



Mathematics Learning Using Zoom Cloud Meeting During the Covid-19 Pandemic for Elementary School Students

Pembelajaran Matematika Menggunakan Zoom Cloud Meeting Pada Saat Pandemi Covid-19 Bagi Siswa Sekolah Dasar

Prima Luqman Prasetya¹, Fitri Nur Mahmudah²

^{1,2}Manajemen Pendidikan, FKIP, Universitas Ahmad Dahlan

e-mail: primaluqman@gmail.com, fitri.mahmudah@mp.uad.ac.id

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Abstract

The purpose of this study was to determine the implementation of mathematics learning in elementary school students by using zoom cloud meetings during the Covid-19 pandemic. The method used in this research is qualitative. The technique of collecting data using participatory observation and using observation guidelines. The place of this research is SD Muhammadiyah Prambanan. The research subjects are 15 grade students of elementary school with a total of 5 people. The technique of determining participants using purposive. Data analysis was used with the assistance of atlas.ti software version 8. The results of this study provide information that learning mathematics using the zoom cloud meeting consists of three things, namely learning conditions, the implementation process, and learning outcomes. Where each finding has its respective sub-components. The findings of this study can be used as a teacher strategy in developing abilities and competencies in teaching elementary school students using the zoom cloud meeting platform. The recommendations of this study are for elementary school teachers in any discipline. The strategy in the results of this study can be used as an indicator for achieving success in learning.

Keywords: covid-19 pandemic; digital platform; mathematics learning; student.

Abstrak

Tujuan penelitian ini adalah untuk mengetahui pelaksanaan pembelajaran matematika pada siswa sekolah dasar dengan menggunakan zoom cloud meeting selama pandemi covid-19. Metode yang digunakan dalam penelitian ini adalah kualitatif. Teknik pengambilan data dengan menggunakan observasi partisipatif dan menggunakan pedoman observasi. Tempat penelitian ini di SD Muhammadiyah Prambanan dengan subjek penelitian adalah siswa kelas 5 sekolah dasar dengan jumlah 5 orang. Teknik penentuan partisipan dengan menggunakan purposive. Analisis data yang digunakan dengan

berbantuan software atlas.ti versi 8. Hasil penelitian ini memberikan informasi bahwa pembelajaran matematika dengan menggunakan zoom cloud meeting ini terdiri dari tiga hal yaitu learning conditions, the implementation process, dan learning outcomes. Dimana masing-masing temuan memiliki sub komponen masing-masing. Temuan hasil penelitian ini dapat dijadikan sebagai strategi guru dalam mengembangkan kemampuan dan kompetensi dalam mengajar siswa sekolah dasar dengan menggunakan platform zoom cloud meeting. Rekomendasi penelitian ini adalah untuk guru-guru sekolah dasar dalam bidang ilmu apapun. Strategi dalam hasil penelitian ini dapat digunakan sebagai indikator untuk mencapai keberhasilan dalam pembelajaran.

Kata kunci: *pembelajaran matematika; platform digital; pandemi covid-19; siswa.*

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Introduction

The outbreak of the Covid-19 pandemic in 2020 has resulted in various fields stagnating and stopping, including the education aspect. The Indonesian government defines what is usually face-to-face education to be distance learning or online. This certainly hinders students from being able to learn well. Various ways have been taken by educational institutions to be able to carry out distance learning in an effective way, especially the application of teacher self innovation (Mahmudah, 2021). Teacher who have innovations in learning in any subject will further adjust their teaching abilities. This can be done using a variety of existing platforms. Therefore, the importance of the platform used in learning can affect student attitudes, behavior and achievement during the Covid-19 pandemic.

Research results are related to the learning process using various platforms during the Covid-19 pandemic that has been carried out. According to (Zakiah & Aryawan, 2020) in his research states that learning using google classroom during the Covid-19 pandemic has an effectiveness of 77%. The same thing was also conveyed by (Saragih & Ansi, 2020) in the results of his research, that there is a good effectiveness of 80.4% in using WhatsApp for the learning process. The various existing platforms can be used and familiarize and civilize the digital classroom as one of the online lessons in the midst of the Covid-19 pandemic.(Pertiwi & Utama, 2020). Research on the use of zoom has been researched by (Ismawati & Prasetyo, 2021) in a journal entitled Learning

Effectiveness Using Zoom Cloud Meeting Videos in Early Childhood in the Covid-19 Pandemic Era. This research can show that learning with video conferencing is effective, interactive, can support distance learning, making it easier for students to absorb learning material delivered by educators because it is more real time. Similar research was also conducted by (Faisal, 2020) with the title Effectiveness of the Learning Process through the zoom cloud meeting application during the Covid-19 Pandemic. The results of this study indicate that the effectiveness of using the zoom cloud meeting application during this pandemic is considered ineffective, due to many factors, namely the infrastructure of internet users that has increased dramatically in the midst of a pandemic, so it is hoped that there will be cooperation between the central government and the Education Office in areas with minimal internet. to be able to overcome these problems, so that learning activities can run well.

