Analysis of the use of mathematic animation video as a line learning alternative to learning motivation

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Abstract. The purpose of this study was to determine the use of mathematical animated videos on student learning motivation in online learning. The research method uses qualitative, data collection techniques consisting of interviews and questionnaires. Interviews were conducted with teachers and questionnaires were given to grade III students at Al Islah Elementary School with 31 students through Google documents, interview results, and questionnaires were analyzed using word decryption. The results of this study 95% of students liked online learning using mathematical video animation and made it easier for them to understand the learning material. According to the teacher at Al Islah Elementary School, he acknowledged that using animated videos while learning mathematics can mature students’ understanding of the learning process.

1. Introduction
At the end of 2019, China, to be precise in the city of Wuhan, was shaken by a virus outbreak, namely COVID-19 (Corona Virus Disease 2019). The spread of this virus is very fast, so the World Health Organization (WHO) has declared this coronavirus a pandemic. This coronavirus has spread to 209 countries, including Indonesia. The coronavirus began to enter Indonesia around February which started from Depok residents. Due to the nature of the coronavirus which is very fast spreading, Indonesians are urged to carry out social restrictions or what is known as Physical Distancing, to maintain cleanliness by washing hands, wearing masks, and staying at home.

This coronavirus also has an impact on learning activities. To anticipate the spread of the coronavirus, the government eliminates face-to-face learning directly. Online learning was chosen as a substitute for face-to-face learning activities directly. Online in Indonesia dictionary means in a network (an), connected via computer networks, the internet, and so on. So online can be interpreted as a learning model that utilizes technology in the learning process without making direct physical contact.

Online learning activities are not easy to implement, because the transition period from direct learning to online learning takes time to be understood and applied to the community. There are many obstacles in the application of this online learning, especially in learning mathematics. Because so far mathematics learning has been taught directly by the teacher through direct explanations, then the teacher provides questions as an evaluation of student understanding. Therefore the role of the teacher in presenting creative learning to motivate students in learning is very important.
Many things can be done to create interesting learning so that it can increase student motivation, one of which is by using media. Media is a form of object or event that can be used as a tool for learning in gaining knowledge [1]. Media is also a tool to serve as a channel for messages to achieve learning objectives. There are many media that teachers can use to deliver learning materials, especially during the COVID 19 pandemic. Learning video media is very suitable when applied to online learning.

People are more interested in learning using video media than text and still image media [2], this opinion is reinforced by the opinion that learning using video media is very effective to use because it can make it easier for students to accept learning [3]. In line with the two opinions above, explained in his research that learning using interactive multimedia can improve aspects of understanding the concept of learning material and can increase student motivation in the learning process [4]. From the three opinions above, it can be concluded that video media is very effective in learning because it is interesting so that it can motivate students in learning.

Video media packaging is also very influential in motivating students’ enthusiasm for learning in online learning. Combining video with animation is very suitable for online learning. animation is an activity of animating, moving still objects that can be given a boost of strength, enthusiasm, and emotions so that they have the impression of life [1]. Making videos with animation can be used to support performance in conveying material so that it can increase student learning motivation. Motivation being an important factor in learning success, teachers’ skills in motivating students must be seen as central to teaching effectiveness [5].

Based on the results of research conducted with animated videos, it can increase students’ enthusiasm for learning during distance learning with a percentage of 91.7% [6]. This is reinforced that animated video media can increase learning motivation and the hard work character of fifth-grade students of SD Gugus Sodo [7].

Through the animated video, it is expected to be able to provide new experiences in understanding mathematics online learning so that it can provide learning motivation for students, and can make it easier for teachers to deliver learning material. So, in this study, we will analyze the use of animated mathematics videos as an alternative to online learning towards student learning motivation. The purpose of this research is to find out whether animated mathematics video media can increase student motivation in online learning.

2. Review
Mathematics is a subject taught at various levels of education. There are five reasons for the need to learn mathematics because mathematics is; 1) a means of thinking clearly and logically; 2) a means of solving problems in everyday life; 3) means of recognizing relationship patterns, and generalizing experiences; 4) means to develop creativity; 5) means to increase awareness of cultural development. In line with the above opinion, mathematics is one of the disciplines that can improve the ability to think, argue, and solve in everyday life [8].

The term video comes from the word vidi or visum which means seeing or having a vision. Video is a medium that can produce images (visuals) and sound (audio). Video is a technology of capturing, recording, processing, storing, transferring, and reconstructing still image sequences by presenting scenes in motion electronically so that the video looks like a moving image [9]. Meanwhile, animation in Indonesian dictionary is a film in the form of a series of paintings or images, which differ only slightly so that when played, it appears on the screen to move. So it can be concluded that animated video is a technology that can process still images into moving images.

