



# European Journal of Educational Research

Volume 12, Issue 1, 567 - 581.

ISSN: 2165-8714

<https://www.eu-jer.com/>

## Parents' Perspectives on Distance Learning Mathematics During the COVID-19 Pandemic: A Phenomenological Study in Indonesia

Muhamad Galang Isnawan\* 

Universitas Nahdlatul Wathan Mataram,  
INDONESIA

Azis 

Universitas Dayanu Ikhsanuddin,  
INDONESIA

Essa Eqal Almazroei 

University of Jeddah, SAUDI ARABIA

Received: September 17, 2022 • Revised: December 28, 2022 • Accepted: January 14, 2023

**Abstract:** 'Panic-gogy' is a term that describes the educational situation during the pandemic due to the transformation phenomenon from face-to-face learning to distance learning. Various types of research are used to uncover the constraints of this phenomenon, but not many researchers use phenomenological studies with parents as participants. Therefore, we used a phenomenological study to describe parents' views on the constraints, expectations, and approvals regarding the preparation of distance learning modules at the junior high school level (aged 13-15 years). Data collection was carried out using semi-structured interviews. Data were analyzed using NVivo-12-assisted thematic analysis. The main findings are that most parents experience problems. Namely, children do not understand mathematics material, incomplete explanations of material from teachers, internet disturbances, and quota limitations, and children cannot learn mathematics optimally during the distance learning period. Most parents want face-to-face learning to be carried out immediately, teachers to provide detailed explanations, and use digital learning platforms. In addition, 85% of parents agree that mathematics teachers should develop distance learning modules. However, because the pandemic is still not over, this study recommends using blended learning to maintain the quality of mathematics learning.

**Keywords:** *The pandemic, distance learning, learning mathematics.*

**To cite this article:** Isnawan, M. G., Azis, & Almazroei, E. E. (2023). Parents' perspectives on distance learning mathematics during the COVID-19 pandemic: A phenomenological study in Indonesia. *European Journal of Educational Research*, 12(1), 567-581. <https://doi.org/10.12973/eu-jer.12.1.567>

### Introduction

Coronavirus disease (COVID-19) has an impact on almost all aspects of life, including education (Engelbrecht, Borba, et al., 2020; Lee et al., 2022; Moliner et al., 2022). Despite various limitations, learning is forced to be done remotely or online, including in mathematics learning (Aslan et al., 2022; Clark-Wilson et al., 2020; Pepin, 2021; Stewart et al., 2022). Various approaches and digital learning platforms have begun to be used by educators so that the mathematics learning process can run optimally (Cevikbas & Kaiser, 2020; Marfuah et al., 2022; Reimers et al., 2020). However, most educators start to panic about the quality of learning. Not all students can participate in daring learning for several reasons, such as not having a smartphone or laptop, signal interference, and internet quota restrictions. In addition, students are forced to change their residence due to financial problems (Engelbrecht, Borba, et al., 2020). Although necessary, the role of the family in assisting students during distance learning mathematics (DLM) has not run optimally (Diana et al., 2021; Engelbrecht, Llinares, et al., 2020). Some academics in the United States use the term 'panic-gogy' to represent this learning situation (Isnawan et al., 2022; Kamanetz, 2020).

Researchers from various countries also use various approaches, methods, or research designs to find problems and solutions for DLM. Kalogeropoulos et al. (2021) in Australia used a qualitative descriptive method to identify the challenges that elementary mathematics teachers experienced during distance learning (DL) in the time of COVID-19. The teachers are unfamiliar with using technology, have less time to provide feedback, and have not been able to serve all competencies and form student learning independence. It is difficult to make assessments and limited social interactions between students. Chirinda et al. (2021) in South Africa used an experimental method with qualitative description to find out the responses of high school mathematics teachers. The teachers gave DL the use of WhatsApp as the primary tool in learning; for a while, the teacher acted as a learner, especially regarding digital learning platforms;

\* **Corresponding author:**

Muhamad Galang Isnawan, Universitas Nahdlatul Wathan Mataram, Indonesia. ✉ [galangisna19@gmail.com](mailto:galangisna19@gmail.com)

and teachers sought to learn from the larger community about DL. Mailizar et al. (2020) in Indonesia used a quantitative approach with a cross-sectional questionnaire to find a significant obstacle for middle and high school mathematics teachers. When using e-learning, the teachers have insufficient knowledge and skills about students' use of digital learning platforms and limited access to smartphone devices and internet connections.

