

Obstacles Experienced by Students in Online Mathematics Learning in Elementary School

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Abstract. Since 2020, the Indonesian government has carried out policy updates related to education in Indonesia, namely online learning caused by the COVID-19 pandemic. This study aims to describe the obstacles experienced by students in online learning of Mathematics in Elementary Schools. The method used is descriptive qualitative with a case study research design. The results showed that 100% of students in online learning Mathematics of 11 student's responses used multimedia as their learning Mathematics media in grade 5 at one of South Bengkulu Elementary Schools which was implemented through the WhatsApp platform, google classroom and zoom. 70.9% of online learning facilities and infrastructures for mathematics are adequate, but in the learning process, only 38.63% are carried out well by students. Students who are motivated in online learning Mathematics are also low at only 47.72%. Evaluation of students' Mathematics learning during online learning also decreased compared to offline learning. Based on the results of the study, the conclusion is that the obstacles experienced by students in the online learning process have not been implemented properly, the lack of student's motivation for online learning Mathematics, and the decrease of evaluation results in Mathematics learning.

Keywords: Obstacles Experienced, Students, Online Learning, Mathematics, Elementary School.

How to Cite: Tamara, Y. M. C. & Herman, T. (2022). Obstacles Experienced by Students in Online Mathematics Learning in Elementary School. *Proceeding The 4th International Conference on Elementary Education, 4*(1), 920-925.

INTRODUCTION ~ The Indonesian government has made policy updates related to education in Indonesia, namely online learning since 2020 as a result of COVID-19. Gusty et al (2020) say that online learning is an interaction between teachers and students that is carried out through computer networks or other electronic devices. COVID-19 is a virus that is commonly found in our environment. This virus was discovered in the mid-1960s which is known as the cause of cough and cold symptoms (Masrul et al, 2020). According to (Raibowo and Nopiyanto, 2020) the implementation of e-learning also pays attention to government instructions by implementing the KTSP Emergency Curriculum (Education Unit Level Curriculum) following the Circular Letter of the Minister of Education and Culture No. 36962 of 2020. Online-based learning

is learning by utilizing internet technology that allows learning interactions from anywhere and anytime with interactive, independent, easily accessible characteristics, and allows for enrichment of the use of technology (Herman, 2018). So, innovations that make it easier for educators to deliver learning materials are needed in this era so that it is easier for students to understand learning. Skills in the field of information and communication technology media are skills that must be possessed by educators in this 21st century. Not only teachers but students are also required to use and master information and communication technology in learning (Rahman, 2019). In this case, according to Rahman (2018), the use of digital technology advances in learning is the answer. Related to pedagogic competence, Rahman (2019)

explains one of the things that teachers can do, namely the use of technology in learning itself.

The increasingly advanced development of modern times makes the exchange of information very fast across the boundaries of space and time. Quality education is the main requirement for realizing an advanced, and prosperous nation's life (Rahman 2018). Education shapes humans to behave properly and be ready to face the industrial revolution 4.0. (Rahman, 2019). Implementation in elementary schools in learning Mathematics is shown in the development of practical, logical, critical, and honest thinking patterns with an orientation to the application of mathematics because in mathematics there are questions in the form of reading content and stories in the form of discourse problems that must be solved through student reasoning. Many students think that mathematics is a difficult subject, some even think of mathematics as a scary subject. Mathematics is an important lesson for students because mathematics subjects function to develop communication skills using numbers and symbols and reasoning to help solve problems of everyday life (Laily: 2014).

Rakhmah et al's research (2021) entitled "Description of Obstacles of Online Learning Through Whatsapp in Mathematics Subjects in Elementary Schools" describes the obstacles of online learning through Whatsapp on Mathematics subjects in Elementary Schools. Based on previous research that only discusses WhatsApp, the researcher wants to expand its scope by conducting a study entitled "Constraints experienced by students in online learning of

mathematics in elementary school". The aim is to describe the obstacles experienced by students in learning Mathematics online in Elementary Schools from various aspects such as online learning media, facilities and infrastructure, online learning processes, student motivation, and evaluation of online learning Mathematics in Elementary Schools.