Coronavirus or COVID 19 is a single positive, encapsulated, and non-segmented RNA virus [10]. COVID 19 infection is a virus that attacks the respiratory tract and can cause mild, moderate, or severe symptoms. The main symptoms in sufferers of COVID 19 are the appearance of fever (temperature>38), cough, and difficulty breathing. The virus is very fast spreading, especially among people who have close physical contact. The spread of the virus is most often from tiny droplets produced by coughing, sneezing, or talking. So people are encouraged to always maintain their health, especially to frequently
wash their hands with soap, use masks, limit themselves to direct physical contact with other people and stay at home.

Online learning is the use of internet networks in the learning process [11]. Online learning is a way of learning that uses internet networks without the need for face-to-face learning activities directly.

3. Methods
This study aims to analyze the use of animated videos as an alternative to online learning towards student learning motivation. This study uses a qualitative approach, where qualitative research is a study that produces descriptions in the form of written or oral words of the object being observed.

Data collection techniques in this study consisted of interviews and questionnaires. Interviews were conducted with teachers and questionnaires were given to grade three students of SD Al Islah with a total of 31 students. Questionnaires will be given to students via google document which then the results of the interview and questionnaire are analyzed.

4. Results and discussion
Since it was decided through a circular made by the Surabaya City Government containing a protocol in dealing with the spread of the coronavirus (Covid-19), namely implementing online learning. Teachers in the online learning process use animation media to support the mathematics learning process. The questionnaire was given to students via google document to find out the use of animated videos in mathematics learning. The questionnaire that has been made, 5 questions must be answered by the respondent, the questions in the questionnaire are related to how much student motivation in mathematics lessons during online learning due to Covid-19 takes place. The first question is how effective will online learning be during the Covid-19 pandemic. The answer from the respondents was that 80% of respondents answered that online learning was less effective in its implementation because students had difficulty understanding lessons. As a result, students are lazy in learning.

The second question, regarding the level of students’ enthusiasm for learning mathematics, carried out by online learning, the respondents on average answered that students were bored with learning that only did assignments, that boredom was caused by not understanding the material being studied, due to the Covid-19 outbreak which requires students to study at home resulting in many students who do not have a good enthusiasm for learning, and others. But they still think that under any circumstances, they must still have the enthusiasm to learn so that the assignments given by the teacher during online learning are completed. This makes students feel pressured by the ongoing learning process.

The third question, about how much enthusiasm for student learning is when the learning process uses animated videos in mathematics, the respondent answers that almost all students like animation videos as a medium for learning, which is 95%, through animated videos that are given to learning mathematics to students, can make it easier for students to understand the material, and become an alternative learning media for teachers in presenting the material online.

The last question, regarding the level of understanding of students learning mathematics using animated videos, the respondent answered that they claimed to be able to understand the material being taught through animated videos by 93%. Based on the results of the questionnaire, given animated videos in mathematics learning can make it easier for students to learn. The use of animated videos as a medium for learning mathematics can provide many benefits during the Covid-19 outbreak, including 1) assisting teachers in delivering mathematics learning material online; 2) fostering student enthusiasm for learning; 3) become a learning medium that can be used, face to face or face to face.

Researchers also conducted interviews with teachers at Al Islah Elementary School to obtain valid information. Where the researcher gave 10 questions related to online learning due to COVID 19 and the use of animated videos in mathematics learning as an alternative to online learning. The results of interviews conducted by researchers with teachers at Al Islah Elementary School showed that teachers had difficulty delivering material online, because when the online learning process took place, students experienced many obstacles, such as cellphones that were still carried by working parents so they had
to collect assignments at night days, there is no assistance from parents so that students are less focused in their studies and limited internet quota.

The existence of learning using animated videos, the teacher assesses that learning is considered quite effective in conveying online learning, and can provide understanding to students who are more mature in their learning, and with the addition of a touch of animation it can make learning more enjoyable, students feel free there is no pressure in the study. Therefore, based on the results of questionnaires to students and interviews with teachers at Al Islah Elementary School conducted by researchers, it can be concluded that using animated videos in mathematics learning can increase student motivation in learning mathematics and help student understanding during the online learning process.

5. Conclusions and suggestions

Based on the results of research conducted on 31 students at SD Al Islah grade III, the data obtained was that 80% of students did not like online learning, because it was less effective in its implementation. However, by using video animation in mathematics learning in grade III students 95% can increase student motivation in mathematics when learning online. According to the teacher at Al Islah Elementary School, he admitted that using animated videos when learning mathematics could mature students' understanding of the learning process.

If the teacher or other researcher wants to provide learning material in the form of a video, it can be noted that the duration of the video is not too fast or too long. So that students who see can digest the information contained in the video as a whole. Also, students can better understand each content of the material given.

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