



Online Learning Based on Google Classroom on Biology of Class Xi Students Department of Ipa Karitas Tomohon Catholic Sma

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Abstract: Learning is a process of developing new knowledge, skills, and behaviors in a person as a result of his interaction with various information and the environment. The current COVID-19 pandemic has affected the entire education system in Indonesia, from elementary to tertiary levels. This situation requires us to self-isolate at home to stop the spread of the virus. Google classroom can be said as one of the learning media based on the inquiry learning method because google classroom can involve the ability of students to the maximum in finding, understanding, investigating, analyzing and formulating learning outcomes. This study aims to produce online learning media based on google classroom on biology subjects, tissue material in plants, which then the information is packaged in the form of a guidebook for using google classroom in biology subjects. In addition, this study also aims to see the differences in the learning outcomes of students in class XI of the Science Department at Karitas Catholic High School Tomohon. This study uses a development research method by adapting the ADDIE model (Analysis, design, development, implementation, Evaluation). The field trial design used a pre-test post-test control group design technique consisting of students in class XI IPA 1 and Class XI IPA 2 at Karitas Catholic High School Tomohon.

Keywords: Google Classroom, Biology learning, Learning Outcomes.

INTRODUCTION

The results of the study show that: (1) online learning media based on google classroom in biology subjects is said to be valid based on the validation results of media experts with a score of 88%, material experts with a value of 96% and subject teachers 90%. (2) Google classroom-based online learning in biology is said to be very good by looking at the average student response results with a score of 94% being in the very good category. (3) Google classroom-based online learning in biology subjects for class XI students majoring in science at the Karitas Catholic High School Tomohon is said to be effective by looking at the significant difference in student learning outcomes between online learning based on Google Classroom and online learning using zoom from school, where the N value is -experimental class gain is 0, 7 with high category and control

class is 0.4 with medium category. In addition, the results of $t_{count} = 6.155$ are greater than $t_{table} = 1.995$ with a significance level of $0.000 < 0.05$. So it can be concluded that there are significant differences in student learning outcomes through online learning based on google classroom with online learning using zoom from the school on biology subjects for class XI students majoring in science at SMA Catholic Karitas Tomohon.

Learning is a process of developing new knowledge, skills, and behaviors in a person as a result of his interaction with various information and the environment (Smaldino, et.al, 2005). This understanding shows that there are three basic aspects contained in an activity called learning, namely: 1) the interaction process, 2) the environment, and 3) the goal. Biology as part of the natural sciences has distinctive scientific characteristics. The object of biological study is living things (organisms) and their interactions with the environment in a certain space and time. Thus, the object of study in biology is basically concrete (real) which contains various symptoms and problems that can be studied.

The current COVID-19 pandemic has affected the entire education system in Indonesia, from elementary to tertiary levels. This situation requires us to self-isolate at home to stop the spread of the virus. Currently, there are 3,496,700 confirmed cases of COVID-19 in Indonesia with 524,142 + 33,900 active cases, and the current map of the spread of COVID-19 shows the number of cases in North Sulawesi Province as many as 25,327 cases or 0.7% of cases. That occurred in North Sulawesi Province. This situation causes all activities in various sectors to experience very significant obstacles, one of which is in the field of education, so that currently the North Sulawesi Provincial Government through the North Sulawesi Education and Culture Office has taken preventive measures to protect all students, teachers and education personnel from transmission or transmission. Corona Virus by conducting the learning process through an online learning platform.

The application of online learning systems (on the network) and or distance learning certainly makes many educators and students experience difficulties, even the atmosphere of the Indonesian education world seems to have changed and is completely paralyzed. This happens because there are still many educators, students, and even Indonesian people who think that the learning system in Indonesia is a face-to-face learning system in schools, so that the online learning system or distance learning is considered a new learning. But in reality the Distance Learning System has become a necessity in the world, and has even been recognized as a 'discipline' with a well-established philosophical, theoretical and practical foundation (Holmberg, 1986; Keegan, 1990). Even in Indonesia, legally distance learning has been recognized as a national education subsystem, through Law no. 20 of 2003 concerning the national education system.