From the two studies above, it can be concluded that zoom is one of the online applications that is often used and is an alternative to distance learning. However, its utilization and effectiveness is still not perfect. Therefore, it is necessary to have an evaluation in every online implementation using a zoom meeting. The two studies above also have different research subjects. In Faisal study, the subjects were Early Childhood students while Faisal's research was general students. A more visible result is the research of Faisal which takes the subject of students in general. In this study, one of the things that made zoom ineffective was the signal and the lack of supporting facilities and facilities to be able to take Zoom lessons. Even though facilities or support such as signals and devices are learning facilities that must be prepared before learning with zoom cloud meetings begins.

In the implementation of learning, things that need to be prepared are the means or facilities (Khusni & Mahmudah, 2020). If the facilities or facilities are incomplete, learning cannot run effectively. this is explained by (Mudhoffir, 1986) who explains that "The function of the facility is to support program activities so that all these activities can run efficiently". Based on that opinion, therefore broadly speaking, there are two preparations that must be done before starting learning, namely: first self-preparation and the second is preparation of means. Learning facilities or facilities are one of the determining factors for student achievement. Because with adequate or complete learning facilities it will make learning even better.

Seeing zoom as an alternative to learning that can be used with many adequate facilities, it is necessary to look at its effectiveness at various levels of education (Syakdiyah, Mahmudah, & Wiwik, 2019). One school that applies a zoom application to learning is SD Muhammadiyah Prambanan. At SD Muhammadiyah Prambanan, especially grade 5 students, learning mathematics has been carried out several times using Zoom. The effectiveness in using zoom needs to be analyzed and evaluated also needs to be done. The purpose of writing this article is to determine the implementation of mathematics learning using zoom cloud meeting for 5th grade students of SD Muhammadiyah Prambanan.

Research Method

This study uses descriptive qualitative methods. According to Sugiono, qualitative research is research in which the researcher is placed as a key instrument, data

collection techniques are carried out by combining and data analysis is inductive (Sugiyono, 2015). According to (Poerwandari, 2005) qualitative research produces and processes descriptive data, such as transcription of interviews and observations. Kirk and Miller (in Moloeng) define qualitative research as a way to make direct observations on individuals and relate to these people to obtain the data they dig (Moleong, 2002).

In accordance with the problems that are the focus of this study, namely the implementation of mathematics learning using a zoom cloud meeting for grade 5 students of Muhammadiyah Prambanan, the researchers used a qualitative approach by describing the data that the researcher obtained as a result of a study. By using this method, the researcher will get the complete data and can be described clearly so that the results of this research are really in accordance with the existing field conditions.

The research location is SD Muhammadiyah Prambanan which has used the Zoom application in learning mathematics. Population is a generalization area consisting of objects / subjects that have a certain quantity and characteristics that are determined by the researcher to study and then draw conclusions from (Sugiyono, 2015). The population of this study were 5th grade students of SD Muhammadiyah Prambanan in the academic year 2020/2021. The total number of class 5 currently totals 72 students. The sample in this study were 5 grade 5 students of SD Muhammadiyah Prambanan who had attended Zoom meeting cloud learning. Sample technique using purposive sampling.

The purpose of holding a study is to obtain data, so data collection techniques are very important in a study. In this study, researchers used participation observation. In this study, free guided of participatif observation is the technique chosen, which is made in the form of a list of observations, but not in the form of permanent (binding) sentences. The order of the observations and the wording of each question. The statements asked in the observations were three stratified, but were developed during the observations process as needed because this interview was a guided free. Observations were conducted with 5 students of SD Muhammadiyah Prambanan. The data that researchers want to obtain using this method is a general description of the subject. Henceforth, it is focused on the dynamics of resilience and self-adjustment of individuals who are the object of research. In exploring the data in this study, apart from

using the interview and observation methods, the researcher also used the documentation method. This method is used to complement the data obtained through interviews and observations. In this research, the documentation used is in the form of notes and recording devices as well as documentation in the form of photos or images.

