The Differences Of Student's Mathematics Ability Using The Whatsapp Group And Classroom Platform During Pandemic Covid-19

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ABSTRACT

The purpose of this study was to determine the differences in students' mathematical abilities using the WhatsApp group and classroom platforms during the Covid-19 pandemic in class VIII of SMP Negeri 2 Hinai. This research method is to use quasi-experimental research. The number of samples in this study were 60 students divided into 2 class groups, namely the experimental class 1 which was taught using WhatsApp group, and the experimental class 2 which was taught using classroom. The data collection instruments were in the form of tests of students' mathematical understanding abilities before and after being given treatment (pretest and posttest). Based on the results of hypothesis testing with the t test technique, the value of t count is 2.16> t table is 2.04 so it can be concluded that there are differences in students' mathematical abilities using the WhatsApp group platform and classrooms during the Covid-19 pandemic in class VIII SMP. Negeri 2 Hinai. Students' mathematical abilities using the WhatsApp group platform are superior to students' mathematical abilities using classroom.

Keywords:
Mathematical Ability; Whatsapp Group Platform; Classroom.

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1. INTRODUCTION

The Covid-19 pandemic has presented its own challenges for educational institutions today (Sadikin and Hamidah 2020). Through the Ministry of Education and Culture, the Government has prohibited every level of school from carrying out face-to-face learning and ordered online learning to be held. The implementation of the educational process must continue despite the current COVID-19 pandemic (Ali 2020)(Sepulveda-Escobar and Morrison 2020). Education is an inseparable field for the future of a nation (Simamora 2020).

Education plays an important role in preparing quality human resources and capable of being competent in the development of science and technology, so that education should be managed in quality and quantity under any conditions (Day 2002). (Mendesain 2001) states that education is a form
of embodiment of human culture that is dynamic and full of development, so that improvements in education at all levels need to be continuously carried out in anticipation of future interests.

Efforts to improve the quality of education can be achieved optimally, if the development and improvement of the education component itself is carried out. The teacher is a component in the teaching and learning process, so it is necessary to have good abilities in conveying material to students. In addition, teachers must be able to master the class and understand the different abilities of students so that learning objectives and educational goals can be achieved optimally, including in learning mathematics. Based on Permendiknas Number 22 of 2006 (in (Pebrianto, Yunarti, and Gunowibowo 2015)) states that the purpose of learning mathematics is so that students have the ability to understand mathematical concepts, explain the relationship between concepts or algorithms, in a flexible, accurate, efficient, and precise way in solving problems.

Mathematics is a universal science that underlies the development of modern technology and is important in various disciplines and is able to develop the power of human thought (Sari and Saputri 2020). Mathematics is one of the compulsory subjects in formal education and takes a very important role in the world of education. This is because mathematics can train students to think logically, be responsible, have a good personality and problem solving skills in everyday life. This shows that mathematics needs to be taught to students to improve human resources. In connection with this, Cockroft (Pranata n.d.) argues that: Mathematics needs to be taught to students because (1) it is always used in all aspects of life; (2) all fields of study require appropriate mathematical skills; (3) is a means of communication that is strong, concise and clear; (4) can be used to present information in a variety of ways; (5) improve logical thinking skills, accuracy, and spatial awareness; and (6) giving satisfaction to challenging communication efforts.

Mathematics has not become a subject of interest to many students. Students still think mathematics is difficult (Kong, Wong, and Lam 2003). Students' view that mathematics is difficult is caused by their view that mathematics is a set of facts or formulas that must be faced (Tall 2002). In addition, the abstract mathematical objects, tiered concepts and principles, and the processing procedures that manipulate many forms actually lead to the student's assumption that mathematics is difficult (Olive et al. 2009).

According to Lerner (in Abdurrahman) "There are several characteristics of children with learning difficulties in learning mathematics, namely (1) disturbances in spatial relationships, (2) visual perception abnormalities, (3) visual-motor associations, (4) perseveration, (5) difficulty recognize and understand symbols, (6) impaired body appreciation, (7) difficulties in language and reading, (8) IQ performance is much lower than the verbal sector IQ". From this statement, it can be concluded that one of the difficulties in learning mathematics is the low mathematical ability of students, namely the low mathematical understanding of students. In studying mathematics, it is not just memorizing, but students must be able to interpret every mathematical symbols and formulas contained in mathematics because mathematical symbols are “artificial” which only have meaning after a meaning is given to them (Basturk 2010).

The results of interviews with teachers in the field of mathematics studies at SMP Negeri 2 Hinai found that currently the learning process is carried out online through whatsapp and classroom, but students are not ready to take online learning, they still tend to choose conventional learning, namely by doing face-to-face learning. This problem is also caused by online learning facilities that are less supportive, namely the limited internet quota owned by students. Then students have difficulty in solving math problems. If the questions given vary slightly, it will be difficult for students to work on them. This is due to the lack of students' mathematical understanding. The researcher also held a pre-test to the students. Based on the results obtained from the test, it is known that the students' mathematical understanding ability is still low. The following is one of the initial test questions and student answers to the question:

Problem: Find the equation of the line that passes through the point A(3, 4) and has a slope of 2!
Student answers:
Figure 1. Find the equation Find the equation

Based on the results of the students’ answers above, it shows that students’ mathematical understanding abilities are still low, which is evident from students’ errors when determining the values of x and y, errors in choosing the right formula, and calculations that are still wrong. The low ability of students’ mathematical understanding can not be separated from the optimization of the learning model used. The use of learning models in presenting mathematics lessons is very influential on students’ mathematical understanding abilities.