Unlike several previous studies, this study uses a qualitative approach with a phenomenological type because it seeks to describe the experiences of individual groups regarding a phenomenon (Creswell & Creswell, 2014; Palacios & Simons, 2021; Stolz, 2013, 2020). The phenomenon referred to in this study is distance learning, while individual groups refer to students' parents. Parents became participants in this study because parents have an essential role in distance learning, namely as a companion for students studying at home (Gann & Carpenter, 2017a, 2017b). In addition, previous studies only used mathematics teachers and students as participants, so using parents as participants would be one of the novelties in this study. Therefore, the primary purpose of this study was to find out the obstacles parents and students experienced during the implementation of DLM. This study also aims to find input from parents to reduce obstacles and parental consent regarding the preparation of distance learning modules. The results of this study are expected to facilitate or become the basis for mathematics teachers and mathematics education researchers in compiling teaching materials, especially in DL (Mailizar et al., 2020; Wijaya et al., 2019). Some of the questions in this research are as follows:

1. How is the description of the obstacles that parents experience during DLM?
2. How is the description of parents' input in minimizing the obstacles?
3. What is the percentage of parental consent regarding the preparation of distance teaching modules based on local wisdom?

### **Literature Review**

DL is one of the alternative modes commonly used when educators and students are in remote locations, and face-to-face learning cannot occur (Arkorful & Abaidoo, 2015; Isnawan et al., 2022). One alternative strategy commonly used in DL, including DLM, is online learning (Rana et al., 2014; Sugilar, 2021). DL/DLM educators or organizers usually use online learning media, such as digital learning platforms (Smith, 2020) and social media, to interact with students (Marfuah et al., 2022). Therefore, DLM must meet several requirements in order to be able to conduct online learning, such as the presence of a device (laptop or smartphone) and an adequate internet quota (Hadriana et al., 2021; Zhou et al., 2020). At least these two things can be the initial requirements for the implementation of online-based DLM.

Under normal conditions, online-based DLM is not an obstacle. Because students who choose this mode have prepared supporting facilities for learning activities, this learning mode becomes a significant obstacle when online-based DLM is an undesirable condition but is forced to be carried out by students due to an emergency condition, such as COVID-19. Learning must continue (Zhou et al., 2020), although with various limitations (Mailizar et al., 2020). This condition has recently been referred to as 'panic-gogy' (Engelbrecht, Llinares, et al., 2020; Kamanetz, 2020). Educators are forced to use social media and various digital learning platforms so that learning continues and the quality of learning can be maintained. The workloads of educators are becoming more complicated compared to the workloads under normal conditions (Barlovits et al., 2021). Support from various parties is very much needed by educators in implementing the DLM, especially parents (Gann & Carpenter, 2017a; Isnawan et al., 2022).

Parents play an essential role in online-based DLM (Gann & Carpenter, 2017b). Parents must be able to provide supporting facilities, such as smartphones or laptops, for children to study and ensure that internet quotas exist and are stable (Isnawan et al., 2022). Parents should try to prepare these facilities, even with unstable financial conditions due to the COVID-19 pandemic (Mailizar et al., 2020; Megatsari et al., 2020). Parents should also play the role of teachers for their children during DLM, even though they do not understand mathematical concepts well (Kalogeropoulos et al., 2021). At least, parents must be able to act as facilitators or companions who supervise children while they learning at home (Akar & Erden, 2021). Based on this description, it will be very relevant if, in a study related to DLM, parents are used as participants in this study.

### **Methodology**

#### *Research Design*

This study used a qualitative approach to the type of phenomenology (Breiger, 1995; Creswell & Creswell, 2014). This type was chosen because this study aims to explore or interpret the life experiences that a group of people have regarding a phenomenon (Becker & Schad, 2022; Palacios & Simons, 2021; Stolz, 2013, 2020). The phenomenon was the DLM phenomenon during the COVID-19 pandemic, while the group of people refers to the parents of students. Life experiences are related to three types: obstacles that parents and students experience, input that parents provide as alternative DLM solutions, and parental approval regarding the development of distance mathematics teaching modules based on local wisdom in the surrounding area.

### *Sample and Data Collection*

The three types of experiences mentioned earlier became the primary data in this study. Researchers in this study acted as the main instrument. Additional instruments were used, namely, semi-structured interview guidelines, so that the responses obtain more varied data and to make it easier to obtain data (Brown & Danaher, 2017; Husband, 2020). The interview questions consisted of two open questions and one closed question. Its two questions had also met the content validity ratio (CVR) test with a value of 1 by five experts in the field of mathematics education (Lawshe, 1975). Question 1 related to a description of the obstacles faced by parents during DLM. The second question referred to the description of the input that parents provide to minimize obstacles. The third question contained parental consent regarding preparing a remote module adapted to the surrounding environment.