Berge and Collins (1995) state that the paradigm shift in education is closely related to human efforts to open up space and time barriers to student access to the production and distribution of learning materials through the use of technological advances. In this historical context, there has been a change from the Face-to-Face Education paradigm to the online learning paradigm or Distance Learning. Online learning (on a network) and or distance learning can be done through various applications that can support the learning process, starting from the zoom application, google meet, and other platforms such as the Ruangguru application, Google Classroom, whatsapp group, and so on.

Google Classroom is one of the learning management system applications that can be used as an alternative to the process of implementing online learning and or distance learning during the current covid-19 pandemic, because Google Classroom has several features including the main page that can display student assignments, drafting classes, and data storage on google drive. In addition, teachers are also provided with several other features that can be used to develop learning materials such as reuse posts, create questions, create assignments, and create topics. Google classroom can be said as one of the learning media based on the inquiry learning method because google classroom can involve the ability of students to the maximum in finding, understanding, investigating, analyze and formulate learning outcomes (Gofur, 2018). Create assignment is one of the features in Google Classroom that is often used by educators in giving assignments to students. In addition, there is also

a create topic feature that can also be used by educators to create learning topics that will be discussed in the virtual google classroom so that students can actively participate in the learning process both face-to-face and in the google classroom (Hapsari and Pamungkas, 2019).

Based on the results of the initial interview observations conducted by the researcher to the biology subject teacher at Caritas Catholic High School Tomohon, it was found that the current learning process using the Zoom application which is limited to 30 minutes, google meet and whatshap group as an alternative learning, while the use of google classroom has not been able to maximized properly, this is because teachers do not understand well and are not so familiar with how to use Google Classroom and the features provided in Google Classroom. Another thing that also causes teachers to rarely maximize the use of google classroom in the learning process is because teachers want to meet face-to-face directly with their students during the teaching and learning process,

Different things were found when researchers conducted initial interview observations with students, they said that the learning process using the Zoom or Google Meet application burdened them because the use of internet quotas was very wasteful, the internet was unstable so that they suddenly left during the learning process. which resulted in them skipping what was explained by the teacher or during group discussions, thus making them often difficult to understand the material given. Furthermore, the researcher also found that the special students in class XI IPA 1 and class XI IPA 2 all had smartphones that could be used for online learning activities.

This study aims to produce online learning media based on google classroom on biology subjects, tissue material in plants, which then the information is packaged in the form of a guidebook for using google classroom in biology subjects. In addition, this study also aims to see the differences in the learning outcomes of students in class XI of the Science Department at Karitas Catholic High School Tomohon.

METHOD

This research was conducted in Tomohon Catholic High School with the research population being all students of class XI of Karitas Catholic High School of Tomohon, totaling 187 students, while the sample in this study were students of class XI IPA1 which amounted to 37 students and class XI IPA 2 which amounted to 33 students. The research was conducted in September – December 2021. The type of research used in this research is research and development (Research and Development) which refers to the ADDIE development model. The data collection technique used in the research is to use interview techniques (interviews) to obtain initial information when conducting research, giving questionnaires addressed to media experts, material experts and learning practitioners to obtain feedback on the quality of the media and suggestions regarding products that have been made to be repaired until there is nothing else to improve, observations are made to obtain information data related to initial conditions and problems that exist in schools, then an assessment or test is carried out to obtain data on changes in student learning outcomes, namely by giving pre-test (test before treatment) and post-test (test after treatment) and providing research instruments to obtain data from media experts, material experts, learning practitioners and students as an evaluation material for the developed learning media. The data obtained based on trials in the development of this learning media in the form of quantitative data.

