

The Effectiveness of Online Learning Using Google Workspace and WhatsApp Applications

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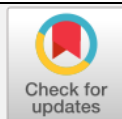
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ABSTRACT

This study aims to find an effective online learning strategy during the COVID-19 pandemic in teaching Mathematics subject matter to Class X MIPA of State Senior High School 1 Lubuklinggau. The strategy in this classroom action research is carried out through 2 cycles and includes planning, implementing, observing and reflecting. At the same time, questionnaires online were distributed to the student to find out the initial state of the study. The object of this classroom action research was class X MIPA of State Senior High School 1 Lubuklinggau. The results of classroom action research with two cycles show an increase in the results achieved according to the indicators of success. In the first cycle of students who took part in learning, as much as 79% experienced an increase of 6% in cycle II of 85% of students who took part in learning. In terms of timeliness of students in collecting assignments also increased by 5% from the first cycle of 72% to 77%. This proves that more than 75% of students participate in online learning and collect assignments on time.

Keywords: Effectiveness; Google; Online; WhatsApp; Workspace

1. Introduction

According to the BPS - Statistics Indonesia, the percentage of the Indonesian population who already owned or controlled cell phones in 2019 was 63.53%, while in South Sumatra, it is 60.70% (Badan Pusat Statistik, 2020). The implementation of distance learning during the COVID-19 pandemic depends on the important role of technology. The learning process can run well with information technology that has developed rapidly, including E-learning, Google Classroom, WhatsApp, Zoom and other information media and internet networks that can connect teachers and students so that the teaching and learning process can run well and that learning objectives are still achieved.

According to a survey by researchers, most secondary school teachers in Lubuklinggau City use WhatsApp, Google Classroom and Google Form applications. This application is considered simple and easy to use by educators and students. Furthermore, the challenge that arises in online learning is to create attractive learning models and methods so that students want to contribute voluntarily and benefit from every lesson that is carried out. Educators can package learning persuasively by linking learning videos or interesting assignments so that students are challenged to complete learning.

The online learning media used at State Senior High School 1 Lubuklinggau are Webex, Zoom, Google Classroom, Google Forms, Instagram, and WhatsApp applications. Each application has advantages and disadvantages in its use. Therefore, it is necessary to know the effectiveness of online mathematics learning implementation so that it is evaluated to find clear corrective steps, so they are ready to face the new normal era. This is what underlies the study to determine the effectiveness of implementing Mathematics learning at State Senior High School 1 Lubuklinggau using online learning.

2. Literature Review

2.1. Definition of Effectiveness

Effectiveness generally shows how far a predetermined goal has been achieved. This is following the notion of effectiveness according to Moore D. Kenneth, as cited in Sumantri (2015, p. 1), the effectiveness of a measure that states how far the target (quantity, quality and time) has been achieved, or the greater the percentage of targets achieved, the higher its effectiveness.

Teaching activities can analyze student needs, decide what to do, design effective and efficient learning, activate students through extrinsic and intrinsic motivation, evaluate learning outcomes, and revise subsequent learning to improve student achievement. The definition of effectiveness can be concluded that effectiveness is a measure that states how far the target (quantity, quality and time) has been achieved by management, in which the target has been determined beforehand.

This can be compared to learning how far the learning objectives that have been set can be achieved with the achievement of quantity, quality and time. In the context of learning activities, it is necessary to consider effectiveness, meaning the extent to which the goals set can be achieved as expected.

2.2. Learning

Learning is essentially a process of organizing the environment around students to grow and encourage students to carry out the learning process. Learning is also said to guide or assist students in carrying out the learning process.

Trianto, as cited in Pane & Dasopang (2017, p. 338), explains that learning is an aspect of complex activity that cannot be fully explained. In simple terms, learning can be interpreted as a

product of continuous interaction between development and life experiences. In essence, learning in a complex sense is a conscious effort from a teacher to teach his students (directing students' interactions with other learning resources) with the intention that the goal can be achieved.

According to the Law of the Republic of Indonesia Number 20 of 2003 concerning the National Education System, learning is a teacher's interaction with students and learning resources in a learning environment (Republik Indonesia, 2003). Whereas Hamalik, as cited in Fakhurrizi (2018, p. 86), states that learning is a combination composed of human elements (students and teachers), materials (books, blackboards, chalk and learning tools), facilities (classrooms, audio-visual), and processes that influence each other to achieve learning objectives.

Learning can also be said to be a system because learning is an activity to provide students with knowledge. Learning is a process of conveying knowledge and information through interaction between the teacher to students, it is also a process of providing planned guidance and conditioning or stimulating students to learn well, and learning activities can be characterized by the existence of educational interactions that occur, namely the teacher to students or students to teachers in pedagogy. In addition, the teacher must also prepare innovative learning that can stimulate students to be enthusiastic about learning activities.