METHODS

This research is included in the type of qualitative descriptive research with a case study research design. Qualitative descriptive research is a research method based on the philosophy of postpositivism which is usually used to examine natural objective conditions in which the researcher acts as a key instrument. Case studies include the study of a case in real life, in a contemporary context or setting described by Creswell (2016).

The technique in this research is a non-probability sampling technique. Sampling techniques that do not provide equal opportunities/opportunities for each element or member of the population to be selected according to (Sugiyono, 2014). In qualitative research, the sampling technique that is often used is the purposive sampling technique, namely the sampling technique of data sources with certain considerations.

Data collection techniques are used through observation, documentation, questionnaires, and interviews. The data analysis technique uses a qualitative descriptive technique with the percentage of existing qualitative data to be quantified, numbered just to facilitate two or more variable data. For the student response questionnaire instrument,

which contains 15 closed questions from various aspects, in this case, if students answer "YES" then it means that there are no obstacles experienced, whereas if students answer "NO" then the meaning is the opposite. After the data was collected, the researcher processed and converted the number of student responses who answered "YES" or "NO" into percentages. Then after getting the final results, they are requalified (Arikunto, 2019).

Because this research was carried out during the COVID-19 pandemic, to prevent the COVID-19 virus from being wider, the researchers were only permitted to examine 11 students from representatives of grade 5 students and one of the teachers of SDIT Al Qalam Bengkulu Selatan in Mathematics. Next, the data and facts collected are in the form of words from the numbers. Describing something means describing what, why, and how an event happened.

RESULTS

The results of this study were taken from various aspects. The first aspect is Mathematics online learning media where as many as 11 students answered "YES" and 0 students answered "NO" in the questionnaire response to questions number 1 and 2. So, in the form of percentages, 100% of students answered "YES" and 0% of students answered "NO".

The second aspect is the online learning facilities and infrastructure for Mathematics. The results show that as many as 11 students answered "NO" and 0 students answered "YES" to question number 3. In contrast to questions number 4, 5, and 6, 11 students answered "YES" and 0 students answered "NO".

Furthermore, question number 7 got as many as 6 students who answered "YES" and 5 students answered "NO". So, after being accumulated in the form of percentages, 70.9% of students answered "YES" and 29.1% of students answered "NO" in this aspect.

Furthermore, the third aspect is the online learning process of Mathematics. In the learning process, it was found that 4 students answered "YES" and 7 students answered "NO" to question number 8. Then questions number 9 and 11 got 3 students who answered "YES" and 8 students answered "NO". Meanwhile, question number 10 as many as 7 students answered "YES" and 4 students answered "NO". So that 38.63% of students answered "YES" and 61.4% of students answered "NO" to all questions for this aspect.

The fourth aspect is students' motivation towards the implementation of online learning Mathematics. Only 2 students answered "YES" while 9 students answered "NO" to question number 12. Question number 13 was answered "YES" by 8 students and "NO" by 3 students. Furthermore, for question number 14, 7 students answered 'YES' and 4 students answered 'NO'. In the last question, namely number 15, 4 students answered "YES" and 7 students answered "NO". So, after being accumulated in the form of percentages, 47.72% of students answered "YES" and 52.3% of students answered "NO" on all questions in this aspect. The summary of student response questionnaires related to online learning of Mathematics in grade 5 SDIT Al Qalam Bengkulu Selatan can be seen in the following table.

