



Online mathematics learning during the covid-19 pandemic using the whatsapp application

Pranitha Agustina^{1*}

^{1*} Mathematics Education Teacher, SDN 4 Sudalarang, West Java, Indonesia

^{1*} pranitha.agustina@gmail.com

© The Author(s) 2024

DOI: <https://doi.org/10.31980/pme.v3i1.1774>

Submission Track:

Received: 13-01-2024 | Final Revision: 15-02-2024 | Available Online: 28-02-2024

How to Cite:

Agustina, P. (2024). Online mathematics learning during the covid-19 pandemic using the whatsapp application. *Jurnal Inovasi Pembelajaran Matematika: PowerMathEdu (PME)*, 3(1), 23-28.

Abstract

This study aims to determine how the analysis of mathematics learning during the COVID-19 pandemic is online based using the WhatsApp application. This type of research uses descriptive qualitative. The data collection method used was interview guidelines, observation sheets, and documentation in seeing how mathematics was learned during the COVID-19 pandemic. The results of this study aim to see how mathematics learning during the COVID-19 pandemic is based online using the WhatsApp application.

Keywords: COVID-19; WhatsApp; descriptive qualitative

Abstrak

Penelitian ini bertujuan untuk mengetahui bagaimana analisis pembelajaran matematika pada masa pandemi COVID-19 berbasis daring menggunakan aplikasi WhatsApp. Jenis penelitian ini menggunakan Kualitatif deskriptif. Metode pengambilan data yang digunakan pedoman wawancara, lembar observasi dan dokumentasi dalam melihat bagaimana pembelajaran matematika pada masa pandemi COVID-19. Hasil penelitian ini bertujuan untuk melihat bagaimana pembelajaran matematika pada masa pandemi COVID-19 berbasis daring dengan menggunakan aplikasi WhatsApp.

Kata Kunci: COVID-19; WhatsApp; kualitatif deskriptif

Introduction

Education is a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to have spiritual religious strength, self-control, personality, intelligence, noble morals, and the skills needed by themselves, society, nation, and state (Noviyana, 2017). However, currently the COVID-19 pandemic has made very significant changes, including in the field of education. All levels of education are forced to study from home through online media. Of course, this is a problem in the world of education when faced with learning that is required to use online media.



Learning at this time is carried out online with various obstacles or difficulties faced. Because teachers and students who previously studied and interacted directly in the classroom now interact in a very limited virtual space. In learning that is carried out online, teachers are required to provide good and conducive learning. As well as being a creative and innovative teacher in the learning that is carried out so that the learning is interesting and makes students understand the material given in order to achieve the goals of learning (Cahyani, Listiana, & Larasati, 2020).

Humanity is currently in a critical period due to the outbreak of the Coronavirus Disease (COVID-19) which has hit almost all parts of the world including Indonesia. COVID-19 is a new type of virus discovered in Wuhan, China in 2019. Since it was first discovered, COVID-19 has spread widely and resulted in a global pandemic that is still ongoing. Symptoms of someone infected with COVID-19 are generally a dry cough, shortness of breath and a fever of 38°C . However, over time, the symptoms of COVID-19 can no longer be measured based on general COVID symptoms because there are also many sufferers who do not show COVID symptoms such as fever, cough and flu but turn out to be positive for COVID-19 (Susilo, et al, 2020).

Permendikbud Number 58 of 2014, the National Council of Teachers of Mathematics in (Yanti, Melati, & Zanty, 2019) formulated the objectives of mathematics learning, namely consisting of five basic mathematical abilities which are standards, namely problem solving, reasoning and proof, communication, connections, and representations. Because mathematics is very important as a discipline, one of the demands of the mathematics curriculum in the 2013 curriculum states that mathematics needs to be given to all students starting from elementary school to equip students with the ability to think logically, analytically, systematically, critically, and creatively, as well as the ability to work together. These abilities can be developed in mathematics learning, which will later be used by students in facing very rapid, uncertain, and competitive global competition (Sugiarti & Basuki, 2014).

According to (Hudojo, 2005) mathematics is a structured science, covering the relationship between patterns and shapes. The structure studied is a structure related to ideas or concepts whose relationships are arranged logically, so that mathematics is related to abstract concepts.

Muhsetyo (2008) states that Mathematics learning is the process of providing learning experiences to students through a series of planned activities so that students gain competence in the mathematics material being studied.

