

MATHEMATICS LEARNING STRATEGIES FOR ELEMENTARY SCHOOL STUDENTS DURING THE COVID-19 PANDEMIC

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Abstrak

Penelitian ini bertujuan untuk mengetahui strategi pembelajaran matematika untuk siswa sekolah dasar dalam masa pandemi Covid-19, serta mengetahui faktor pendukung dan penghambat dalam pembelajaran daring. Penelitian ini menggunakan metode deskriptif kualitatif dengan mendeskripsikan strategi pembelajaran matematika di masa pandemi Covid-19. Hasil penelitian menunjukkan bahwa guru matematika telah menggunakan berbagai strategi pembelajaran untuk mengupayakan proses pembelajaran dapat terlaksana di masa pandemi Covid-19. Strategi pembelajaran tersebut yaitu: Online learning dan Home Visit pada kelas tinggi serta strategi pembelajaran langsung dan Study Club pada kelas rendah. Faktor pendukung dan penghambat dalam pembelajaran matematika pada Pandemi Covid-19, yaitu (1) faktor pendukung dalam pembelajaran daring, yaitu adanya Handphone sebagai media yang mendukung pembelajaran, adanya kuota, adanya fasilitas buku dari sekolah, dan adanya aplikasi yang memudahkan kita dalam kegiatan belajar mengajar secara daring; dan (2) faktor penghambat, yaitu pelaksanaan Online learning pada pembelajaran matematika kurang kondusif, sulitnya mengukur pencapaian pembelajaran, sulit memastikan apakah itu murni hasil kerja siswa dan masalah media seperti tidak semua siswa memiliki HP Android atau laptop dan kuota internet, terdapat gangguan sinyal atau susah sinyal, tidak bisa bertatap muka langsung yang menyebabkan wali murid dan siswa kurang memahami penjelasan dari materi yang disampaikan, sulit mengerjakan soal yang diberikan dan kurang antusias dalam mengikuti proses dalam pembelajaran daring. Hasil penelitian ini kemudian dipaparkan melalui kegiatan pengabdian di SDN 174 Palembang.

Kata kunci: Strategi, Pembelajaran Matematika, Siswa Sekolah Dasar

Abstract

This study aims to determine mathematics learning strategies for elementary school students during the Covid-19 Pandemic and determine the supporting and inhibiting factors in online learning. This research uses a qualitative descriptive method by describing mathematics learning strategies during the Covid-19 Pandemic. The results showed that mathematics teachers had used various learning strategies to strive for the learning process to be carried out during the Covid-19 Pandemic. These learning strategies are Online learning, Home visits in high grades and direct learning strategies, and Study Clubs at low rates. They are supporting and inhibiting factors in mathematics learning during the Covid-19 Pandemic, namely (1) supporting factors in online learning, namely the existence of mobile phones as a medium that supports learning, the existence of quotas, the existence of book facilities from schools, and the existence of applications that facilitate us in teaching and learning activities online; and (2) inhibiting factors. Namely, the implementation of Online learning in mathematics learning is less conducive, it is difficult to measure learning achievement, and it is difficult to ascertain whether it is purely the result of student work and media problems such as not all students having Android phones or laptops and internet quota, there is signal interference or complex signals, cannot meet face to face which causes parents and students to lack understanding of the explanation of the material presented, It is challenging to do the questions given and less enthusiastic in following the process in online learning. The results of this research were then shown through service activities at SDN 174 Palembang.

Keywords: Strategies, Mathematics Learning, Elementary School Students

INTRODUCTION

Teacher strategies in implementing learning are no longer carried out face-to-face but by utilizing information technology as a medium for learning implementation (Nasriani, 2022). The use of technology must be a reference for teachers to be able to set good learning strategies, such as presenting a learning process that provides space for students to be able to explore and be active during learning,

facilitating interaction and collaboration between students and teachers, especially in mathematics learning for high and low-grade students in elementary schools (Melani et al., 2021).

