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NEEDS ANALYSIS ON ZOOM MEETING-BASED LEARNING IN ENHANCING ELEMENTARY STUDENTS' MATHEMATIC COMMUNICATION SKILL

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Abstract: The purpose of this research is to analyze how video conference application technology via Zoom Meeting can improve students' mathematical communication skills based on the educators' or teachers' perspective. The research was conducted using descriptive qualitative methods with an emphasis on needs analysis. The data collection technique was carried out with several instruments including interviews, documentation, questionnaires, and tests related to students' mathematical communication skills given to several students by the help of their respective teachers. The results of this study indicate that 80% of teachers still use assignments as a tool to determine students' mathematical communication skills and 67% of students' mathematical abilities have decreased from before the pandemic period so that a learning model is needed that is in accordance with current educational conditions, especially in improving students' mathematical communication skills. Therefore, the application of the problem-based learning model with a realistic mathematics approach on the Zoom Meeting based learning is expected to improve the communication skills of elementary school students.

Keywords: *Zoo; Problem Based Learning; Realistic Mathematics, Mathematical Communication*

A. INTRODUCTION

Education is an effort to create an atmosphere of the teaching and learning process so that students can actively develop their abilities and skills to fill their role in society. In Indonesia, the level of education unit which is considered as the basis of education is at the elementary school level (Sumantri & Sa'ud, 2003). In elementary schools, students experience a learning process which is generally preparing the students for the next level of education. Basic education where the implementation is carried out in formal classes or schools is held to provide basic knowledge, attitudes and skills for students which are further developed to improve the quality of students themselves (Sujana, 2019).

Due to the COVID-19 pandemic, learning in Indonesia has also made changes, one of which is that the learning process is carried out online from home (Pajarianto, Kadir, Galugu, Sari, & Februanti, 2020). Indirectly, this has a positive impact on the community to update their knowledge regarding technology that supports the ease of learning process, especially for educators or teachers and students even though they are only at home and with their families (Gladović, Deretić, & Drašković, 2020). One of the technologies that are often used today is the online video conference application via Zoom Meeting, which functions as a communication tool which according to educators or teachers is easier to use than other online video conference applications (Guzacheva, 2020).

Based on the results of interviews conducted with several elementary school teachers in several schools in Trangkil District, Pati Regency, Central Java, it is indicated that learning during this time and situation is only conducted by giving the students assignments via short messages or via group share. Face-to-face learning has never been carried out even though the government's support

in the form of internet data quota is sufficient for face-to-face learning using video conferencing. Learning by giving assignments to students has not maximally developed students' mathematical communication skills.

The role of the teacher in the teaching and learning process is very important, apart from being a facilitator in its implementation, teachers are also required to master various learning models that can support all the abilities of their students. Especially for elementary school students who are still in the concrete stage in the process of thinking, they must adjust to online learning which is more directed towards concrete-abstract learning (Maher, 2014). One of the abilities that is difficult to achieve in the teaching and learning process is the students' mathematical communication skills in elementary school mathematics (Rohid, Suryaman, & Rusmawati, 2019). Therefore, this study aims to analyze how video conference application technology via Zoom Meeting can improve students' mathematical communication skills from the perspective of educators or teachers.

B. METHODS

This study on "analysis of learning models based on Zoom Meeting to improve mathematical communication skills of elementary school students" employed descriptive qualitative methods. Qualitative research using descriptive methods aims to solve actual problems faced and collect data or information to be compiled, explained and analyzed (Atmowardoyo, 2018). The data collection technique was carried out with several instruments including interviews, documentation, questionnaires given to several teachers related to students' mathematical communication skills during the pandemic period, and tests related to students' mathematical communication skills given to several students by the help of their respective teachers.

The subjects of this study were teachers and students in several elementary schools in Trangkil District, Pati Regency, Central Java. The analysis process used needs analysis related to the importance of using the Zoom Meeting-based learning model in improving elementary school students' mathematical communication skills and the use of the literature method as research data reinforcement.

C. RESULT AND DISCUSSION

Drastic changes in the current learning process indirectly make teachers and students inevitably have to learn from each other and learn from the renewal of existing technological knowledge (Mishra, Gupta, & Shree, 2020). Education in Indonesia is currently dependent on online applications to support learning, especially those supported by the video conference feature so that it can indirectly carry out face-to-face learning between teachers and students. One of the online applications that is supported by the video conference feature is Zoom Meeting. However, the lack of mastery of the video conferencebased learning model makes learning less effective and efficient, especially in improving students' mathematical communication skills in elementary school. Therefore, it is necessary to develop a learning model based on Zoom Meeting to improve mathematical communication skills of elementary school students.

1. Zoom Meeting Application

The Zoom application is a software (platform) created by Eric Yuan that functions as a communication medium in the form of written, spoken, and video that offers several useful and low-cost and user-friendly features that suit your needs (Hrncirik et al., 2018).

Based on data from interviews and questionnaires, it is known that 80% of teachers in Trangkil District only use assignments given through text messages and 70% of students do not understand the duties of their teachers. This can be seen from the submissions of the student's work that originally answered.

