A Case Study on Mathematics Instructional Implementation: Teacher’s Perspective on How Mathematics Teachers Face The Pandemic Covid-19 Situation

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Abstract. Learning activities carried out by teachers are at the core of the learning process. How the implementation of learning activities have a major influence on students' understanding, especially when facing a Covid-19 pandemic situation. This paper aims to explain how mathematics learning takes place during the Covid-19 pandemic based on the teacher's perspective. The research was conducted at MTs Sambirejo Sragen. The selection of research subjects was made based on purposive sampling. The research subjects were chosen by all mathematics teachers at MTs Sambirejo. The data in this study is a description of the teacher's perspective regarding mathematics learning activities during the Covid-19 pandemic. The data collection techniques are interviews, documentation and observation. As a result, in general there were two types of learning activities on mathematics online learning during the Covid-19 pandemic situation at MTs Sambirejo. However, the two types of learning activities still use a teacher-centered learning approach. Even though the current pandemic condition is very different from the conditions before the pandemic. Explicitly, the actual process of learning activities in online learning has a consequence that all learning activities can be carried out in a more mobile and dynamic manner.

1. Introduction

The coronavirus outbreak began to spread at the end of 2019. More than 200 countries have contracted this virus, one of which is Indonesia. The total number of cases confirmed positive for Covid-19 worldwide has exceeded 30 million people, with more than 950,000 cases of death within 10 months [1]. Meanwhile, for Indonesia there are more than 200,000 cases that have been confirmed positive [2]. The high number of Covid-19 sufferers around the world in a fairly short time, because the spread of this virus is very easy. WHO or the World Health Organization states that the spread of covid-19 through infected droplets or by touching the surface of an object that has been contaminated with Covid-19 [3]. Therefore, to reduce the spread of this virus, one way to do it is by maintaining a physically safe distance from everyone or often called physical distancing.
As of April 17, 2020, it is estimated that 91.3% or around 1.5 billion students worldwide cannot attend school due to the emergence of the Covid-19 pandemic. This number includes approximately 45 million students in Indonesia or about 3% of the total student population affected globally. The government in Indonesia issued several special policies to control the spread out of the virus every sector, including the education sector. The widespread spread of the virus has forced governments to close schools and encourage distance learning at home. Various initiatives were undertaken to ensure learning activities continued even though there were no face-to-face sessions. There are two types of distance learning, namely online learning and offline distance learning. Distance learning policy must be implemented for areas that have a high and moderate risk of spreading the virus. As for areas that have a low risk of spreading the virus, face-to-face learning is allowed with very strict rules.

Distance learning is still unfamiliar in Indonesian education. As a result, many teachers and students are shocked when the learning process has to be changed drastically. Moreover, pandemic conditions like this have never been experienced before. In the implementation of distance learning, especially online learning has various obstacles. According to Satrianingrum and Prasetyo, the obstacles faced by students were the limited facilities and infrastructure they had to take part in online learning, the limited internet quota they had, and signal interference. The same thing was also conveyed by Zuriati and Briando. The main obstacles faced by students when participating in online learning were limited quota and weak signal networks, even difficult to find. From the teacher's point of view, one of the obstacles that is felt is the limitations in controlling students. This was also faced by teachers at MTs Sambirejo. Based on the results of the interview, there were five obstacles that were faced when implementing online mathematics learning. Among them are (1) the teacher has difficulty monitoring student activity, (2) the teacher has difficulty designing scenarios for online learning activities, (3) students lack of enthusiasm, (4) the teacher cannot confirm with certainty regarding the correctness of the test results, (5) students felt more difficult to understand the lesson in online mode rather than in offline mode. On the other hand, the type of learning activities carried out by the teacher is the core of the learning process. How the implementation of learning activities has a major influence on student understanding.

Therefore, knowing how mathematics learning takes place during the Covid-19 pandemic based on the teacher's perspective is important to be discussed in this paper. Research was conducted in one of the private schools in a rural area in central Java, Indonesia. MTs Sambirejo (Sambirejo Islamic School) is a private school equivalent to junior high school level. This school is under the private Al-Manar foundation and under the auspices of the Ministry of Religion. The location of this school is in the village of Sambirejo, Sragen, Central Java, Indonesia. The majority of students come from that area. In the 2019/2020 school year, the number of students at MTs Sambirejo is only 3 classes at most in each generation. With the number of students in each class, no more than 25 students. In fact, in the 2020/2021 school year, there was a decrease in the number of students who entered, so that for first grade and second grade classes there were only 2 classes and third grade there were 3 classes. The majority of students are from the middle to lower economic class. The majority of Students' motivation to learn is very low. Even in the normal condition, student motivation to learn is a challenge for teachers. Student’s attitudes of mathematics are not good, when the teacher posted questions to them (in the normal condition) or to write down the explanation, only a few of the students who want to do it. Others just play, talk to each other and some even sleep while learning takes place. The achievement of mathematics in the school is very low. National Examination results on mathematics at MTs Sambirejo in the last five years, its average has always been less than 50 (the scale of score is between 0 -100 ) per year. The description is as follows.
### Table 1. The Average of score of national examination in mathematics

| Year | Score  |
|------|--------|
| 2015 | 35.89  |
| 2016 | 31.90  |
| 2017 | 36.43  |
| 2018 | 33.10  |
| 2019 | 40.34  |

During the last five years, the percentage of students who answered correctly on the Mathematics National Examination of all the material tested was always less than 50%. This means that more than 50% of the total students who took the National Mathematics Examination at MTs Sambirejo answered incorrectly at any topic of mathematics. There are still many students who have not mastered the concept of multiplication and division, especially fractions and decimals numbers. But, with students' conditions like this in the normal condition, math teachers in this school actually realize that there is a very crucial problem in learning mathematics. However, they seemed to have broken up and didn't try to make changes in the classroom. Especially in the pandemic covid-19 situation, this is certainly worrying for the development of students both cognitive and affective.