This research was conducted during the COVID-19 pandemic, so interviews had to be conducted online. The three interview questions were presented in the form of a Google form and distributed to parents. Researchers for one month conducted interviews. Because the participants in this study were humans, paying attention to research ethics (informed consent, anonymity, and confidentiality) became one of the focuses when collecting data (Esposito, 2012; Roberts & Allen, 2015). This study did not force all parents to fill out the form, only parents who voluntarily filled it out as participants were included. From the target of 332 parents in one of the junior high schools in Indonesia, only 71 people were willing to participate. In addition, this study also informed that the identity of the participants will be kept confidential so that participants are more flexible in providing information. Of the 71 participants, 23 were entrepreneurs or traders, 14 were private workers or employees, 10 were civil servants/TNI/Polri, 9 were household workers, 5 were drivers or motorcycle drivers, and the rest work as builders and other professionals. The number of male participants was 57, and the rest were female. The participants' ages ranged from 35 to 50 years.

### *Analyzing of Data*

This study used triangulation of data sources to strengthen trustworthiness (Morrison et al., 2019; Richard & Hemphill, 2018). The data obtained were analyzed using thematic analysis. This analysis was used more systematically, making the coding process easier (Benavides-lahnstein & Ryder, 2019; Pigden & Jegede, 2019). This study used NVivo-12 as a tool to assist the coding process. The software was chosen because it tended to be easier to use, accepted almost all types of data, and had more varied ways of presenting data (Dalkin et al., 2020; Paulus et al., 2015). The thematic analysis steps were familiarizing with the data, determining the initial code (IC), forming and reviewing themes, defining and naming themes, and compiling reports (Finkelstein et al., 2019; Scharp & Sanders, 2018). This theme then described the experiences parents experience during DLM at school.

## **Findings / Results**

This study uses references as an indicator in determining the number of trains. References refer to the number of data sources stating where the IC came from. The description of the IC is based on the parents' answers without changing the sentence's meaning. The following is a detailed explanation of the results of this study.

### *How Is the Description of the Obstacles that Parents Experience during DLM?*

Based on the answers the parents gave, and after conducting the thematic analysis, it was found that 82 ICs were formed. Because there are many ICs, several ICs form sub-themes before forming themes; in this case, 12 themes were formed with descriptions and some references, as shown in Figure 1. Based on the figure, information was obtained that T1-01 was the most dominant theme. In other words, most parents revealed that the obstacle students experienced during the implementation of distance learning mathematics were that "children do not understand mathematics well." T1-01 is related to learning outcomes, namely student competence. Some parents also revealed that the next obstacle they experienced was the lack of explanation that the teacher gave regarding the material and how to solve the problem (T1-02). T1-02 relates to the learning process. T1-03 refers to "internet disruption and quota limitations" related to DLM supporting facilities and infrastructure.

