

The Role of Interactive Videos in Mathematics Learning Activities During the Covid-19 Pandemic

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ABSTRACT

The purpose of this study was to determine the role of interactive learning videos in mathematics learning activities during the Covid-19 pandemic. The research method used in this study was literature review, which collects data from various literatures, books, and journals. From the research that has been done, it was found that using interactive learning videos can improve the understanding of students' concepts, learning motivation, and learning outcomes. Therefore, the students can achieve the learning goals during online learning. It can be concluded from this study that interactive learning videos have a positive role in learning mathematics during the Covid-19 pandemic.

Keywords: *Interactive Videos, Mathematics, Covid-19.*

1. INTRODUCTION

Learning is a series of processes carried out by the teacher to guide students in learning in order to achieve the learning goals they want to achieve. The learning process has an important role in improving the quality of education so that the learning that is held can bring meaning and benefit to students. This learning is influenced by the creativity of the teacher, both in the creativity of delivering the learning material and selecting the learning media used. Therefore, it is important for teachers to have creativity in learning and delivery of material because the creativity of a teacher makes children more receptive to learning and more interested in learning.

Almost all lessons are not lost on mathematics. Mathematics is a science that has an important role in education [1]. Mathematics is also the basis of all sciences that can be used to support other sciences such as physics, chemistry, computers and others [2]. However, many students find it difficult to understand mathematical concepts, because of the abstract nature of mathematics. Mathematics learning should not be based on the final result, but rather emphasize the teaching and learning process.

At the beginning of 2020 the corona virus or COVID-19 (Corona Virus diseases-19) spread throughout the world. The spread of this virus has an impact on all aspects of life including education. In a study at Imperial College in London, estimating the global impact in 2020 would range between 20 million deaths with effective non-pharmaceutical interventions and 40 million deaths without intervention. Various efforts have been made by the government to reduce the spread of Covid-19, one of which is by implementing an online school where learning is carried out online to provide meaningful

learning experiences for students. In online learning, teaching material is delivered online, it can make learning easier for teachers and students. During this online learning, information technology is urgently needed as a medium for implementing learning. Teachers must be able to make the most of existing technology to present a learning process that is able to provide space for students to explore, easily interact with teachers and other students, especially in mathematics learning. One of the technology users is using learning media.

Success in learning mathematics can be determined by the learning media used (Learning media can be used as a distributor of messages and learning information. By using learning media, complex learning to be conveyed to students can be simplified. So students can easily understand the material. One of the learning media that can be used in online learning is interactive learning video. video is one of the learning media that is effectively used in the learning process, group learning, and individual learning. By using video when learning can provide a separate experience for students because video is very effective in visualizing dynamic material, and by using learning video will make students more interested, curiosity arises, and not boring, and make students easier to understand the material, and finish practice questions on learning mathematics. In addition, interactive videos can be accessed in almost all types of communication devices, so students can easily use them. By using interactive video, online learning is more effective and can achieve learning goals.

Based on the description above, the authors consider it necessary to conduct a study on the role of interactive video in mathematics learning during the

Covid-19 pandemic. This aims to determine the role of interactive videos in mathematics learning activities during the pandemic of Covid-19.

2. RESEARCH METHODS

This research is a type of library research. Library research is a type of research carried out by reading various books or magazines and other data sources to collect data from various literatures, both libraries and in other places [3]. There are several features of library research, among others: first, literature research deals directly with text or numerical data, not with field or eye witnesses (eyewitness), in the form of events, people or other objects. Second, the data on literature research is ready-made. Third, the data obtained are generally secondary data sources. Fourth, the condition of the data in the library is not divided by time and space [4].

Sources of data in this study are written data, with data collection techniques in the form of documentation techniques. The definition of documentation technique is a method done by searching for data in the form of notes, transcripts, books, newspapers, magazines, inscriptions, meeting minutes, legers, and agendas.

3. RESULTS AND DISCUSSION

At the end of December 2019 the corona virus or known as Covid-19 was first discovered in China, precisely in the city of Wuhan. This virus spread very quickly almost all over the world. This has resulted in several countries implementing lockdowns. In Indonesia, large-scale social restrictions or what is often known as PSBB also carried out, which aim to prevent the spread of the corona virus. This has a huge impact on all sectors in the world, such as in the economic, tourism, social, and education sectors.

In the education sector, especially in Indonesia, the government has stopped face-to-face learning activities in schools to minimize the spread of Covid-19. Closing schools is a good step taken by the government to protect students from the corona virus, because schools are a gathering place for thousands of students so a place like this is the place where diseases and viruses spread the fastest [5]. As a result of this school closure, the learning process is carried out online learning (online).