RESULTS AND DISCUSSION

This research was conducted according to the five stages of the ADDIE model. In the analysis stage, the researcher conducted observations at school and conducted interviews with biology teachers and students of class XI majoring in science at Karitas Catholic High School Tomohon. Based on the results of initial observations and interviews, it was found that the learning process carried out in schools using the Zoom application is limited to only 30 minutes, while the use for Google Classroom has not been maximized properly by the teacher because the teacher does not understand well and are not so familiar with how to use Google Classroom and the features provided in google classroom. In addition, researchers also get information from students through online interviews using zoom, when researchers conduct initial interview observations to students,

At the analysis stage, the researcher also analyzed the needs of students so that the researchers found that students needed online learning activities that were not boring so that interesting and not boring learning media were needed. In addition to analyzing the needs of students, the researchers also conducted an analysis of learning materials including the determination of learning materials, namely plant tissues that were adapted to the school curriculum and the needs of students.

In the design stage, the researcher designs the media to be developed, in which the researcher uses google classroom as the learning media that will be used. The steps for developing learning media based on google classroom are as follows: 1) create a class in google classroom, 2) invite students to join the class, 3) add material in the form of e-books, youtube videos, power points and in the form of material links, 4) add or create assignments, 5) make and recap student attendance, 6) make questions and schedule exams, 7) correct students' exam results. Furthermore, the learning tools needed are; 1) Learning Implementation Plans (RPP), 2) student attendance published in google classroom, 3) teaching materials in the form of documents, e-books, drives, and videos containing plant tissue material published in Google Classroom, 4) assignments and test questions published in Google. At this stage, the researcher also developed an instrument for validating the feasibility of online learning media based on google classroom on biology subjects which was a product developed by the researcher.

The next stage is the development stage where at this stage the researcher makes the media that will be developed in accordance with the steps that have been designed. The media that has been created is then packaged in the form of an online learning guide book based on google classroom on biology subjects which is then continued to the validation stage or expert assessment. The validations carried out are media expert validation and material expert validation. The validation results can be seen in table 1 below:

Table 1: Validation Results of Media Experts and Material Experts

Validator	Percentage	Category
Media Expert	88%	Very good
Material Expert	96%	Very good

Implementation stage, at this stage the researcher conducted a small-scale trial whose data was taken from class XI IPA 1 SMA Karitas Tomohon Catholic which involved 10 randomly selected students. The data collection process was carried out by giving questionnaires to students to find out how students responded to the use of learning media that had been developed. Based on the calculation results, obtained a percentage of 92%. In accordance with the qualification criteria, the percentage score of the achievement level of 92% is in very good qualification.

The evaluation stage is the final stage of the ADDIE model development step. At this stage the researcher conducted a field trial on a large scale, namely by giving questionnaires to students to find out their response to online learning media based on google classroom on biology subjects that had been developed, so that it could be concluded that the media that had been developed was feasible or not to be used. Data were taken from all students of class XI IPA 1 at Karitas Tomohn Catholic High School which consisted of 37 students. Based on the calculation results, obtained a percentage of 94%. In accordance with the qualification criteria, the percentage score of 94% of the achievement level is in very good qualification.

At this stage, the researcher also evaluates in the form of pre-test and post-test in class XI IPA 2 as a control class whose learning process uses zoom and class XI IPA 1 as an experimental class whose learning process uses google classroom which is an online learning media developed by researchers, to determine its effect on student learning outcomes. Based on the data from the calculation of the average pre-test value in the control class and the experimental class before the treatment, it was found that the average pre-test score for the control class was 46.33 and the average pre-test score in the experimental class was 48.35. , while the average post-test score after treatment in the control class was 70.15 and the average post-test score in the experimental class was 83.38.

