student learning outcomes measured using tests through the prerequisite test, namely the normality test, homogeneity, and testing the research hypothesis from posttest data.

Based on the research findings, the data on students' interest in the control and experimental classes are presented in the following table:

Table 1.

The results of students' interest

Description	Control Class	Experimental Class
Number of students	32	34
Lowest score	80	53
Highest score	110	115
Maximal score	115	130
Average %	82,1	63,2
Attitude	Agree	undecided
Category	Positive	Positive

Based on research data, the learning outcomes of students in the control and experimental classes are presented in the following table:

Table 2.

Students' learning outcomes

Description	Control Class		Experimental Class	
	Pretest	**Posttest**	**Pretest**	**Posttest**
Sample	32	32	34	34
Lowest score	12	76	8	68
Highest score	40	96	36	88
Mean score	25,8	86	22,1	78,5
Deviation standard	7,07	5,57	7,14	5,66

2. The Result of Descriptive Statistic Data

Based on research data, the learning interest of students in the control and experimental classes are presented in the following table:

Table 3.

The Result of Students' Interest of each Indicator in Experimental Class

No.	Indicator	Item No.	Max. score	Total score	Mean score	%	Attitude	Category
1	Happiness	1, 13-16	850	584	3,34	68,71	Undecided	Positive
2	Students' interest	2-4, 17,18	850	582	3,33	68,47	Undecided	Positive
3	Acceptance	6-8, 19-22	1190	840	3,43	70,59	Agree	Positive
4	Students' involvement	9-12, 23-26	1360	1004	3,59	73,82	Agree	Positive
Total No. and mean score			**4250**	**3010**	**3,42**	**70,82**	**Agree**	**Positive**

Table 4.

The Result of Students' Interest of each Indicator in Control Class

No.	Indicator	Item No.	Max. score	Total score	Mean score	%	Attitude	Category
1	Happiness	1, 11-14	800	725	4,39	90,63	Strongly Agree	Positive
2	Students' interest	2-4, 15,17	960	847	4,28	88,23	Strongly Agree	Positive
3	Acceptance	5-8, 18	800	732	4,44	91,50	Strongly Agree	Positive
4	Students' involvement	9,10, 19-23	1120	1005	4,35	89,73	Strongly Agree	Positive
Total No. and mean score			**3680**	**3297**	**4,35**	**89,59**	**Strongly Agree**	**Positive**

3. The Result of Inferential Statistic Data

As a prerequisite for hypothesis testing, normality testing was performed to determine whether the data obtained is normally distributed or not. This test employed the SPSS (Statistical Product and Service Solutions) version 25 One Sample Kolmogorof Smirnov Test method. Looking at the output results in the Asymp section allowed for interpretation. Sig (2-tailed). If the significance value is greater than 0.05, the data is normally distributed; otherwise, the data is not normally distributed. The results of the normality test are as follows.

Table 5.

The Result of Normality Test on Learning Interest

Class	N	Data	Significance	Description
XI MIA D (Experimental)	34	Learning interest	,200	Normal Distribution
XI MIA E (Control)	32	Learning interest	,059	Normal Distribution

Because the normality test analysis yielded a significance value (Sig) greater than 0.05, it can be concluded that the learning interest data was normally distributed.

Table 6.

The Result of Normality Test on Learning Achievement

Class	N	Data	Significance	Keterangan
XI MIA D (Experimental)	34	Pretest	,070	Normal Distribution
		Posttest	,106	Normal Distribution
XI MIA E (Control)	32	Pretest	,167	Normal Distribution
		Posttest	,125	Normal Distribution

Based on the results of the normality test analysis above, a significance value (Sig) was obtained > 0.05, it can be concluded that the learning outcome data was normally distributed.

One of the conditions of the homogeneity test is that the differences between the two classes used as samples must be homogeneous. The Levene test is used in this homogeneity test. In the Levene homogeneity test, if the significance value is greater than 0.05, the data is homogeneous; if the significance value is less than 0.05, the data is not homogeneous. The results of the homogeneity test are shown in the table below..

The hypothesis test results obtained a t-count value of 5.362> t-tab (; 0, 05) and/or a significant probability value of 0, 00 using the T-test test on the interest variable and learning outcomes (0.05). These findings revealed that H0 was rejected and H1 was accepted, indicating that learning via Google Classroom and WhatsApp Group had a significant impact on the interests and learning outcomes of students in class X at SMA Negeri 1 Ampibabo.

Hypothesis testing was used to demonstrate the validity of a proposed hypothesis, such as determining the impact of using the Google Classroom and Whatsapp Group applications on student learning outcomes. A variable has a significant effect on other variables if the significant value (Sig.) is less than 0.05. After finding out that the data on the learning outcomes of the two samples were normal and homogeneous, the hypothesis was tested. The t test was used to perform this test. The following table shows the results of testing the data from the two samples.:

Table 7.

The Result of Hypothesis Test on Learning Interest

Class	Data	N	Mean Score	T	Significance
XI MIA	Learning Interest	31	82,06	5,362	0,000

Table 8.