Teachers need suitable learning media and must be adjusted to the situation and conditions of the learning material so that it can be used optimally (Pito, 2018). There are many technology-based learning media or platforms, some platforms that are easily accessible and free (do not require subscription access fees, only require quota) include: Google suite (google drive, google form, google site, and google classroom), Edmodo, Schoology, Lark suite, Virtual Class from Rumah Belajar, email and video conference media (Webex, zoom, google meet, telegram) even the most straightforward Whats App (Noviansjah, 2020).

Mathematics teachers in online learning use online learning and the Home visit method (Arsy et al., 2021). Online learning occurs in a network where teachers and those taught do not meet face to face. This online learning allows interaction between teachers and students in the online learning process using various platforms such as Whats App and Youtube. The home visit method is a face-to-face learning strategy by visiting the home of one of the students combined with several other students and fulfilling health protocols (Nasriani, 2022). This strategy is an alternative form to get around the inconducive learning during the Covid-19 Pandemic in the mathematics learning process because mathematics learning has abstract characteristics, which causes many students to find it difficult to understand mathematics learning (Dinata et al., 2022).

In implementing the strategy, there are obstacles experienced by mathematics teachers, and it even impacts students. The obstacle in online learning is signal access because not all regions in Indonesia have strong passwords. So that this can hinder the implementation of learning and cause students to be less able to do problems. Another obstacle is the lack of response from students to watch learning videos before presenting the questions given (Jamila et al., 2021). Theendala that is strongly felt in using direct learning strategies is (1) Limited time, where during the Pandemic, time for teaching is reduced so that learning that should be developed becomes more summarized and only essential points are taken, (2) It is difficult to measure learning achievement because sometimes there are students who do not complete the tasks given by the teacher, (3) It is difficult to ascertain whether it is the work of children or The work of others, in this case of course parents, and (4) Media problems are also widely felt, especially when using electronic media such as cellphones and laptops, quotas are the most challenging obstacle felt by teachers and parents, of course. However, some parents do not have this and must be very attentive. Based on the explanation above, the researchers are interested in studying "Mathematics learning strategies for elementary school students during the COVID-19 pandemic." The results of this research were then delivered at service activities at SDN 174 Palembang.

METHOD

This study uses a qualitative descriptive method by describing mathematics learning strategies for elementary school students during the Covid-19 Pandemic. Qualitative research is research based on the philosophy of post-positivism, used to examine the natural condition of objects, where the researcher is the key instrument, data source retrieval is carried out purposively, and snowball, data collection techniques with triangulation (combined), data analysis is inductive/qualitative, and qualitative research results emphasize meaning rather than generalization (Sugiyono, 2014).

Qualitative research explores and understands the meanings that some individuals or groups of people ascribe to social or humanitarian problems. This qualitative research process involves essential efforts, such as asking questions and procedures, collecting specific data from participants, analyzing data inductively ranging from particular to general themes, and interpreting the meaning of the data. This research applies an inductive-style research perspective, focusing on the specific importance and translating the complexity of a problem. The final report of this study has a flexible structure or framework (Kusumastuti & Ahmad Mustamil Khoiron, 2019).

RESULTS AND DISCUSSION

Based on the results of the study, it is known that the implementation of online learning is less effective in the learning process because of several things, namely limited media, not all children having an Android Mobile and the unavailability of quotas, the material is not conveyed to children, there are obstacles in the online learning process that are not face-to-face that will make children more difficult to understand and tend more towards playing and so on. For example, one of the teachers of SDN 174 Palembang, Siti Sakimah, said that the implementation of online learning was not optimal in delivering material to students because it was common to learn in class face-to-face. Still, now the delivery of material is through a container.

The learning process is more focused on the form of assignments to students, coupled with a lack of student interest due to learning through a group in applications that predominantly contain text. This only stimulates the child's visual power. Especially after doing online learning, children play more on mobile phones after learning. In addition, using platforms such as Google Classroom, Whatsapp, Quipper and so on has not been effective because the limited infrastructure facilities for some students are inadequate.