Therefore, a more effective way is needed to help the student learning process, one of which is the zoom meeting application. There are several Zoom Meeting features that support the teaching and learning process, including the following.

a) Raise hand feature. This feature makes it easy for students or zoom meeting participants to ask questions during the explanation session.

b) Screen sharing feature. A feature that aims to make all students or participants in the zoom meeting know the contents of the teacher's screen, so that students can capture the teacher's explanation more easily.
c) White board feature. In the white board feature, teachers can write or draw on the white area provided by Zoom. In addition, teachers can also add text, signs, or images to the share screen that has been previously done.
d) Chat features. The chat feature is very important if students or zoom participants want to express their ideas or ask questions in written form.

2. Mathematical Communication Skill

Communication is a very important skill in human life so that this ability is one of the goals of implementing learning activities in schools. NCTM (National Council of Teachers of Mathematics) establishes communication as one of the standards for the mathematics learning process in schools (Purwanti, 2015). In addition, communication skills are needed to convey thoughts, broaden the students' understanding of mathematical concepts by writing to explain, giving reasons and processing thoughts about mathematics (Rohid et al., 2019).

Meanwhile, the students' mathematical communication skills decreased by 67% as evidenced by the data on test results to students in several schools in Trangkil District which had decreased student learning outcomes from before the pandemic period. This makes teachers have to find ways to improve the learning process in order to return student learning outcomes.

This is not easy because there are several things that must be considered in improving students' mathematical communication skills. Some general mathematical communication indicators are written as follows (Hasna & Aini, 2020).

a) Connecting real objects, pictures, and diagrams into math ideas.
b) Explaining ideas, situations and mathematical relations orally or in written form with real objects, pictures, graphics and algebra.
c) Declaring everyday events in the language of mathematical symbols.
d) Listening, discussing and writing about math.
e) Reading with the understanding of a written math presentation.
f) Making conjectures, forming arguments, as well as formulating definitions and generalizations.
g) Explaining and making questions about mathematics that have been studied.

3. Zoom Meeting-Based Learning Model to Enhance Elementary Students' 'Mathematic Communication Skills

The role of the learning model in the teaching and learning process cannot be separated from the role of the teacher. Teacher mastery of the learning model greatly influences the effectiveness and efficiency of a lesson (Alawiyah, 2013). One of the impact of the COVID-19 pandemic is the lack of teacher preparation. It is related to the teachers' knowledge and mastery of learning models that can be used during online learning (Mastura & Santaria, 2020). Lack of preparation before doing online learning will also result in teaching and learning process that is less optimal. It is important that there is additional training or guidance for teachers so that they will be more familiar with and master the situation when required to do online learning (Suhandiah, Sudarmaningtyas, & Ayuningtyas, 2019).

One of the online application platforms that can optimize the distance teaching and learning process is Zoom Meeting (Guzacheva, 2020). Besides being able to do face-to-face learning, teachers can also apply learning models that is in accordance with the material. The teacher can also make an assessment shortly after the lesson ends without ending the face-to-face process so that the teacher knows each student's character when working on the assessment. One of the learning models that can support the Zoom Meeting-based teaching and learning process is problem-based learning with a realistic mathematics approach. The steps of the problem-based learning model activities are in accordance with the learning process through Zoom Meeting, namely orienting students to problems, organizing students to learn, assisting independent or group investigations, developing and presenting work results, analyzing and evaluating the problem solving process (Tarmizi & Bayat,

2012). In previous study, the problem based learning model was proven to improve students' mathematical communication skills (Ningrum, 2017). However the previous study still used class to facilitate the learning process so that the renewal of the problem-based learning model was needed, and the researcher of current study decided to use a realistic mathematics approach.

Realistic mathematics is an approach to learning mathematics where the process of delivering material is linked to the daily lives of students (Putri, Hasratuddin, & Syahputra, 2019). Research conducted by Fitriana proved that a realistic mathematics approach can improve elementary school students' mathematical communication skills in formal learning or at school (Rahmawati, 2013). The realistic mathematics approach is in accordance with the steps of the problem-based learning model at the stage of organizing students for learning, doing independent or group investigations, and also doing analysis of the evaluation of the problem-solving process. The learning process in the steps of the problem-based learning model with a realistic mathematics approach can encourage students to further improve their mathematical communication skills.

The Zoom Meeting application can also support the learning assessment process using a link that can be provided in the chat feature when learning ends using google form, type form, or others. It can be in the form of multiple-choice questions or description questions. Direct assessment with the help of links also serves to determine the level of mathematical communication skills of each student.

D. CONCLUSION

The COVID-19 pandemic disaster has a profound impact on the teaching and learning process for both teachers and students. In fact, the teacher's ability to master the online-based learning model is still lacking. Students' needs for learning require teachers to continuously update their knowledge, especially in increasing students' mathematical communication skills. It is necessary to update the learning model in accordance with current conditions, namely by applying a problem-based learning model with a realistic mathematics approach.

Based on the results of the research analysis, it can be concluded that the Zoom Meeting-based teaching and learning process by applying a problem-based learning model with a realistic mathematics approach can improve elementary school students' communication skills.

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