The Result of Hypothesis Test on Posttest Learning Achievement

Class	Data	N	Mean Score	T	Significance
XI MIA	*Posttest*	31	82,06	5,362	0,000

b. Discussion

The sample used in this study consisted of 2 classes: the experimental class of 34 students from class X MIA D and the control class of 32 students from class X MIA E. The study was carried out in the experimental and control groups using an allocation of 2×45 minutes per meeting who achieved the same material, namely the Redox reaction, but those classes received different treatment. The experimental group used the Google Classroom and Whatsapp Group learning model which was

carried out online, while the control group used the conventional one. (not using Google Classroom and Whatsapp Group) and conducted offline.

Based on the results of the descriptive analysis of the questionnaire in this study, the level of student interest in online learning using the Google Classroom and Whatsapp Group applications in the experimental class, namely, the presentation of students who responded strongly agree in the experimental class was 2.9%, the presentation of students who responded agree was 17.6%, the presentation of students who gave an undecided response was 73.5%, the presentation of students who chose disagree response was 5.9% and the presentation of students who chose strongly disagree response was 0%. So, the average level of student interest in implementing online learning using the Google Classroom and Whatsapp Group applications on redox material was in a undecided attitude with a positive category of 63.2%. While the results of the questionnaire analysis in the control class, namely the presentation of students who responded strongly agree in the control class, namely 40.6%, the presentation of students who chose agree was 59.4%, and the presentation of students who chose undecided response, disagreed, and disagree was 0%. So, the average level of student interest in the application of offline learning to redox material was in the attitude of agreeing with the positive category, about 82.1%. This showed that there was a difference in the average presentation level of students' learning interest between the experimental class and the control class. According to [19], interest in learning and learning outcomes influence each other, and there is a significant relationship between interest in learning and online learning outcomes, both separately and concurrently.

Based on the data above, the percentage of all indicators in the experimental class was lower than in the control class, indicating that the use of online learning through the Google Classroom and Whatsapp Group applications had an impact on student learning interest when compared to the use of face-to-face offline learning models. Despite the fact that students' learning interest in the experimental and control classes was positive. This is consistent with the findings of [18], which found that implementing online learning with learning applications played an important role in increasing student interest in learning. In the Pandemic period, one of the media used in learning activities is learning applications.

Based on the description above, generally this has become an excuse for students which has resulted in a decrease or lack of interest in learning during the Covid-19 pandemic. Therefore, the use of unattractive learning media makes students dislike learning which causes students' interest in learning to be low. This is in line with research conducted by [14], which based on the results of the research showed that the online learning process during the Covid-19 pandemic at SMP Negeri 2 Kampung Rakyat greatly affected students' interest in learning, so that students felt bored and unenthusiastic because did not meet with friends and also the teacher directly.

The learning outcomes of the two classes were: in the experimental class mean score was 78.5 with a standard deviation of 5.66, while in the control class the mean score was 86 with a standard deviation of 5.57. The data showed that the mean score of the control class is higher than the experimental class. Low learning outcomes of students in the experimental class using online learning models using the Google Classroom and Whatsapp Group applications, because students are not used to using the Google Classroom and Whatsapp Group applications during the learning process. Furthermore, the low learning outcomes of students who use Google Classroom and Whatsapp Group applications are due to a lack of interaction between students, and between students and teachers. According to [20], students' low learning outcomes during the pandemic period resulted in lower learning outcomes. This is due to an ineffective learning method, which makes the learning process tedious.

The observation results showed that learning the Google Classroom and Whatsapp Group applications during the Covid-19 pandemic has both advantages and disadvantages. The advantage was that it was very useful in the online learning process during the Covid-19 pandemic, as the teacher can monitor the assignments that have been given by using the Google Classroom and Whatsapp Group applications. Furthermore, they can study anywhere and at any time, with features and benefits such as assisting teacher-student interaction, as well as students and other students in the learning process. Factors influencing student learning outcomes when using the Google Classroom and Whatsapp Group applications, specifically: Internal factors are those that exist within people who are learning. The problem in the online or long-distance learning process during the pandemic, according to [21], arose from the teacher, students, and parents. Problems that arise during online or long-distance learning process included a lack of supporting facilities, such as students' lack of gadgets or unstable signals. Furthermore, both teachers and students in online learning still lack understanding of technology, had a low learning spirit, and achieve learning objectives that are not maximized and planned.

According to the findings of this study, the percentage of students who were interested in learning in the experimental class was lower than in the control class, which may have an impact on student learning outcomes. One of the factors that influence learning outcomes, according to [15], is interest, specifically the desire to generate attention due to something interesting.

IV. Conclusion

This study concluded that the use of the Google Classroom and WhatsApp Group applications on Chemistry learning had an impact on the interests and learning outcomes of students in class X at SMA Negeri 1 Ampibabo. Based on the t-test analysis results, a significance value of 0.000 0.05 indicated that the use of the Google Classroom and WhatsApp Group applications had an impact on the interests and learning outcomes of chemistry students during the Pandemi Covid-19 at SMA Negeri 1

Ampibabo. This study imply that several digital learning tools are essential for teaching chemistry. Attaining competence in the realm of education requires not only amassing more facts and figures, but also developing one's imagination and critical thinking skills, fortifying one's moral fiber, and bolstering one's communication and organizational abilities [22]. If a course is going to be taken online, it is recommended that resources like e-books, links to relevant materials, and video lectures that adhere to the RPS be made available to students [23].

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