Likewise, regarding implementing online learning in mathematics subjects, most SDN 174 Palembang students said that mathematics subjects were complex. Almost all students responded that learning mathematics online was not fun and seemed difficult, even challenging to understand the material. The teacher said that mathematics lessons as abstract objects are tough to comprehend by elementary school students who cannot think formally because the orientation is still related to tangible things.

Besides being less effective, online learning also impacts the learning process, primarily aimed at teachers. These impacts include the delivery of material not freely, lack or even the absence of reciprocity on students in the learning process, the effect on their students being lazier in learning, and having an impact on children's ethical and cognitive assessments. Teachers said that this Pandemic impacts online learning because teachers are not free to monitor children's overall development. Controlling children remotely is a limitation, coupled with the presence of children who are rarely guided by parents and lack parental understanding of child development, so the learning process is mostly not carried out optimally.

This online learning has to support and inhibiting factors in its implementation during the Covid-19 Pandemic, namely:

1. Supporting factors in online learning are the existence of mobile phones as a medium that promotes education, the presence of quotas, the existence of book facilities from schools, and the existence of applications that facilitate teaching and learning activities online.
2. The inhibiting factors experienced by teachers and students in online learning are that not all students have mobile phones and quotas, there are signal interference or complex signals, and not meeting face to face, which causes parents and students to lack understanding of the explanation of the material presented and others. Andi Anugrahana said that online learning in its implementation has obstacles. Here are some barriers to online learning: 1) some children do not have a device (HP); 2) Have a cellphone but are constrained by cellphone facilities and an internet connection, so they are hampered in sending tasks due to signal difficulties; 3) Parents have cellphones, but parents work all day outside the home so parents can only accompany them at night; 4) Limited internet connection, some students do not have cellphones and internet networks are not good; 5) Not all children have cellphone facilities, and some parents are not tech-savvy. This makes it difficult for parents to accompany and facilitate children. Such cases are very hampering, and teachers have to repeat notifications; 6) Information is not always directly received by the guardian due to limited internet quota; 7) Limited HP features, constraints on signal and internet quota; 8) The cellphone used to collect assignments is the cellphone of his parents, so students can only manage their jobs after their

parents come home from work. There are even some children who can't collect tasks. Photos of assignments sent to WA are also unclear, making it difficult for teachers to correct; 9) Student honesty in evaluations is low because they do not meet face-to-face with teachers or friends.

Although online learning is less effective, online education has a negative impact. It has an inhibiting factor in its implementation, but teachers at SDN 174 Palembang still try and work hard to implement the learning process. The performance of SDN 174 Palembang teachers during the Covid-19 Pandemic has been excellent in carrying out the learning process to achieve the expected learning.

From the study results, it is known that the position of strategy in learning is critical. With the process, we as teachers can learn how to condition the class and manage time, make it easier for students to understand the subject matter, and achieve learning objectives. Mathematics teachers in high and low grades have used various learning strategies to strive for the learning process to be carried out during the Covid-19 Pandemic. Mathematics teacher strategies in learning during the Covid-19 Pandemic for high and low-grade students are:

1. Online learning is a learning strategy that is one alternative to get around the inconducive learning during the Covid-19 Pandemic in the mathematics learning process. This online learning leads to indirect learning strategies because learning in the form of videos refers to high-grade mathematics subject books and thematic books for low-grade, and teachers seek to explore students to engage in problem-solving such as giving practice problems.
2. Home Visit is a learning strategy carried out face-to-face to discuss and evaluate all material delivered through learning videos.
3. Direct learning strategies are a way to introduce students to the subject matter to be taught. Hands-on learning can be lectures, demonstrations, training or practice, and group work. Direct learning is used to deliver lessons transformed directly by the teacher to students.
4. Study Club is a strategy whose implementation is done by coming to the house. It can also be with students coming to school divided into groups and complying with health protocols. Studying Club is a more effective strategy than online learning. Meeting face-to-face makes what we say and teach more digestible for students.