Participatif observation data that has been collected are then processed using a qualitative approach with the coding process with the help of software Atlas.ti version 8.3. Atlas.ti is an important tool that facilitates researchers to analyze data in a well-organized, systematic, effective and efficient manner for data analysis in many case studies. This software makes qualitative data more visual, portable and also simplifies the analysis process. The atlas is not only a tool to support qualitative data analysis and also as a companion to the end of the project. The Atlas.ti version 8 tool helps researchers systematically analyze complex data phenomena in the form of text and multimedia. Atlas.ti also has additional features for theory development such as the ability to construct a conceptual diagram showing the relevance between ideas.

Tabel 1. Participatif Observation Guide

Number	Statements
1	Preparation for learning mathematics
2	The process of delivering mathematics learning material
3	Student activeness while learning by using zoom cloud meeting
4	The daily evaluation process in mathematics learning that has been implemented

Result of Research

At the time of implementing mathematics learning by using the zoom cloud meeting, the researcher and the mathematics teacher observed participatively to obtain field data that could be used as research material and data analysis. In this research observation, there are things that are observed based on the participatory observation guidelines that have been made in the research method. Preparation for mathematics learning that is carried out needs to be an important part that must be considered by the teacher. The results of research related to the preparation of students' mathematics learning, namely:

S/1/OP : Need more technical assistance for the mathematics learning process by using zoom cloud meetings, due to technical

- constraints that need to be above and assistance by teachers or technicians.
- S/2/OP : Parents of students do not yet have facilities that support the mathematics learning process by using zoom cloud meetings, so they need the right strategy that can be used in the learning process.
- S/3/OP : The majority of parents who have supporting facilities and infrastructure even have a full set of laptops and computers or cellphones that can be used by their children in the learning process, but this is not supported by the involvement of parents in accompanying children's mathematics learning by using zoom cloud meetings.
- S/4/OP : Students' reluctance in the learning process at the beginning during the Covid-19 pandemic was because students did not have an adequate data package quota to support the mathematics learning process, so there were students who were left behind in learning material.
- S/5/OP : Students lack of focus during the learning process of mathematics because at the time of learning students are curious about other things in the software used during the learning process by using zoom cloud meetings.

Preparation for learning becomes important if it is supported by the process of delivering mathematics learning material. Participatory observations made by researchers in collecting research data include the following:

- S/1/OP : In my opinion, as parents, it is important that the material that the teacher teaches to children is given as preparation material for us too so that we understand what the teacher will give to students. This is also an important indicator
- S/2/OP : The material presented is not only questions, but also the substance of the subjects that the teacher needs to give so that it becomes
- S/3/OP : The process of delivering mathematics learning material with zoom cloud meetings is important because it can help students understand what the teacher hopes for students in improving understanding.
- S/4/OP : The teacher is able to provide mathematics learning material with innovation and creativity so that students are not monotonous in participating in learning
- S/5/OP : The process of delivering mathematics learning material is very fundamental for teachers and understanding for students because it requires very deep diligence to be able to improve understanding

The activeness of students during the learning process using the zoom cloud meeting is also an important part of the learning process during the Covid-19 pandemic (O/1-5). This can be used as a reference and benchmark in the success of learning mathematics, meaning that students who are active both asking and answering questions from the teacher can be understood that the learning material can be received well. What is important for the teacher during the process of implementing mathematics learning by using the zoom cloud meeting is that there is a daily evaluation in mathematics learning that has been done. It aims to be used as a basis for assessing and planning future mathematics learning materials so that they are more innovative and creative and can increase student motivation and learning achievement.

The results of this study are illustrated using the output of the analysis using Atlas.ti software version 8.3. The results of this analysis were carried out by giving meaning to the transcript data from the results of participatif observations. The results of the coding list can be see in Table 2.

Table 2. Coding for Qualitative Data Analysis

Code
● Study Load
● can concentrate
● how to enter zoom
○ Learning outcomes
● Zoom Results
○ Learning Conditions
● Enter the application
● Zoom Guidelines
● Retention of material
○ Learning via Zoom
● Use of Zoom
● Zoom presence
○ Implementation Process
● Zoom Sanctions
● Silence
● Learning atmosphere
● implementation procedures
● Execution time

From the codes that have been collected and made from field data, they are processed using the Atlas.ti software version 8. The results of the analysis show that there are three findings in this study, namely related to learning conditions, the implementation process, and learning outcomes. . The concept map from the findings of this study is an important part that can be used as a reference to be able to improve

the mathematics learning process by using zoom cloud meetings during the Covid-19 pandemic. The three indicators of findings from the data analysis in this study each have different sub-components. On the concept map for the learning conditions indicator, several sub-components can be found consisting of learning time, intellectual skills, motor skills, attitudes, and stimuli. While the second indicator is finding related to the implementation process, this can be found in sub-components consisting of responsiveness, rule learning, platform understanding, and signal learning. While the third finding from the results of the data analysis of this study is related to learning outcomes which have sub-indicators of findings, namely high score, understanding of teaching materials, intellectual development, and completing the task. An explanation of the results of this study can be seen in Figure 1.