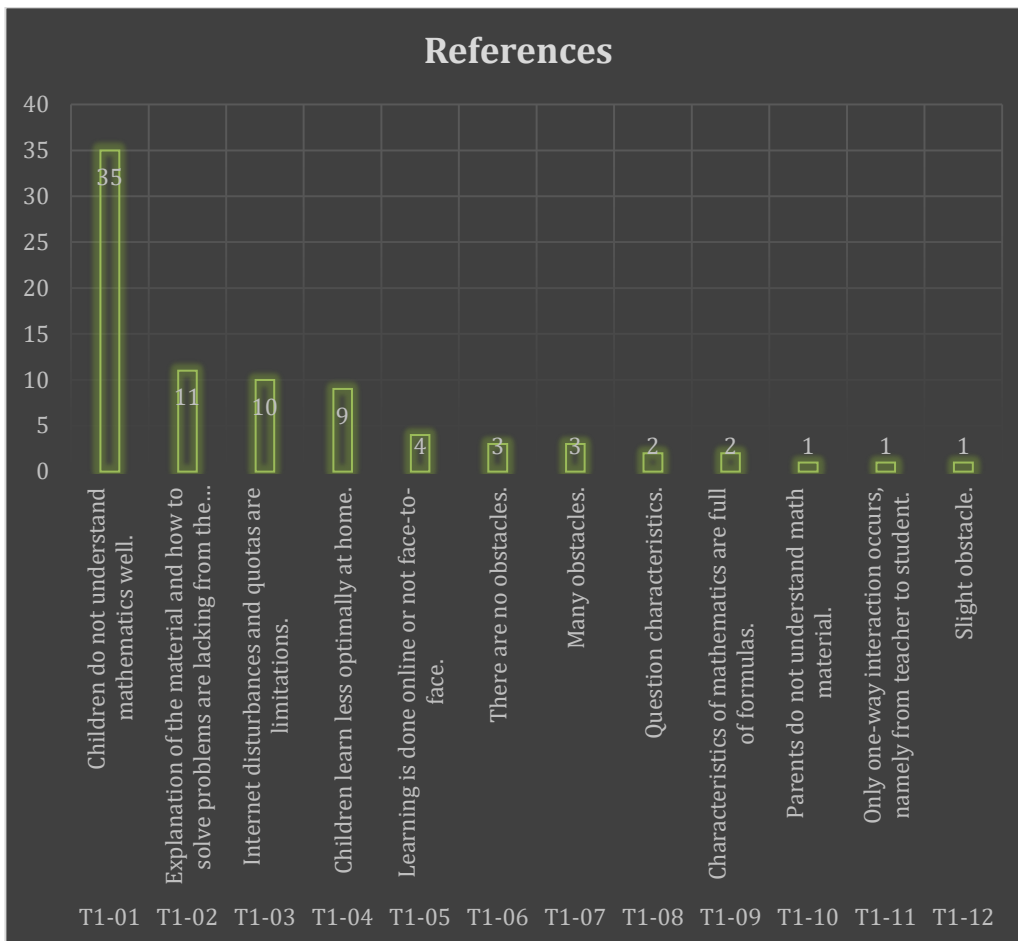


Figure 1. Description of the Obstacle During DLM Theme

T1-04 represents obstacles related to children tending to be less than optimal in learning during DLM. This theme also refers to learning outcomes, namely students. T1-05 leads to the process, namely the learning meeting model; parents in this theme consider the implementation of online learning as an obstacle. T1-06/07/12 refers to the existence of the constraint itself. T1-07 revealed that parents experienced many obstacles, and T1-12 informed that there were few obstacles. In contrast, T1-06 revealed the opposite. Namely, there were no obstacles during DLM because students already had smartphones or laptops and good internet or wifi networks.

Constraints on the theme of T1-08 refer to the characteristics of the questions or problems that the teacher gives. T1-09 refers to the characteristics of mathematics that tend to be challenging to present during DLM. Another obstacle that parents expressed was that they did not understand math material, so they had difficulties accompanying their children to study at home (T1-10). This theme relates to supporting HR. T1-11 relates to learning interactions that occur during DLM, which are one-way, from teacher to student, so that it becomes an obstacle. Students have less opportunity to ask the math teacher when experiencing obstacles. T1-11 refers to the learning process.

Again, as it can be seen in Figure 1, T1-01 is the theme with the most references in this case. T1-01 is made up of 10 sub-themes, as shown in Figure 2. The sub-themes are related to parents' reasons why students do not understand mathematics well.