In implementing this strategy, there are obstacles experienced by mathematics teachers, namely 1) Kendala in Online learning is signal access because not all regions in Indonesia have strong passwords. So that this can hinder the implementation of education and cause students to be less able to do problems. Another obstacle is the lack of response from students to watch learning videos before presenting the questions given; 2) Limited time, where during the Pandemic, the time for teaching was reduced so that learning that should be developed became more summarized and the critical points were taken; 3) It is difficult to measure learning achievement because sometimes there are students who do not complete the tasks given by the teacher; 4) It is difficult to ascertain whether it is the work of children or the work of others, in this case, of course, parents; and 4) Media problems are also widely felt, especially when using electronic media such as cellphones and laptops, quotas are the most challenging obstacle felt by teachers and parents, of course. However, some parents do not have this, which should be very much to pay attention to.

To anticipate the obstacles contained in each learning strategy implemented during the Covid-19 Pandemic, mathematics teachers have made various efforts such as:

1. The efforts of mathematics teachers in high grades to the obstacles experienced in Online learning are: by delivering material on learning videos, giving examples of questions to children, maximizing the duration of time in delivering material through learning videos or learning video links on Youtube sent to Whats App Group, having material using language which is easy for children to understand and provides a unique trick of material that is easy to memorize. This trick will make it easier for children to learn specific formulas—home visits by asking students to solve problems, such as giving practice questions collected online.

2. The efforts of mathematics teachers in low grades to the obstacles experienced, namely: 1) For time, keep choosing and sorting out material that is important to be delivered by utilizing time, 2) At the time of the final assessment, make a Video call with students directly and by compiling questions that have been summarized so that they can find out more or fewer students' understanding of the material that has been delivered. 3) Regarding the media, the government has helped provide quota assistance for teachers and parents. For those who do not have electronic media, Home visits and Study Clubs are usually held.
3. Efforts made by teachers to anticipate obstacles in the implementation of Home visits and Study Clubs, namely: 1) Anticipating a less conducive learning atmosphere, such as noise on vehicles when learning by repeating material discussions, 2) By delivering material that is already in books, 3) Building children's attractiveness by using props such as objects or pictures as examples, In addition, using props that already exist in the environment, 4) Providing questions such as apperception or quizzes, 5) Using songs in recognizing numbers, 6) Using similes such as cakes, sweets in addition and subtraction materials. Bruner coined the theory of "free discovery learning"³⁷⁵. In his view, the learning process will run well and creatively if teachers provide opportunities for students to find concepts, theories, rules, or understanding through examples encountered in life. Based on this theory, learning mathematics will be more successful if, in the learning process, students are allowed to manipulate objects using mathematical learning media, such as teaching aids.

The study results also show that students' enthusiasm for learning during online learning is less enthusiastic. Because specifically, this mathematics subject is one of the subjects that some children think that mathematics subjects are complex, especially in high grades. So, some do not watch learning videos and are not good at answering questions. If online learning is in the form of videos at a low rate, it depends on how the parents are. Some parents are ignorant, or maybe their parents are busy working. So, it is likely that the Video was not delivered. For enthusiasm, it can be seen in the submission of assignments. It lacks a lack of student participation in online learning, flexibility in asking questions and no direct interaction with friends. Teachers say that the weakness of online learning is the lack of maximum student engagement. The involvement of the students in question can be seen from student involvement in participating in complete online education from the beginning to the end of learning. The results showed that only 50% of students were fully active, and 33% were actively involved. Another 17% were less active and participated less in online learning.

CONCLUSION

Based on the results of the discussion that has been described, the author can conclude that:

1. Mathematics teachers have used various learning strategies to strive for the learning process to be carried out during the Covid-19 Pandemic. The learning strategy is Online learning.
2. Fsupporting and inhibiting actors in online learning in elementary schools, namely a) supporting factors in online learning are the existence of mobile phones as a medium that supports learning, the existence of quotas, the existence of book facilities from schools, and the existence of applications that facilitate teachers in online teaching and learning activities, b) inhibiting factors experienced by teachers and students in online learning are the implementation of Online learning in mathematics learning is less conducive, it is difficult to measure learning achievement, it is difficult to ascertain whether it is purely the result of student work and media problems such as not all students have Android phones or laptops and internet quota, there is signal interference or complex signals, cannot meet face to face which causes parents and students to lack understanding of the explanation material, difficult to do the questions given and less enthusiastic in following the process in online learning. There is limited time to implement Home visits and direct learning strategies and limited places and learning atmospheres that are not conducive to implementing Study Club.