Table 1. Recapitulation of Student Response Questionnaires regarding Mathematics Online Learning in Grade 5 SDIT Al Qalam Bengkulu Selatan

Aspects related to Mathematics Online Lear	Yes	No
Learning Media	100%	0%
Facilities and Infrastructure	70.9%	29.1%
Learning Process	38.6%	61.4%
Student Motivation on Learning Implementation	47.7%	52.3%

DISCUSSION

This study produces data in the form of percentages originating from several aspects, namely learning media, facilities and infrastructure, learning processes, and motivation related to the implementation of online mathematics learning in elementary schools. The first aspect is Mathematics online learning media. Online learning media are all forms of materials used to assist teachers in carrying out teaching and learning activities in the classroom. The material in question can be in the form of written material or unwritten material (Efendi, 2020). In this aspect, it was found that as many as 100% of students used multimedia as an online learning medium for 5th-grade Mathematics at SDIT Al Qalam Bengkulu Selatan in the form of learning videos and others. The online learning media for Mathematics is implemented through the WhatsApp, Google Classroom, and Zoom platforms. The percentage figure means that there are no obstacles faced by students for online learning media for Mathematics.

The second aspect is the online learning facilities and infrastructure for Mathematics. Prawiro et al (2021) explained that to carry out online learning activities, schools and students should be more complete with the facilities and infrastructure that will be used. According to Haromain et al (2020), the implementation of online learning must

use the internet network, which must meet the availability of access. However, the state of the network in several different areas is an obstacle in online learning. The results of this aspect indicate that as many as 70.9% of online learning facilities and infrastructure for mathematics are adequate, such as data quota assistance except for credit from the government for all students, cell phones or laptops are owned by all students, as well as facilities and infrastructure assistance from other parties obtained by the government. all students. In addition, some students also use wifi in their homes. Based on the percentage obtained, it means that the obstacles faced by students for aspects of online learning facilities and infrastructure for Mathematics are 29.1%.

Furthermore, the third aspect is the online learning process of Mathematics. The online learning process according to Prawiro et al (2021) is very promising because students and teachers can access material widely from various sources. According to Cahyati and Kusumah (2020), many parents help motivate students as long as they are required to study at home because of an appeal from the government, this makes parents take their time to help the student learn while at home. Meanwhile, according to Adevida and Widodo (2021) during this pandemic, many parents encountered student

complaints in the online learning process. In the learning process, only 38.63% were carried out well by students. Meanwhile, 61.37% are obstacles faced by students. Several things in the online learning process of Mathematics are still lacking, namely the ease of students in understanding the material, students' interest in the Mathematics learning process, and student interaction with teachers. Only parental supervision of students during the online learning process of Mathematics is a good point for some students.

The fourth aspect is students' motivation towards the implementation of online learning Mathematics. Learning motivation according to Nopiyanto (2020) is a series of driving forces in a person that causes learning activities and provides direction to learning activities so that the goals desired by the learning subject can be achieved. Students who are motivated in learning Mathematics online are low at only 47.72%. Meanwhile, 52.3% became the obstacles experienced by students in motivation related to the implementation of online learning Mathematics in elementary schools. This is because the learning media used is less attractive according to most students. Miftah (2013) explains that the use of learning media is to provide supplementary support for teachers. In addition, the decrease in the evaluation results of students' Mathematics learning during online learning compared to students' offline learning was low based on the researcher's interview with one of the Mathematics teachers at SDIT Al Qalam Bengkulu Selatan made most students less motivated to learn Mathematics.

CONCLUSION

Based on the results of the study, it was concluded that the obstacles experienced by students in online learning in elementary schools were 35.7%. This percentage is obtained from the average constraints of various aspects, including aspects of facilities and infrastructure that still need to be completed, online learning processes that have not been implemented properly, lack of student motivation related to online learning Mathematics, and declining evaluation results in learning Mathematics.

REFERENCES

- Adevita, M. dan Widodo. (2021). "Peran Orang Tua pada Motivasi Belajar Anak dalam Pembelajaran Daring di Masa Pandemi Covid-19". *Jurnal Pendidikan Luar Sekolah*, 5(1), 64–77.
- Arikunto, S. 2019. *Prosedur Penelitian*. Jakarta: Rineka Cipta.
- Cahyati, N. dan R. Kusumah. (2020). "Peran Orang Tua dalam Menerapkan Pembelajaran di Rumah Saat Pandemi Covid-19". *Jurnal Golden Age*, 4(01), 4–6.
<https://doi.org/10.29408/jga.v4i01.2203>
- Creswell, J.W. 2016. *Research Design Pendekatan Kualitatif, Kuantitatif, dan Mixed*. Yogyakarta: Pustaka Pelajar.
- Efendi, Rusdi. (2020). "Media Pembelajaran Berbasis Video Animasi untuk Meningkatkan Kompetensi Siswa di SMA Negeri 4 Palembang". *Jurnal Pengabdian Sriwijaya Volume 8 Nomor 2*.
- Gusty, dkk. 2020. *Belajar Mandiri: Pembelajaran Daring di Tengah*