There are many models or learning media that can be used in the implementation of online learning today. Professional teachers must be creative in choosing learning media that are considered more appropriate than others. Learning media that can be used or utilized by teachers in online learning during the current covid-19 pandemic is the whatsapp group and classroom media. The two online learning media are part of various alternative media in online learning during the COVID-19 pandemic.

WhatsApp social media is one of the communication media that is currently loved by all levels of society. The use of social media has become one of the social media that covers the overall interests of the community in communicating to meet their respective needs. Jubile Enterprise (in Yensi, 2020: 66) defines WhatsApp as a chat application that can send text messages, images, sounds, locations and videos to other people using any type of smartphone. Whatsapp does not use pulses like sms fees in general, but uses the internet network in accordance with technological developments that are currently connected to the network and identified with a mobile phone number (HP).

This whatsapp application is also equipped with various menu options that support such as New Group, New Broadcast, WhatsApp Web, Starred Messages and Settings. The complete features available in the WhatsApp application make its users increase rapidly. There are various menu options available on WhatsApp, one of which is called New Group, which has recently been widely used by students, students and teachers as a communication medium that is hindered by distance, which is called the WhatsApp group.

Furthermore, this study also uses classroom media as an online learning medium. Classroom or in full, Google Classroom is an application that allows the creation of classrooms in cyberspace. In addition, classroom can be a means of distributing assignments, submitting assignments and even assessing submitted assignments (Herman in (Nirfayanti and Nurbaeti 2019)). Thus, this application can make it easier for teachers and students to carry out online learning more deeply. This is because students and teachers can collect assignments, distribute assignments, assess assignments at home or anywhere without being bound by time limits or lesson hours. Classroom is actually designed to facilitate the interaction of teachers and students in cyberspace. The classroom application provides an opportunity for teachers to explore their scientific ideas for students. Teachers have the flexibility of time to share scientific studies and give independent assignments to students, besides that teachers can also open discussion rooms for students online.

Regarding the use of whatsapp and classroom as online learning media, previously there was a previous study conducted by (Yensy 2020) with the title "The Effectiveness of Learning Mathematics
Statistics Through Whatsapp Group Media in View of Student Learning Outcomes in the Covid 19 Pandemic Period. The results showed that the mathematics statistics lectures in the mathematics education study program majoring in PMIPA FKIP Bengkulu University using the whatsapp group media were quite effective when viewed from student learning outcomes. Student learning outcomes after lectures using whatsapp groups are higher than student learning outcomes before using whatsapp groups. Furthermore, research conducted by (Nirfayanti and Nurbaeti 2019) with the title "The Effect of Google Classroom Learning Media in Real Analysis Learning on Learning Motivation". The results of the study indicate that there is a significant effect of learning motivation after applying google classroom learning.

Based on the description that has been stated above, the researchers are interested in conducting a study with the title: "The Differences in Students' Mathematical Ability Using the Whatsapp Group and Classroom Platform During the Covid-19 Pandemic In Class VIII SMP Negeri 2 Hinai".

2. RESEARCH METHOD

This type of research is a quasi-experimental research (quasi-experimental). The population in this study were all students of class VIII SMP Negeri 2 Hinai totaling 121 students. According to (Arikunto 2010). "The sample is part or representative of the population being studied. In this study, the sampling technique used is the class random sampling technique. The number of samples in this study were 60 students. The experimental design used in this study was a pretest-posttest control group design. The instrument used to collect data is a test. According to (Ngalim 2011) the test is a measuring instrument for data collection where in responding to questions in the instrument, participants are encouraged to show their maximum performance. The test in the research is in the form of a description with the aim of knowing the extent to which students understand mathematics.

3. RESULTS AND DISCUSSIONS

The research, which was conducted at SMP Negeri 2 Hinai, used two different learning models. Researchers formed two groups, namely experimental group 1 which was taught via whatsapp, and experimental group 2 which was taught through classroom. After being given learning with different media to each group, then a posttest of mathematical understanding ability was given to determine the difference in mathematical understanding ability between experimental class 1 which was taught using whatsapp and experimental class 2 which was taught using classroom.

| Data   | Pretest Eksperiment 1 | Pretest Eksperiment 2 |
|--------|-----------------------|-----------------------|
| N Valid| 30                    | 30                    |
| Missing| 0                     | 0                     |
| Mean   | 52.3333               | 53.500                |
| Std. Deviation | 13.94159       | 13.90547             |
| Minimum| 25                    | 25                    |
| Maximum| 80                    | 80                    |

From the results of the pretest, it is known that the number of students in the experimental class 1 and the experimental class 2 are 30 students. The average value of the pretest results of the experimental class 1 is 52.33 while the average value of the pretest results of the experimental class 2 is 53.5. The standard deviation of the pretest results of the experimental class 1 is 13.94 while the standard
deviation of the pretest results of the experimental class 2 is 13.90. The lowest value of the pretest results of the experimental class 1 is 25 while the lowest value of the pretest results of the experimental class 2 is also 25. The highest value of the pretest results of the experimental class 1 is 80 while the highest value of the pretest results of the experimental class 2 is also 80.