The growth of the use of Information and Communication Technology (ICT) in the field of smartphones or software that is increasingly accessible to all levels of society, as well as the use of various social media is increasing, one of which is WhatsApp media (Pustikasaya, 2019).



The presence and progress of WhatsApp social media as a sophisticated communication media at this time, requires educators to be able to adapt to technological developments and advances. The presence of WhatsApp as a tool or media to transfer knowledge at this time quickly without having to be fixated on the specified learning time, but still paying attention to various factors so that learning objectives are still achieved. In this WhatsApp application there is a feature that allows users to communicate in groups, namely WhatsApp groups. With the presence of this WhatsApp group feature, learning can be carried out between educators and students (Pustikasaya, 2019).

Based on what has been explained, the purpose of this study is to analyze online mathematics learning during the COVID-19 pandemic using the WhatsApp application. While the formulation of the problem is to find out how mathematics learning activities.

Method

This study uses a descriptive qualitative research method. The subjects in this study were three students of grade VIII of junior high school in Jayaraga Village, Tarogong Kidul District, Garut Regency who were taken randomly. The data collection techniques that will be carried out are by conducting interviews, documentation, and observation. In this case, the role of the researcher as the main instrument is to determine the subject, collect data, analyze the data obtained and draw conclusions. The research instruments used are in the form of interview sheets, observation sheets and documentation. In this qualitative research, the presence of the researcher is very important because the involvement of the researcher in the problems and subjects of the research is very important.

Result

In the interview session conducted in January 2021 in Jayaraga village with three students as resource persons who met in person.

Interview conducted with one of the students

P: hello, what's your name?

S: my name is Elsa

P: okay, sis, just ask..

S: okay, sis

P: what do you think Elsa is about learning mathematics using the WhatsApp application as an online learning medium?

S: very helpful, sis because WhatsApp itself makes it easy for students to follow online learning.

P: okay, then according to Elsa herself, what are the advantages and disadvantages of learning mathematics using the WhatsApp application?

S: the advantage is that if there are students who do not understand the material, they can repeat the learning video given by the teacher so that they really understand. And the disadvantage of



learning mathematics with WhatsApp media is that the network connection is often bad and not good.

P: okay, in Elsa's opinion during this online learning, are the materials and practice questions given by the teacher effective?

S: very effective, sis because initially the teacher provides a discussion like a summary of the material and learning videos, then practice questions via files. So if you still don't understand the material, you can play the learning video again.

P: okay, thank you Elsa for your answer.

S: yes, you're welcome, sis.

In online mathematics learning with WhatsApp media, it is the same as learning in class, namely before starting the learning, it begins with reading a prayer first, then in explaining what material will be studied today the teacher sends a material file or summary of the material that the teacher has made and attaches a video that supports this mathematics learning and in the material file, assignments or practice questions that must be done by students are also attached, during this pandemic, sometimes the practice work is done by themselves, assisted by parents or siblings. In collecting their assignments, students only send photos of the work that has been done by students and then send them to the teacher.

Discussion

The Covid-19 pandemic forced educational institutions worldwide to rapidly transition from traditional in-person instruction to online learning platforms. Among various digital tools, WhatsApp emerged as a widely used application for facilitating communication and learning, particularly in regions where more sophisticated e-learning platforms were not readily accessible. This discussion explores the effectiveness, challenges, and implications of using WhatsApp for online mathematics learning during the pandemic.

WhatsApp proved to be an effective tool for maintaining communication between teachers and students in an unprecedented educational landscape. Its ease of use, wide accessibility, and real-time communication features allowed teachers to continue delivering lessons, sharing instructional materials, and providing feedback. The application's group chat functionality enabled collaborative learning, where students could discuss mathematical problems, share solutions, and support each other in understanding complex concepts.

For mathematics, a subject that traditionally relies on face-to-face instruction and visual aids, WhatsApp's multimedia features were particularly valuable. Teachers could share images of mathematical problems, video explanations, and voice notes to guide students through challenging concepts. Additionally, WhatsApp's document-sharing capabilities allowed teachers to distribute worksheets, quizzes, and other resources,



ensuring that students remained engaged with the curriculum despite the physical distance.