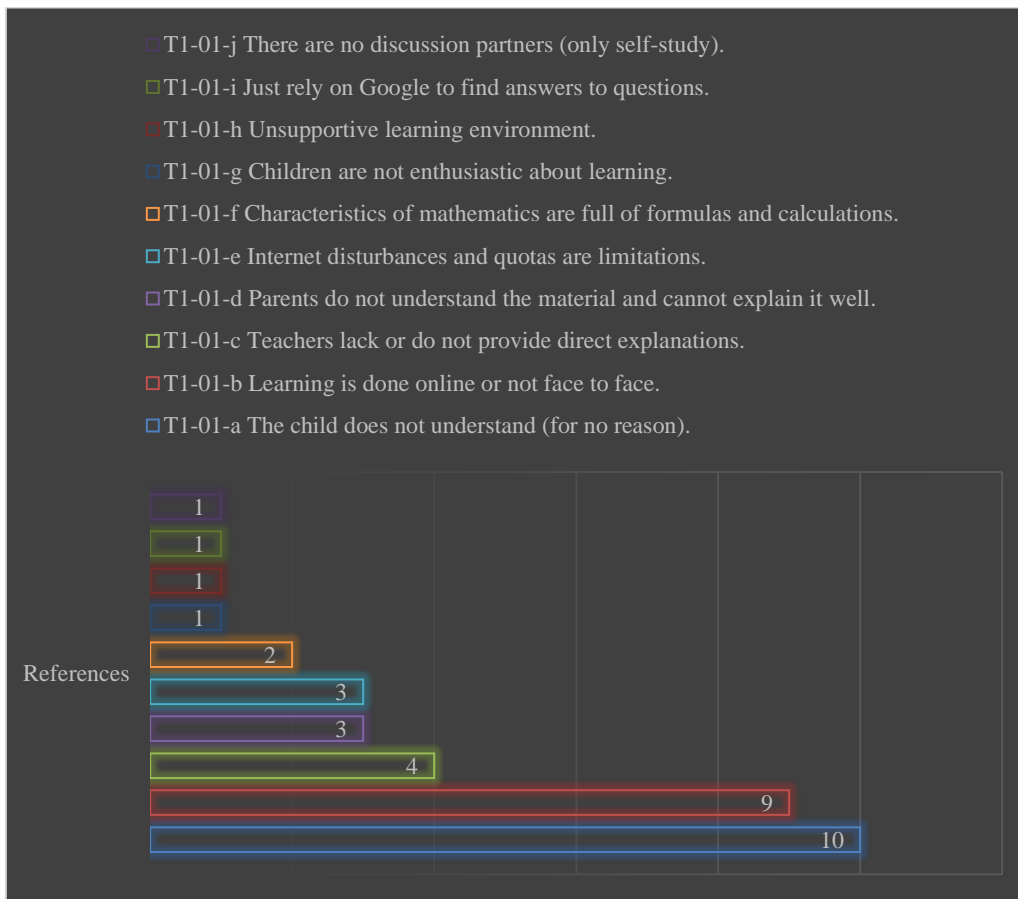


Figure 2. Description of Subtheme for T1-01

Based on Figure 2, information is obtained that T1-01-a is related to the response of parents who think that DLM causes students not to understand the material being studied. Parents in this sub-theme did not reveal further descriptions of why students did not understand. T1-01-b relates to students who do not understand mathematics well because learning is done online or not face-to-face learning. This subtheme is the same as T1-05. The information obtained in sub-theme T1-01-c is that parents think that students do not understand mathematics material during DLM because the teacher does not provide direct explanations. The sub-themes of T1-01-c are also similar to those of T1-02.

T1-01-d relates to parents. T1-01-d provides information that the next obstacle is that parents do not understand math material, so they cannot explain it to children when they experience obstacles in learning. The subtheme T1-01-d is also related to T1-10. Subtheme T1-01-e then has the same characteristics as T1-03. This sub-theme contains information that students do not understand DLM material due to internet signal interference and limited internet quota. T1-01-f refers to mathematics’s characteristics, which are full of formulas and calculations. When compared with T1-09, subtheme T1-01-f seems to have the same characteristics. T1-01-g comes from 1 IC (IC1-31), T1-01-h and T1-01-i are formed from 1 IC (IC1-32), and IC1-33 forms the subtheme T1-01-j. The description of each IC is in Table 1.

Table 1. IC Description for Subtheme T1-01-g/h/i/j

IC	Description	References
IC1-31	Children do not understand the material because they lack enthusiasm for learning.	1
IC1-32	Children do not understand learning mathematics independently, and the environment also affects their learning activities.	1
IC1-33	The problem is that students do not understand it only through Google to find the answer.	1

Furthermore, the T1-04 theme consists of 5 sub-themes, as shown in Figure 3. T1-04-a relates to children who have difficulty learning at home. T1-04 is primarily formed from this subtheme. The sub-theme T1-04-a considers that children tend to have difficulty carrying out learning independently at home, are complex and rarely study at home, and cannot manage study time with sleeping hours. T1-04-b refers to the next obstacle: the child feels bored and lacks concentration while studying at home. T1-04-c is derived from IC1-57, IC1-58 forms T1-04-d, and T1-04-e is formed from IC1-59. T1-04-d then corresponds to T1-01-j, while T1-04-e corresponds to T1-10. The IC description for the sub-theme T1-04-c/d/e can be seen in Table 2.

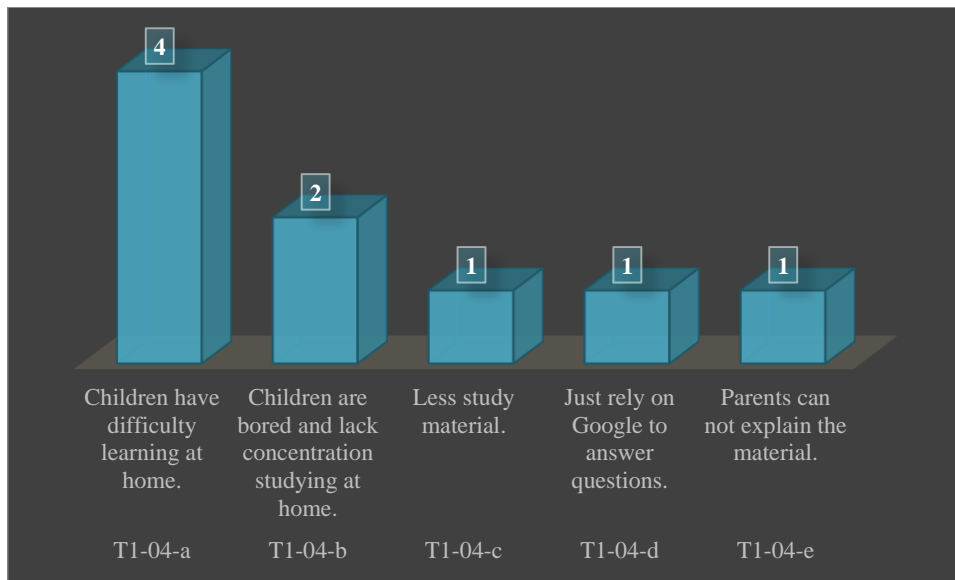


Figure 3. Description of Subtheme for T1-04

Table 2. IC Description for Subtheme T1-04-c/d/e

IC1	Description	References
IC1-57	Learning is not as desired, incomplete.	1
IC1-58	The child's brain and the results are not pure because they always look for results on google; their brains do not run well because they expect quick and instant results.	1
IC1-59	Children learn less optimally because when they find obstacles, parents cannot solve them.	1