Table 2. Average Pre-test and Post-test scores for control and experimental classes

Class	Average Pre-test score	Average Post-test scores
Control	46.33	70.15
Experiment	48.35	83.38

Furthermore, to see the differences that occur between the experimental class and the control class, the N-gain test is carried out, where the N-gain value for the experimental class is 0.7 in the high category and the N-gain value for the control class is 0.4 in the medium category. . Based on the data above, it can be concluded that the N-gain value in the experimental class is higher than the N-gain value in the control class

The normality test in this study used the One-Sample Kolmogorof Smirnov Test with the SPSS 25 IMB statistical program. The test results can be seen in table 3 below:

Table 4. Normality Test with One-Sample Kolmogorov Smirnov Test

Class	N-Gain	Category
Experiment	0.7	Tall
Control	0.4	Currently

Class	Score	Sig
Experiment	Pre-test	0.111
	Post-test	0.114
Control	Pre-test	0.200
	Post-test	0.179

Based on the data from the normality test in the table above, it was found that the significant value of pre-test and post-test in the experimental class and control class was higher than 0.05 ($\text{sig} > 0.05$), it can be concluded that the data were normally distributed. Furthermore, to see whether the data is homogeneous or not, a homogeneity test is carried out using the Test of Homogeneity of Variances test. The data from the homogeneity test can be seen in table 5 below:

		Levene Statistics	df1	df2	Sig.
Student Learning Outcomes	Based on Mean	1,681	1	68	.199
	Based on Median	1.545	1	68	.218
	Based on Median and with adjusted df	1.545	1	66,480	.218
	Based on trimmed mean	1,567	1	68	.215

Table 6 Hypothesis Test Results

		Levene's Test for Equality of Variances		t-test for Equality of Means		
		F	Sig.	T	df	Sig. (2-tailed)
Student Learning Outcomes	Equal variances assumed	1,681	.199	6.155	68	.000
	Equal variances not assumed			6.222	67,650	.000

Based on the table above, the results of the homogeneity test for the posttest data show a significance number greater than 0.05 so that the hypothesis which states that the variance between groups of

independent variables from the posttest data is not different, can be accepted or declared homogeneous.

Based on the data in table 5, the results of the t-test were found, namely $t_{count} 6,155 > t_{table} 1,995$ then H_0 was rejected, while the 2-tailed significance was $0.000 < 0.05$ then H_a was accepted, so it can be said that there are significant differences in student learning outcomes through online learning. Based on Google Classroom with online learning using zoom from the school on the biology subject of class XI students majoring in Science at SMA Catholic Charity Tomohon.

CONCLUSION

Based on the results of research and discussion about online learning based on google classroom in biology subjects for class XI students majoring in IPA at Karitas Catholic High School Tomohon, the following conclusions were obtained:

1. The development carried out by researchers resulted in a product in the form of online learning media based on google classroom on biology subjects, especially on tissue material in plants, which then the information was packaged in the form of a guidebook for using google classroom in biology subjects. The product was developed using the ADDIE model which consists of several stages, namely analysis, design, development, implementation, and evaluation.
2. The feasibility of developing online learning based on google classroom on biology subjects, especially plant tissue material, was validated by three validators. The validation results from the three validators include media experts in the very good category with a score of 88%, material experts in the very good category with a score of 96% and learning practitioners in the very good category with a score of 90%. Researchers conducted a small-scale trial by giving a questionnaire to 10 randomly selected students. The results of the assessment at this stage are included in the very good category with a score of 92%.
3. Learning outcomes of students in the experimental class and control class were found that the average post-test score in the experimental class was 83.38 and the average post-test score in the control class was 70.15. Furthermore, the N-Gain value of students' learning outcomes in the control class was 0.4 in the medium category and the N-Gain value for the experimental class was 0.7 in the high category. Based on the results of research data analysis, it is known that there are significant differences in student learning outcomes between online learning based on google classroom on biology subjects for class XI students majoring in science at Karitas Catholic High School Tomohon and online learning using zoom used by the school. In addition, based on the results of the research data analysis, it was found that the t-test obtained $t_{count} 6.155 > t_{table} 1,$

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