The application of online, especially in mathematics, is strongly influenced by the use of strategies, methods and learning media by educators [1]. Thus educators or teachers are required to be able to find and develop strategies, methods and media for learning mathematics that can accommodate the abilities of students, and make mathematics learning more meaningful. Educators are responsible for the continuity of the learning process both by regulating

and conditioning the learning environment, and teaching staff to support students in learning mathematics actively and innovatively, then students will active in learning mathematics [6].

Online learning can be anticipated by the use of existing technology. Many technologies have developed to obtain teaching materials and learning media, one of which is the use of interactive learning videos using tools such as computers and smartphones. Video media is anything that can transmit images and audio sequentially. Video is an alternative in overcoming problems in learning, both low learning outcomes and low understanding of students' concepts. Video is one of the learning media that is effectively used both mass, group and individual learning. By using video when learning can provide a separate experience for students. One type of learning video is interactive learning video. Interactive learning videos are learning videos that display material with visual and audio illustrations, as well as practice questions with the steps to solve them. By using interactive learning videos students can more easily understand the mathematics material being studied.

Learning videos made by educators can be uploaded on the YouTube platform or other video conferencing, educators only need to tell students to visit the relevant page. Then learning videos can be watched by students over and over again when they do not understand mathematics material independently, this has a good impact on students' conceptual understanding of the material being studied [7].

1. The use of instructional videos in improving students' conceptual understanding skills.

The basic ability in the revised taxonomy is understanding the concept, so students must have this basic ability [8]. One of the problems of students in learning mathematics is the low understanding of students' concepts, so it is necessary to have learning media that can improve students' conceptual understanding [9]. The solution to the students' low understanding of concepts, namely by using interactive learning videos. In this video there is an interaction between educators and students, and with the practice questions and their solutions, students will better understand the material being studied. This can build an atmosphere for online learning such as face-to-face learning as is usual and more effective.

2. The use of instructional videos in increasing student motivation.

Motivation to learn is one of the important things that students have, if student motivation is high, they will have a great chance of achieving learning goals. There are two factors that can affect the learning motivation of students, namely internal factors and external factors [10]. Internal factors

are factors that appear naturally in students. Meanwhile, external factors are divided into three, including:

- a. Models, methods, and learning media that use educators.
- b. The influence of the home and school environment.
- c. Support from parents.

One of the efforts that teachers can make to increase student motivation is the selection of effective learning media. There are several studies concluding that the use of instructional videos can increase learners' motivation to learn, because.

- a. Can arouse the curiosity and enthusiasm of students in learning [11].
- b. Has a special attraction for students
- c. Something that is abstract can be explained in the learning video into something real.

From these three advantages, it can be concluded that interactive learning videos are learning media that can increase student learning motivation, especially in online learning during the Covid-19 pandemic.

3. The use of instructional videos in improving student learning outcomes.

Learning outcomes are seen from three aspects, namely cognitive, affective and psychomotor aspects. If students show changes in the aspects of knowledge, attitudes and skills to be better than before, it can be said that students have succeeded in achieving learning goals [10]. There are several studies that state the instructional videos have a positive contribution to student learning outcomes [4][11][12]. Some of the benefits of using instructional videos are as follows.

- a. Can provide an atmosphere that is fun and not boring for students so that students focus on the material presented in the learning video.
- b. Can present events that are physically impossible to bring into the learning process so that students can know more about these events.
- c. Can be used in the learning process with different student characteristics, namely students by learning audio, visual and audio-visual.

From these three points it can be concluded that interactive learning videos can improve student learning outcomes, and are effectively applied in learning, especially online learning.

4. CONCLUSION

Interactive learning videos are learning videos that show material with visual and audio illustrations, as well as practice questions with the steps to solve them. In addition, interactive learning videos are an intermediary for delivering information from educators to students, which has many advantages.

One of them is interactive learning videos that can be used again and again by students, it can improve the students' ability to understand a concept, especially in mathematics learning.

Interactive learning videos are very fun and do not make students feel bored in learning, so they can increase student motivation. In addition, interactive learning videos can be used to meet the needs of students who have different characters, can present visualizations of mathematical material, such as geometry, arithmetic, and others. Finally, the interactive learning video contains examples of questions and their discussion, it can improve students' conceptual understanding and improve student learning outcomes.

From some of these advantages, it can prove that interactive learning videos are learning media that have a positive and effective role to use in online learning. the online learning process is effective and able to achieve the learning objectives

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