Again, as it can be seen in Figure 1, the themes formed in this case are not all obstacles, but several themes are not classified as obstacles, such as T1-06, T1-07, and T1-12. If researchers eliminate the three themes, then researchers get nine obstacles that parents and students experience during DLM. Responding to these nine obstacles, parents in this study also offered alternative solutions or inputs to minimize these obstacles. The following is a description of parents' input in this study.

*How Is the Description of Parents' Input in Minimizing the Obstacles?*

In this case, 11 themes were formed from 71 ICs. The number and description of IC can be seen in Figure 4. Based on the figure, it is obtained information that most parents provide input so that schools carry out face-to-face learning. For example, the theme code for the input is T2-01. This theme is related to the learning meeting model. Two face-to-face learning models are offered by re-analyzing the ICs that make up the theme, namely face-to-face learning at school and regular home visits by math teachers. Some parents think that children will be more focused on learning, able to interact with peers, and math tasks will be more controlled when carrying out face-to-face learning so that children will find it easier to understand mathematics.

T2-02 refers to parents' expectations for teachers to provide more detailed explanations during DLM. Parents expect the mathematics teacher to explain the material in detail in this theme before giving examples of questions, practice questions, and assignments. Some parents in T2-03 also expect mathematics teachers to make online learning more effective. Parents offer ways to make online learning more effective by sharing mathematical theories or materials through WhatsApp groups. Besides that, using digital learning platforms, such as Zoom meetings, making video calls with students, and increasing the production of learning videos. T2-02/03 relates to the learning process.

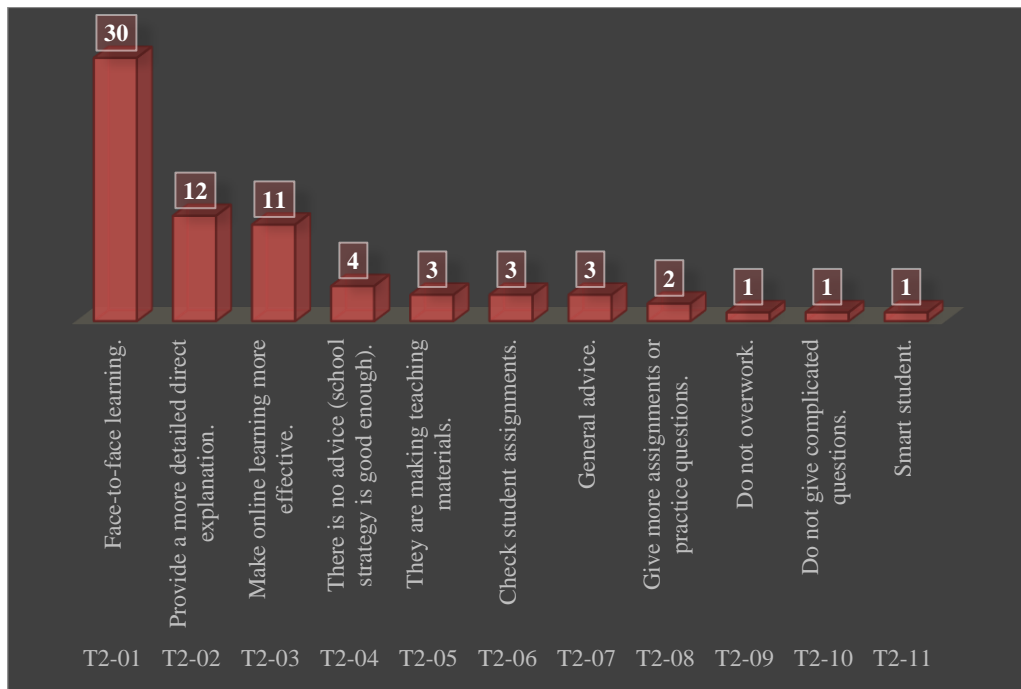


Figure 4. Description of the Input Case Theme for DLM

In contrast to the previous theme, T2-04 revealed that parents did not provide any input because they thought the school was good enough in handling DLM. T2-05 refers to the expectation of parents for schools to prepare teaching materials for DLM. This theme then leads to teaching materials. In this theme, parents expect mathematics teachers to develop teaching materials, both in the form of modules and printed worksheets, to be distributed to students, and students learn them independently.