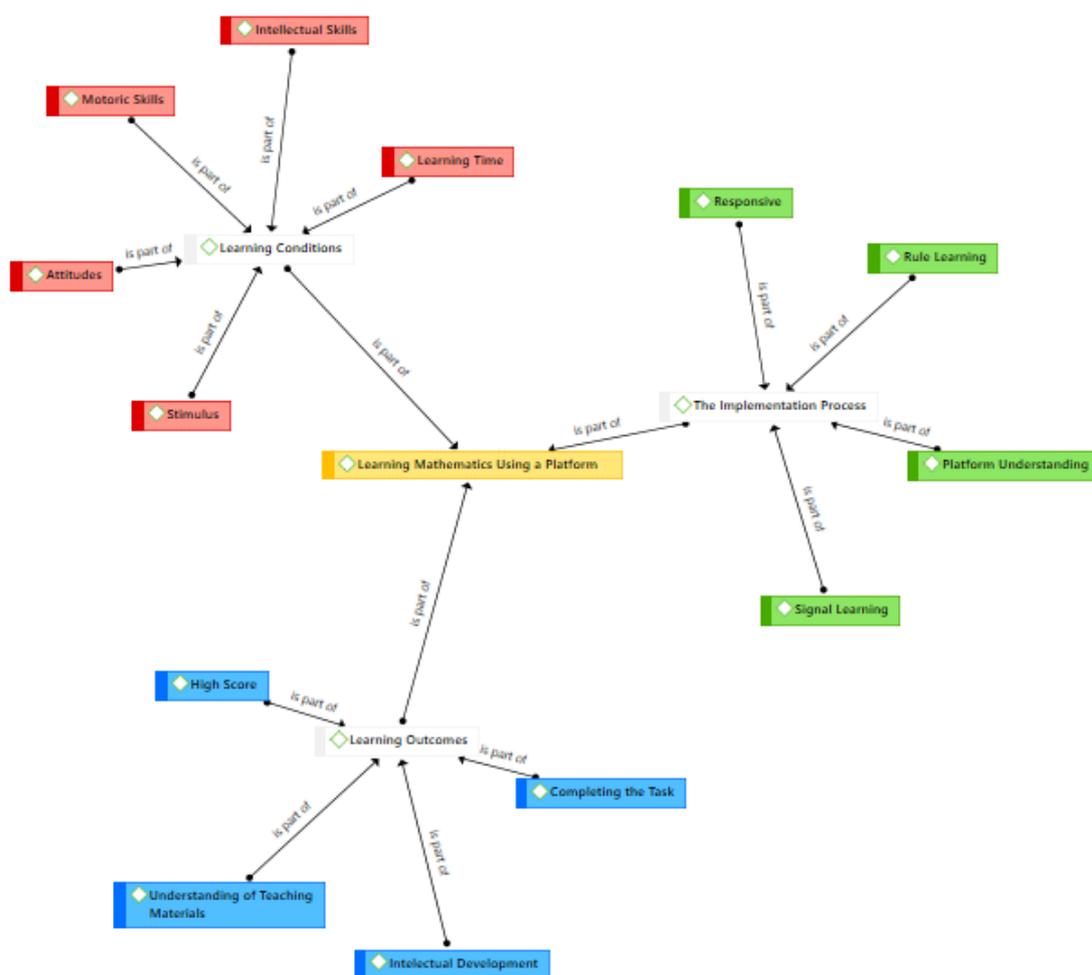


Figure 1. Results of Qualitative Data Analysis Research Using Atlas.ti 8.3 Software

Discussion

The findings of the research data analysis have three important things in learning mathematics by using zoom cloud meetings, namely **The Implementation Process**, **Learning Conditions**, and **Learning Outcomes** (See the figure 1, result of research). The three research findings will be discussed as follows:

The Implementation Process

The process of implementing mathematics learning in elementary school students is a strategy that needs to be done by teachers to be able to improve understanding and learning outcomes, especially for learning mathematics which is done remotely and using the zoom cloud meeting platform. Based on the findings of this analysis and research, it is stated that the implementation process includes responsiveness, rule learning, platform understanding, and signal learning. The results of this study are in line with the statement conveyed by (Omwenga, Mwololo, & Wagacha, 2004) that implementation of e-learning in institutions requires careful planning and consideration of various factors that may affect the process. The same thing was also conveyed by (Hsu & Backhouse, 2001) that students overall considered online technology as a useful tool for facilitating their learning. The same statement was also conveyed by (Febrianto et al., 2020) that Digital learning through videos is very effective because of the aspects of flexibility which can help with the depth and retention of knowledge, in addition to motivating an interest in learning. Therefore the need for implementation to be able to take advantage of technology in learning. E-learning in most classes is used only for additional learning which means that it is used as a supplementary learning tool for the traditional face-to-face learning (Rahmawati, 2014).

The various discussions above regarding the implementation process researchers have support from the results of the analysis and discussion in accordance with the relevant theories that the implementation process in mathematics learning using zoom cloud meetings becomes important along with the learning process. The implementation of this learning becomes a measure of success both in the process of delivering material and matters relating to the hopes and goals of the learning and education process. Therefore, the importance of the implementation process is in learning.

Learning Conditions

Learning conditions are also of special concern to teachers in the learning process being carried out. This learning condition can be used as a basis for teachers to understand the motivation possessed by students in participating in the online learning process using the zoom meeting platform. The results of this study are in line with the statement conveyed by (Cullen & Harris, 2018) that the online environment simply provides additional options for creating those conditions. The same thing was conveyed by (Gilbert, 2015) online learning has the potential to create educational opportunities for individuals who may have faced elements of passable barriers prior to the expansion of online educational programs. The same statement was also conveyed by (Means, Toyama, Murphy, Bakia, & Jones, 2010) that conditions often include additional learning time and instructional elements not received by students in control conditions. This learning condition is one of the things that the teacher needs to pay attention to in providing teaching materials using the zoom cloud meeting platform. Teachers who are able to understand student learning conditions will be more sensitive and able to provide an assessment of learning and learning outcomes given to students.

Learning conditions are important, especially for elementary school students because they do not have high concentration in learning and still have to be accompanied by parents, especially during the learning process using zoom cloud meetings. This is an important finding and study for all teachers to be able to have learning conditions in the learning process. Therefore, learning conditions are indicators that can be used and applied by teachers wherever they are when they are going to carry out the learning process using any application and platform.

Learning Outcomes

Learning outcomes are the end of teacher expectations. Teachers can be said to be successful in providing learning material when students are able to have high scores. This becomes the basis for teachers to improve the quality of learning. The results of this study are similar to the results of research conducted by (Latif & Subramaniam, 2011) learning outcomes refer to the expected outcomes of a course about what a learner know, understand and be able to demonstrate after completing the course. This is in line with what was conveyed by (Panigrahi, Srivastava, & Sharma, 2018) that The learning outcome is the measure of the effectiveness of a learning platform. Likewise,

according to (Isnaeni & Agustina, 2018) that the e-module produced is proven to be proven by improving student learning outcomes compared to the value before using the e-module. Also according to (Baber, 2020) that learning outcomes contributed to student satisfaction and positively influence it in the online environment. Therefore it is important for teachers to be able to understand the success of students which of course can improve knowledge, be able to understand how to solve problems in the assignments given by the teacher, so that students can improve learning outcomes.

Various discussions and relevant theories, researchers support the importance of learning outcomes that need to be shaped and improved by both teachers and students. So that this significant collaboration can form a process that can be used to increase the output and outcomes of learning mathematics even using the zoom cloud meeting.

Conclusion

Based on the results of the research and discussion above, it can be concluded that implementation of learning mathematics using zoom cloud meetings during the Covid-19 pandemic for elementary school students needs to be improved in three ways. The results of this study provide three strategic ways in improving student learning outcomes in mathematics learning's implementation, namely teachers are able to implement the process, learning conditions, and learning outcomes. The three methods that need to be considered by the teacher are used as the basis for the achievement of mathematics learning activities provided by students through the zoom cloud meeting platform. Therefore, teachers not only carry out learning as a process of fulfilling responsibility but are also able to transfer of knowledge to students and in the end students are able to do the tasks given by the teacher and can improve learning outcomes in mathematics learning even though the learning process is done remotely and use cloud meeting zoom. The results of this study are recommended for elementary school teachers in any discipline in order to improve student achievement in applying various platforms used in the learning process. The teacher does not only carry out the learning process but is also required to know the technicalities and implementation of the use of media in learning. So that it is not just material but can also improve student achievement during the Covid-19 pandemic.

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