It can be concluded that learning is an interactive activity carried out by the teacher to students with the aim that students know. Learning is also a process of teaching and learning activities in which it contains the provision of learning materials, knowledge information, guiding activities for students, as well as providing stimulation so that students can be motivated until they are finally able to achieve the goals that have been set.

3. Research Methodology

This class action study activity was aimed at students of class X at State Senior High School 1 Lubuklinggau, which began with preparing and submitting proposals. This study uses descriptive research methods with qualitative descriptive analysis techniques. According to Sutopo (2006, p. 179), qualitative research leads to a detailed and in-depth description of both conditions and processes and relationships or interrelationships regarding the main things in the research objectives. According to Bogdan and Taylor, as cited in Moleong (2014, p. 4), this type of research produces data in the form of written and spoken words from people and observable behavior. After the proposal has been submitted and received approval, it is followed by the preparation of research instruments, data collection, data analysis, discussion and preparation of research reports.

3.1. Research Location

This study was conducted at State Senior High School 1 Lubuklinggau by taking the object of research in class X. Class X was chosen because it relates to the research problem, namely, knowing effective online learning during the COVID-19 pandemic.

3.2. Time of Research

This research was conducted from August 2020 to November 2020, using a classroom action research method using two cycles.

3.3. Research Subject

The subjects in this class action research were students in class X State Senior High School 1 Lubuklinggau in the 2020/2021 academic year. Meanwhile, the number of students in class X was 192 students.

3.4. Data Collection Techniques and Tools

Data collection is one of the activities supporting the implementation of research activities, where data collection is carried out to determine the success or failure of research. Data collection procedures used by researchers include:

1) Questionnaire

According to Sugiyono (2018, p. 142), a questionnaire is a data collection technique that is carried out by giving a set of written statement questions to the respondent to answer. In this study, data collection techniques were carried out by giving a set of questions distributed via the Google Form link to each respondent at State Senior High School 1 Lubuklinggau.

2) Documentation

In addition to using the interview method, data collection procedures can also be obtained through facts stored in letters, diaries, photo archives and activity journals. The data in documents becomes data that researchers can use to explore past information. Documentation comes from the word document, which means written goods. The documentation method is a data collection procedure used to trace historical data. According to Sugiyono (2018, p. 329), documentation is a method used to obtain data and information in the form of books, archives, documents, written numbers and pictures in the form of reports and information that can support research.

3.5. Data and Data Sources

The data source is the primary source obtained from the research subject, in the form of the results of student questionnaire answers with two cycles carried out.

3.6. Data Analysis

According to Bogdan, as cited in Sugiyono (2018, p. 332), data analysis searches for and systematically compiles data from interviews, field notes, and other materials to be easily understood. The findings can be communicated to others. In this study, researchers used data analysis using the Miles and Huberman model, as cited in Prastowo (2012, pp. 242-249), namely through several processes, including:

- 1) Data reduction. Data reduction is a selection process focusing on simplifying, abstracting and transforming the initial data that emerges from written records in the field. During the data reduction process takes place.
- 2) Data Display. In the data presentation stage, the researcher develops a description of structured information to draw a conclusion and take action. Presentation of data used in the form of narrative text.
- 3) Conclusion. Researchers make conclusions and verify by looking for the meaning of each symptom that has been obtained and draw conclusions from the data that has been concluded at the beginning, then match notes and observations made by researchers during research activities.

3.7. Data Validation

It is first necessary to develop a research instrument to obtain valid data. A questionnaire grid was prepared to fulfill theoretical validity, especially content validity.

3.8. Research Procedure

The research design in this classroom action research refers to Kurt Lewin's model. The main components in Kurt Lewin's classroom action research are 1) planning, 2) acting, 3) observing, and 4) reflecting. The following figure can illustrate the relationship between the four main concepts (Efendy et al., 2015, p. 4):

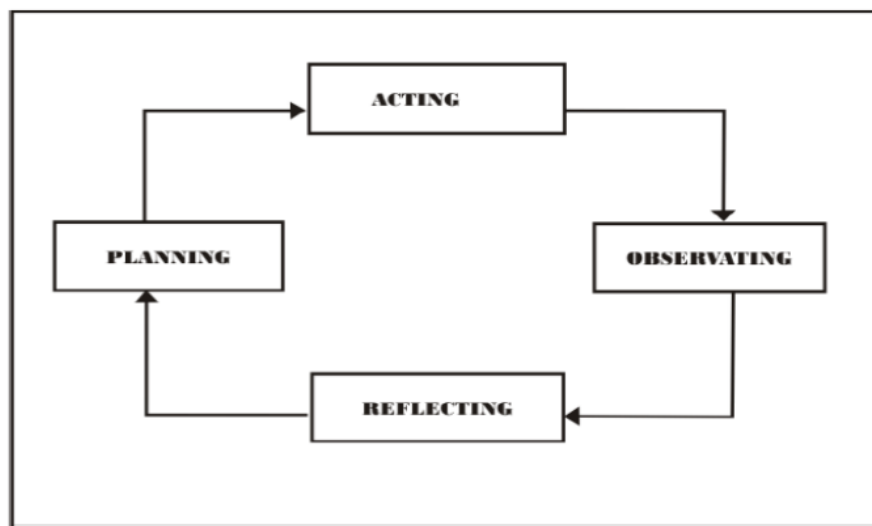


Figure 1. The class action research model

Source: Kurt Lewin, as cited in Efendy et al. (2015, p. 4)