### 2. Methods

In terms of its type, this research includes qualitative research with an exploratory approach. In this study, there was an attempt to describe and interpret the teacher's perspective regarding mathematics learning activities during the COVID-19 pandemic.

The research was conducted at MTs Sambirejo Sragen. The selection of research subjects was made based on purposive sampling. The research subjects were chosen by all mathematics teachers at MTs Sambirejo, they were two teachers. Furthermore, research subjects will be interviewed to find out their perspectives on mathematics learning activities during the Covid-19 pandemic.

The data in this study is a description of the teacher's perspective regarding mathematics learning activities during the Covid-19 pandemic. The data collection techniques are interviews, documentation and observation. Interviews conducted using open and structured interview technique, while the technique observations used unstructured observations. The validity test used was method triangulation, namely conducting interviews with subjects and matching them with observations and with existing documents. Meanwhile, the qualitative descriptive data analysis in this study uses the stages of data reduction, data presentation, drawing conclusions and interpretation.

### 3. Result and Discussion

Based on the results of interviews and observations, the implementation of mathematics learning at MTs Sambirejo during the pandemic used online learning. The platform used at the beginning of the pandemic (end of the 2019/2020 school year) was the WhatsApp Group. Each class has a WhatsApp Group consisting of students, student guardians (who are pleased) and homeroom teachers. If the other teacher, especially the subject teacher, wants to send assignments for a particular class, it is sent first to the homeroom teacher. Then, the homeroom teacher sends the assignment to the class WhatsApp Group. After that, students collect answers from the assignment given to each subject teacher personally. After being evaluated, the use of WhatsApp Group was considered less effective. Because all subjects gathered in one place, although WhatsApp group is an application for its quota-saving use and that is familiar to students and teachers. When using WhatsApp group subject teachers cannot interact directly with students, because the communication line to contact students is only through the homeroom teacher. This is precisely the opposite of the opinion expressed by Wargadinata et.al, that WA Group is very...
effective in the COVID-19 pandemic, and it is more effective than Zoom and Google Classroom [14].

communication and interaction can run quickly and very lightly without any pauses due to the network being too long. Learning through WA Group can also run quickly and efficiently because through this WA account, both teachers and students can deliver teachers material through sending learning resources. Through this WA Group, feedback and review and evaluation of teacher material can also be conveyed [14]. Similar opinion was also expressed by Wiratomo and Yensy, that WhatsApp Group is an application that is effectively used when learning online [12], [13]. In fact, according to Munawaroh, the use of WhatsApp Group in learning improves mathematics learning outcomes [15]. From here, it can be concluded that the use of wa can be effective in learning if there is direct interaction and communication between students and teachers. However, if the way of communication between students and teachers is only the homeroom teacher, then the learning that occurs will be ineffective.

Finally, started moving to the Google Classroom platform. when learning using Google Classroom, the features used are Stream, Assignment and Materials. The Stream feature on Google Classroom is only used by teachers to give announcements classically in learning. while the Assignment feature is used to upload assignments in the form of questions. The material features are used to upload learning videos in the form of teacher recordings to explain the material. In the use of Google Classroom learning there is no interaction process with students, even though they are joined in one forum. The learning activities carried out tend to be one-way. In addition, no feedback is given from the teacher to students on the assignments that have been submitted. Assignments are only submitted to be rated

As for the implementation of learning in general, there are two types of learning activities, the first type: (1) the teacher sends assignments in the form of factual and procedural questions, (2) students do the assignments independently, (3) students collect the assignments given to them again. teachers offline by collecting assignments to school, (4) the teacher assesses the results of assignments that have been done by students. While for the second type: (1) the teacher sends a video about the teacher's voice recording related to the explanation of the material to be studied, (2) students see the video by downloading a video uploaded by the teacher from the Google Classroom platform, (3) students doing assignments in the form of questions that are factual and procedural, then collected offline by collecting assignments to school, (4) the teacher assesses the results of assignments that have been done by students. The impact that occurs is that students still have difficulty understanding the material. In fact, the enthusiasm of the students was also lacking. Moreover, the distance between students and teachers is separated, which results in teachers not being able to monitor students directly.

In the first type of learning activities, the focus of learning is still knowledge of facts, oriented to success in solving problems and mastery of competencies through drill techniques. Meanwhile, in the second type of learning activities it is also almost the same, but the difference is there is the activity of accepting learning resources directly from teachers to students. But, in fact these two types of learning activities are still classified as using a teacher-centered learning approach or conventional learning. In fact, the conditions experienced today are very different from before the pandemic occurred. Because, the current conditions still do not show a decrease in the number of positive confirmed cases of Covid-19. This means that face-to-face learning normally is not certain when it can be done. Explicitly, the actual process of learning activities in online learning has a consequence that all learning activities can be carried out in a more mobile and dynamic manner [18].

4. Conclusion and Suggestion

In general, there were two types of learning activities on mathematics online learning during the Covid-19 pandemic situation at MTs Sambirejo. However, the two types of learning activities still use a teacher-centered learning approach. Even though the current pandemic condition is very different from the conditions before the pandemic. Explicitly, the actual process of learning activities in online learning in the network has a consequence that all learning activities can be carried out in a more mobile and dynamic manner.
Therefore, there are things that can be done to help students, especially to design distance learning, especially online learning, is a learning activity that contains a number of activities in order to make students learn to construct their knowledge. These assignments can be in the form of student worksheets that contain productive, open-ended or imaginative questions. This serves to guide students in constructing their knowledge before being asked questions to test their competence.

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