- Pandemi Covid-19, Cetakan 1*. Medan: Yayasan Kita Menulis.
- Haromain, Tamba, dkk. (2020). "Kemitraan Sekolah dengan Orang Tua dalam Pelaksanaan Pembelajaran dalam Jaringan (Daring)". *Jurnal Transformasi*, 6(2), 82–88.
- Herman, Tatang dan Arifin Fathkul. (2018). "Pengaruh Pembelajaran E-Learning Model Web Centric Course terhadap Pemahaman Konsep dan Kemandirian Belajar Matematika Siswa." *Jurnal Pendidikan Matematika* 12 No.2: 3.
- Laily, Idah Faridah. (2014). "Hubungan Kemampuan Membaca Pemahaman dengan Kemampuan Memahami Soal Cerita Matematika Sekolah Dasar". *Jurnal EduMa Vol. 03 No. 01*.
- Masrul, dkk. 2020. *Pandemi Covid-19: Persoalan dan Refleksi di Indonesia, Cetakan 1*. Medan: Yayasan Kita Menulis.
- Menteri Pendidikan dan Kebudayaan. (2020). "Surat Edaran Menteri Pendidikan dan Kebudayaan No. 36962 Tahun 2020". *Laman www.kemdikbud.go.id*
- Miftah, M. (2013). "Fungsi dan Peran Media Pembelajaran sebagai Upaya Peningkatan Kemampuan Belajar Siswa". *Jurnal Kwangsan*, 1(2), 95. <https://doi.org/10.31800/Jtpk.V1n2.P95--105>.
- Nopiyanto, Y.E. (2020). "Hambatan Guru Pendidikan Jasmani Generasi 80-an dalam Pembelajaran Daring di Tengah Pandemi Covid-19". *Jurnal Sporta Sainatika*, 5(2), 139-148.
- Prawiro, David dkk. (2021). "Analisis Penerapan Media Pembelajaran Daring di Masa Pandemi Covid-19 Pada Mata Pelajaran Penjasorkes Siswa Kelas XI SMA Negeri 1 Kepahiang". *Sport Gymnastics: Jurnal Ilmiah Pendidikan Jasmani Vol. 2 No. 1*.
- Rahman, dkk. (2018). "Elementary Education Literacy in the Era of Industrial Revolution 4.0". *UPI 2nd International Conference on Language, Literature, Culture and Education (ICOLLITE) Vol. 257*.
- Rahman, dkk. (2019). "Literacy in the Context of Communication Skills for The 21st Century Teacher Education in Primary School Students". *International Journal of Science and Applied Science: Conference Series Vol. 3 No. 1 E-ISSN 2549-4627*.
- Rahman, dkk. (2019). "Literacy in the Era of 4.0 Industrial Revolution in Listening Skill Based on Local Wisdom Video in Elementary School". *INCOLWIS 2019*.
- Rakhmah dkk. (2021). "Deskripsi Kendala Pembelajaran Daring melalui Whatsapp pada Mata Pelajaran Matematika di Sekolah Dasar". *Jurnal Basicedu Volume 5 Nomor 5*.
- Raibowo, S., dan Nopiyanto, Y. E. (2020). "Proses Belajar Mengajar PJOK di Masa Pandemi Covid-19". *STAND: Journal Sports Teaching and Development*, 1(2), 112-119.
- Sugiyono. 2014. *Metode Penelitian Kuantitatif Kualitatif dan R&D*. Bandung: Alfabet.