Despite its advantages, the use of WhatsApp for mathematics learning during the pandemic also presented several challenges. One of the primary issues was the difficulty in conducting real-time, interactive lessons. Mathematics often requires step-by-step guidance and immediate feedback, which can be difficult to provide through text-based communication alone. The lack of a virtual whiteboard or similar tools on WhatsApp meant that explaining complex mathematical problems was less effective compared to traditional classroom settings or more sophisticated e-learning platforms.

Another significant challenge was the variability in students' access to technology and internet connectivity. Not all students had reliable access to smartphones or the internet, leading to disparities in participation and learning outcomes. Furthermore, the informal nature of WhatsApp communication sometimes led to distractions and off-topic discussions, making it difficult for teachers to maintain a focused and productive learning environment.

The experience of using WhatsApp for online mathematics learning during the Covid-19 pandemic provides valuable insights for the future of education, particularly in low-resource settings. While not a perfect solution, WhatsApp demonstrated that learning could continue despite significant disruptions, offering a flexible and accessible platform for remote education.

For future online learning initiatives, it is essential to recognize the limitations of using applications like WhatsApp for subjects that require more interactive and visual instruction, such as mathematics. Educators and policymakers should consider integrating WhatsApp with other e-learning tools that offer more comprehensive features, such as virtual whiteboards and real-time video conferencing, to enhance the effectiveness of online mathematics instruction.

Additionally, efforts should be made to bridge the digital divide by ensuring that all students have access to the necessary technology and internet connectivity to participate fully in online learning. This may involve providing devices and subsidizing internet costs for students in underserved communities.

In conclusion, while WhatsApp served as a valuable tool for continuing mathematics education during the Covid-19 pandemic, it also highlighted the need for more robust and interactive online learning platforms. The insights gained from this experience can inform the development of more effective and inclusive online education strategies in the future, ensuring that all students have the opportunity to succeed in their mathematical studies, regardless of the learning environment.



Conclusion

Based on the results of the study above, it can be concluded that in the implementation of online mathematics learning activities during the COVID-19 pandemic using the WhatsApp application in class VII, it is very effective at this time, it can make it easier for students to follow mathematics learning using applications that students usually use every day and can make it easier for students to interact with teachers if there is something they do not understand and can also interact with their friends. However, the disadvantage of online mathematics learning is that it is often hampered by a network that is suddenly slow or has no signal.

Conflict of Interest

The authors declare that no conflict of interest regarding the publication of this manuscript. In addition, the ethical issues, including plagiarism, misconduct, data fabrication and/or falsification, double publication and/or submission, and redundancies have been completely by the authors.

Reference

- Cahyani, A., Listiana, I. D., & Larasati, S. P. (2020). Motivasi Belajar Siswa SMA pada Pembelajaran daring di Masa Pandemi Covid-19. *IQ (Ilmu Al-qur'an) : Jurnal pendidikan Islam*, 03(01), 123-140.
- Hudojo, H. (2005). *pegembangan Kurikulum dan pembelajaran Matematika*. Malang: UM Press.
- Muhsetyo, G. (2008). *Pembelajaran Matematika SD*. Universitas Terbuka.
- Noviyana, N. (2017). *Analisis Kesulitan Memahami Konsep Matematis Ditinjau dari Kemampuan Metakognisi Siswa*. [Disertasi] Universitas Tarbiyah dan Keguruan.
- Pustikasaya, I. M. (2019). Grup WhatsApp Sebagai Media Pembelajaran. *Widya Genitri: Jurnal Ilmiah Pendidikan, Agama dan Kebudayaan Hindu*, 53-62.
- Sugiarti, S., & Basuki, B. (2014). Pengaruh Model Pembelajaran Berbasis Masalah Terhadap Kemampuan Koneksi Matematis Siswa Dalam Pembelajaran Matematika. *Mosharafa: Jurnal Pendidikan Matematika*, 3(3), 151-158.
- Susilo, A., Rumende, M., & dkk. (2020). Coronavirus Disease 2019: Tinjauan Literatur Terkini. *Jurnal Penyakit Dalam Indonesia*, 7(1), 45-67.
- Yanti, R. N., Melati, A. S., & Zanty, L. S. (2019). Analisis Kemampuan Pemahaman dan Kemampuan Komunikasi Matematis siswa SMP pada Materi Relasi dan Fungsi. *Jurnal Cendekia: Jurnal Pendidikan Matematika*, 3(1), 209-219.