Table 2. Results of Posttest Experiment 1 and Experiment 2

| Data                | Eksperiment 1 | Eksperiment 2 |
|---------------------|---------------|---------------|
| N                   | 30            | 30            |
| Missing             | 0             | 0             |
| Mean                | 72.5000       | 65.8333       |
| Std. Deviation      | 12.71369      | 11.07057      |
| Minimum             | 50            | 45            |
| Maximum             | 95            | 90            |

While the results of the posttest, it is known that the number of students in the experimental class 1 and experimental class 2 are 30 students. The average value of the posttest results of the experimental class 1 is 72.5 while the average value of the pretest results of the experimental class 2 is 65.83. The standard deviation of the posttest results of the experimental class 1 is 12.71 while the standard deviation of the posttest results of the experimental class 2 is 11.07. The lowest value of posttest results of experimental class 1 is 50 while the lowest value of posttest results of experimental class 2 is also 45. The highest value of posttest results of experimental class 1 is 95 while the highest value of posttest results is experimental class 2 is 90. Based on the difference in average values, it appears that the experimental group 1 taught by WhatsApp has a better mathematical understanding ability than the experimental group 2 which is taught by classroom. This is in line with research conducted by Yensi (2020) that learning using WhatsApp Group media is quite effective when viewed from the results of learning mathematics. The results of learning mathematics using the WhatsApp Group are higher than the results of learning before using the WhatsApp Group.

Table 3. Hypothesis Test Results

|                  | F  | Sig. | T   | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference |
|------------------|----|------|-----|----|-----------------|-----------------|----------------------|
| Postest          | .881| .352 | 2.16| 58 | .034            | 6.66            | 3.077                |
| Eksi1            |    |      | .   | .  | .               | .               | .                    |
| Eksi2            | 2.16| .     | 56.9| .  | .035            | 6.66            | 3.077                |

Based on the results of hypothesis testing, the t-count value is 2.16 while the t-table value is 2.04. Thus, t count > t table (2.16 > 2.04) which shows that accepting the test criteria, namely accepting Ha, which means that there are differences in students' mathematical abilities using the whatsapp group and classroom platforms during the covid-19 pandemic in class VIII SMP Negeri 2 Hinai. This also provides an understanding that learning using whatsapp can give better results compared to learning using classroom.

Of course this is related to the advantages possessed by WhatsApp media. The advantages that arise from the use of the WhatsApp social networking site according to (Kamila 2019) are that it facilitates learning activities, because it can be used as a means to discuss with schoolmates to find
information/tasks. However, using a classroom also has its own advantages. The advantages of classroom according to (Iftakhar et al., 2016) are easy to use, time-saving, flexible and free. If we observe the advantages of the two media above (whatsapp and classroom) then actually the advantages of these two media are not much different. It’s just that students are more accustomed to using whatsapp media compared to classroom, so the mathematics learning process is easier to do on whatsapp media so that based on the results of this study students who take lessons with whatsapp media have better mathematical understanding abilities. They have been using WhatsApp for a long time, while using classroom only recently when the covid-19 pandemic hit the world so that the learning process is carried out online, one of which can be done with classroom media.

Prior to the Covid-19 virus pandemic, all students of SMP Negeri 2 Hinai were already in one WA group. With this WA group, teachers can deliver learning materials and assignments for students while studying online from home. Through the WA group, the teacher can convey the materials that students must learn. Teachers can give varied assignments to students so they don’t get bored easily. Materials can be delivered through sound recordings, youtube links, and photos. Teachers can be creative with the WA application so that students remain enthusiastic about learning online during this pandemic. Teachers create creative and fun learning activities. Even though they are at home, students still have the enthusiasm to learn and do not feel bored with online learning activities during the pandemic. Teachers can still apply the desired learning model through WA such as problem based learning, sole, project based learning, and other learning models. These examples of learning can help to vary learning activities for students. It is hoped that students will not get bored quickly and remain enthusiastic in online teaching and learning activities during this pandemic.

4. CONCLUSION

Based on the results of hypothesis testing with the t-test technique, the t-count value is 2.16 while the t-table is 2.04 so that t-count> t-table value is 2.16> 2.04 so it can be concluded that there are differences in students’ mathematical abilities using whatsapp group and classroom platform during the covid-19 pandemic in class VIII SMP Negeri 2 Hinai. Students’ mathematical abilities using the whatsapp group platform are superior to students' mathematical abilities using classroom.

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