The following parental input theme code is T2-06 which relates to mathematics teachers should check student assignments periodically. This theme is related to learning assessment. Several other theme codes are also related to the assessment, such as T2-08, T2-09, and T2-10. T2-08 refers to parents who expect math teachers to give students more questions. In contrast to the previous theme, T2-09 and T2-10 lead to requests from parents so that students are not given too many difficult questions. The description for T2-07 is more general because it relates to parents' expectations that the COVID-19 pandemic will end soon, keep their distance and wear masks and eliminate students' dependence on smartphones.

Look again at Figure 4. By eliminating some general themes, such as T2-04, T2-07, and T2-11, the main finding, in this case, is that parents offer eight suggestions to minimize the obstacles that parents and students have. Naturally, during DLM. All of these inputs are expected so that students become intelligent children, especially in learning mathematics, as expressed in T2-11.

#### *What Is the Percentage of Parental Consent Regarding the Preparation of Distance Teaching Modules Based on Local Wisdom?*

The percentage of parental approval regarding the preparation of distance learning modules based on the situation and environmental conditions around students can be seen in Figure 5. Based on this figure, information is obtained that most parents agree if schools or mathematics teachers develop teaching modules based on local wisdom that students can use during DLM. There were about 60 parents who agreed with the preparation of the module. The reasons parents agree or disagree are not discussed in this study, so it is hoped that it will be the focus of future research.

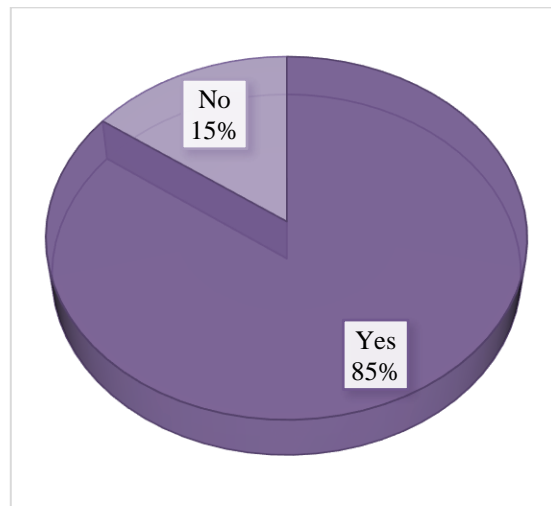


Figure 5. Percentage of Approval for Distance Teaching Module

## Discussion

### *How Is the Description of the Obstacles that Parents Experience during DLM?*

Based on the research results on the constraint case, information was obtained that nine obstacles became the main findings in this study. The following is a discussion of each of these constraints.

#### *T1-01 (Children do not understand mathematics well)*

In this case, most parents revealed that the students could not understand mathematics well during DLM. The results of this study align with Özüdoğru (2021) who revealed that students in Turkey experienced problems in the form of insufficient knowledge, skills, and attitudes toward mathematics during DLM. Frolova et al. (2021) also revealed a decrease in understanding of the material and student learning requests in Russia during DL. It is due to the lack of direct communication, lack of interactivity between students, many school assignments, and home routines that interfere with study time. In addition, it was also explained that the DL format does not allow eye contact between teachers and students, it is challenging to focus students' attention on learning, and visual control is lacking.

Based on the source, several factors cause students to lack understanding of math material during DLM, namely the students themselves, teachers, schools, curriculum, and parents. Factors from students include students' lack of knowledge and skills in using digital learning platforms, not having supporting devices (smartphones or laptops), not having adequate internet connections and quotas, and being less interested in learning online. The lack of knowledge and skills of teachers using digital learning platforms, lack of self-confidence and teacher confidence, and teachers who are not suitable for using digital learning platforms are the causes of students' poor understanding of mathematics during DLM. At the school level, students experience problems with this theme because most schools do not have an e-learning system, internet connection, digital teaching modules, and sufficient time to prepare for e-learning. The curriculum aspect relates to the characteristics of the content or material, which tends to be difficult to explain through e-learning (Hadriana et al., 2021; Jin & Helkala, 2022; Mailizar et al., 2020; Majola & Mudau, 2022; Megatsari et al., 2020).

Furthermore, parents are the next cause. Because parents do not have enough time to accompany students to study, they lack knowledge about the content of the material students are studying. Financial conditions have declined due to the pandemic, so they cannot facilitate the procurement of devices (laptops or smartphones) and purchase of internet quotas for children (Hadriana et al., 2021; Mailizar et al., 2020; Megatsari et al., 2020).

#### *T2-02 (Explanation of Materials and Ways to Solve Problems Less Than the Teacher)*

The next obstacle parents and students experience the lack of explanations by the mathematics teacher regarding the material and how to solve problems. This study's results align with the research of Kalogeropoulos et al. (2021). They revealed that some students in Australia did not receive assistance from direct explanations from teachers during DLM. Chirinda et al. (2021) also explained that some students in South Africa needed further explanation from their mathematics teachers. However, the students could not get this explanation because the students did not have an internet quota to make video calls with the math teacher.