From **Figure 1**, several activities can be described as follows:

3.8.1. Cycle I

1) Planning

- a) Using an online learning model, researchers or teachers conduct curriculum analysis to determine the basic competencies that will be conveyed to students.
- b) Make a Learning Implementation Plan using an online learning model on absolute value equation material.
- c) The teacher creates a WhatsApp Group.
- d) Make learning videos using the teacher's own YouTube channel.
- e) Create an instrument using PowerPoint that will be used in the Classroom Action Research cycle.
- f) Develop a learning evaluation tool from Student Performance Sheets collected in the Class Room.
- g) The teacher prepares a list of attendance using Google Forms.

2) Acting

- a) The teacher explains the material using the WhatsApp (WA) application.
- b) The teacher sends a learning video link that students must study and record in a book.
- c) The teacher directs students to understand the material provided.

- d) Students can provide feedback on the material presented through the WhatsApp Group application.
 - e) The teacher gives quizzes or questions.
 - f) The teacher observes the learning activities of active students in the WhatsApp Group.
 - g) The teacher and students reinforce and make conclusions on student learning outcomes.
- 3) Observing
- a) The teacher observes student learning activities.
 - b) The teacher observes the activeness of students in learning activities.
- 4) Reflecting
- This Classroom Action Research can be successful if it meets the following conditions:
- a) Most students, or 75% of the students, participate in learning.
 - b) Students complete assignments from the teacher according to the time provided. As much as 75% of the students.

3.8.2. Cycle II

- 1) Planning
- The researcher made a lesson plan based on the reflection results in the first cycle. In this cycle, the applications besides WhatsApp are combined with Google Zoom.
- 2) Acting
- The teacher implements an online learning model based on the lesson plan resulting from the reflection in the first cycle.
- 3) Observing
- Researchers made observations of online learning activities.
- 4) Reflecting
- Researchers reflected on the implementation of the second cycle, compiled an analysis, and made conclusions on the implementation of online learning to determine the effectiveness of online learning in mathematics lessons.

3.9. Performance Indicator

This classroom action research activity will look at the teacher and student performance indicators because the teacher's function as a facilitator greatly influences student performance.

- 1) Teacher Performance
- a) Documentation is in the form of student attendance.
 - b) Observations are the results of observations of student learning activities.
- 2) Student Performance
- a) The timeliness of students collecting assignments.
 - b) Observation is in the form of student activity in the teaching and learning process of mathematics.

4. Results and Discussion

Learning mathematics using online methods was effective during the COVID-19 pandemic. Based on the results of the questionnaire given to students, out of 192 students who filled out the questionnaire, there were 162 people, with details of 53.1% female and 46.9% male. In

general, students were enthusiastic about online learning, and it was proven that 90.1% paid attention to the teacher's explanation and completed the assignments given. They had no psychological complaints that were felt. It was proven that 34% of students had no complaints. They just experienced physical complaints, 34.6 % and 32.1% eye fatigue and body aches.

In online learning, students experience problems with internet network problems as much as 52.5%, affecting students' understanding of learning material; around 69.1% of students do not understand learning material and prefer classroom applications by 37% and individual assignments by 62.3%. The type of assignment they prefer is in the form of multiple choice assignments 79%. In learning mathematics, students feel less effective using online methods, and this is proven by 67.3% of students answering that mathematics is less effective using online learning.

Online learning was effective in learning mathematics during the COVID-19 pandemic, even though students still felt there were obstacles to this online learning. In cycle I, 79% of students who took part in learning experienced an increase of 6%. In cycle II, 85% of students took part in the lesson. In terms of timeliness of students in collecting assignments also increased by 5% from cycle I of 72% to 77%.

5. Conclusion

Structured and combined online learning can affect effectiveness in learning. This can be proven by the increase in students participating in learning and the accuracy of collecting assignments in each cycle. Online learning is an alternative that teachers can use during the COVID-19 pandemic and is combined with several learning models to motivate students. Online learning can be carried out during the COVID-19 pandemic so that learning continues according to the curriculum set by the school.

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7. Declaration of Conflicting Interests

The authors have declared no potential conflicts of interest concerning this article's research, authorship, and/or publication.

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