3. Various efforts of mathematics teachers in anticipating these inhibiting factors, namely a) Efforts made in Online learning by optimizing the delivery of material, using language that is easy for children to understand and providing a unique trick of material that is easy to memorize. Home visits, by asking students to solve problems such as giving practice questions collected online. b) The efforts made by homeroom teachers in lower grades are 1). By maximizing time in selecting and sorting important material, 2) At the time of the final assessment, conducting Video calls with students directly and compiling summarized questions, 3) Media issues, the government has helped provide quota assistance for teachers and parents. c) Efforts made by mathematics teachers in the implementation of Home visits and Study Clubs, namely (1) Anticipating a less conducive learning atmosphere, such as noise on vehicles while learning by repeating material discussions, (2) Building children's attractiveness by using teaching aids, (3) Provide questions such as apperceptions or quizzes, 4) Use songs in recognizing numbers, 5) Use parables in addition and subtraction materials.

BIBLIOGRAPHY

- Arsy, R. F., Saputra, I. A., & Hasan, H. R. (2021). Implementasi metode pembelajaran home visit method pada masa pandemi COVID-19 untuk optimalisasi hasil belajar siswa SMP di Kabupaten Sigi. *Prosiding Seminar Nasional Pendidikan Matematika, Sains, Geografi, Dan Komputer*, 2. <https://doi.org/https://doi.org/10.30872/pmsgk.v2i0.1981>
- Dinata, D. D., Habbah, M., Sumbulatim, E., Lathifah, R., & Noviyanti, S. (2022). Proses Pembelajaran Matematika di Sekolah Dasar dalam Masa Pandemi Covid-19. *Jurnal Pendidikan Konseling*, 4(3). <https://doi.org/http://doi.org/10.31004/jpdk.v4i3.4330>
- Jamila, Ahdar, & Natsir, E. (2021). Problematika Guru dan Siswa dalam Proses Pembelajaran Daring pada Masa Pandemi Covid-19 di UPTD SMP Negeri 1 Parepare. *L Ma' Arief: Jurnal Pendidikan Sosial Dan Budaya*, 3(2), 101–110. <https://ejournal.iainpare.ac.id/index.php/ALMAARIEF/article/view/2346>
- Kusumastuti, A., & Ahmad Mustamil Khoiron. (2019). Metode Penelitian Kualitatif. In *Japanese circulation journal* (Vol. 57). Grasindo.
- Melani, S., Amaliyah, A., & Puspita Rini, C. (2021). Analisis Proses Pembelajaran Matematika Berbasis Daring Pada Masa Pandemi Covid-19 Siswa Kelas V Sdn Sudimara 13 Ciledug Kota Tangerang. *Berajah Journal*. <https://doi.org/10.47353/bj.v2i1.42>
- Nasriani. (2022). Efektifitas Pembelajaran Daring Pada Masa Pandemi Covid 19 Di MTs Negeri 2 Tolitoli. *Jurnal Inovasi Penelitian*, Vol.2(Vol.2 No.8), 2501-2510.
- Noviansjah, E. (2020). Memanfaatkan 16 Aplikasi Google sebagai Media dalam Pembelajaran di Sekolah. *Smadapa.Sch.Id*. <https://smadapa.sch.id/read/6/memanfaatkan-16-aplikasi-google-sebagai-media-dalam-pembelajaran-di-sekolah>
- Pito, A. H. (2018). Media Pembelajaran dalam Perspektif Al-Qur'an. *Andragogi: Jurnal Diklat Teknis Pendidikan Dan Keagamaan*. <https://doi.org/10.36052/andragogi.v6i2.59>
- Sugiyono. (2014). *Memahami Penelitian Kualitatif*. Alfabeta.