In line with several previous studies, Barlovits et al. (2021) also describe that mathematics teachers in Germany and Spain are less able to provide instructions and feedback to students during DLM. It is due to the lack of interaction or a personal contact between students and teachers that the communication that occurs is not optimal. That is, when



students experience problems in DLM, students cannot ask the teacher directly, and the teacher cannot give a good explanation due to several factors, such as the limitations of digital equipment.

#### *T1-03 (Internet Interruption and Quota Limitation)*

Internet disruptions and quota limitations are other obstacles parents and students experience during DLM. This problem is quite global because it occurs in almost all countries. Several studies reveal that internet quota limitations and internet signal interference often occur in DLM (Akar & Erden, 2021; Chirinda et al., 2021) and DL in general, especially for students in rural areas (Soloveva et al., 2020; Van-Lancker & Parolin, 2020). The existence of an internet connection in DL has a significant role. For example, online learning is impossible when there is no internet connection. However, online learning is also possible when an internet connection exists and is stable. Zhou et al. (2020) concluded in their research that when internet access exists, "school is out, but class is on." However, the existence of the internet does not guarantee that DLM can run optimally because not all students may have an internet quota. Because parents are experiencing financial problems, they cannot buy their children an internet quota (Hadriana et al., 2021).

#### *T1-04 (Children Study Less Maximum at Home)*

This theme is formed from several ICs with the following descriptions: "children have difficulty, children are bored and lack concentration, lack of learning materials, only rely on Google to find answers, and parents cannot explain the material while studying at home." The results of this study align with the research of Kalogeropoulos et al. (2021), which revealed that 1/3 of student participants felt bored, unhappy, less interested, and unhappy when studying from home. In addition, it was also revealed that parents are not mathematics teachers, so they cannot help when students have problems when solving problems. Several previous studies also revealed that students tend not to concentrate or focus during DLM because they are disturbed by noise at home, so they do not feel the learning atmosphere (Demir & Demir, 2021; Özüdođru, 2021).

#### *T1-05 (Learning Is Done Online or Not Done Face-to-Face)*

In this theme, parents consider that learning that is no longer done face-to-face learning and has to be carried out online is an obstacle. The theme of T1-05 is general because it is a phenomenon studied in this study. This result is in line with Kalogeropoulos et al. (2021), who revealed that one of the mathematics teachers considered DLM an obstacle because it was fully implemented online. The teacher believes that at least 80% of offline and 20% of online learning activities are needed to maintain the quality of mathematics learning.

DLM is considered an obstacle because its implementation experiences various problems related to resources, knowledge, and support (Chirinda et al., 2021). Engelbrecht, Borba, et al. (2020) revealed that new resources, tools, and learning environments created during the COVID-19 pandemic are changing the relationship between mathematics knowledge, students, and teachers. Although DLM is a constraint, The use, existence of technology, and a new learning environment that continues to develop can be an opportunity for mathematics teachers to continue learning. Besides that, thinking about how to design learning, student activities, and learning objectives to suit the situation and conditions in the surrounding environment.

#### *T1-09 (Mathematical Characteristics Full of Formulas)*

Parents in the T1-09 theme considered that the characteristics of mathematics which were full of formulas and calculations, were an obstacle in DLM. This theme is classified as a classic because it has been a conversation for quite a long time and has become a myth in society (Clements & Sarama, 2018). Although mathematics is not only about counting, calculations in mathematics are also reasonably necessary because, by counting, someone can solve various problems in everyday life (Sarama & Clements, 2009). Responding to the characteristics of mathematics which is full of formulas and calculations, mathematics teachers should teach mathematics through three phases, namely conceptual-embodied, proceptual-symbolic, and axiomatic-formal, especially during DLM. Conceptual-embodied refers to the use of various contexts or problems of everyday life as a starting point in finding concepts. Proceptual-symbolic refers to the use of various illustrative models as a tool to interpret context or problems so that students are easier to construct concepts. In contrast, the axiomatic-formal is a phase when students have found formal mathematical concepts (Tall, 2008).

#### *T1-10 (Parents Do not Understand Math Material)*

The next obstacle to DLM is that parents do not understand math material, so they tend to have difficulty and cannot help children when experiencing obstacles when learning mathematics. This study's results align with Kalogeropoulos et al. (2021), who revealed that one of the participants stated that their parents were not mathematics teachers, so they could not help during DLM. Akar and Erden (2021) also describe that parents cannot fully support their children during DLM. Parents have a little educational background, so they do not know the correct answer to a math problem or problem and cannot help when their child has problems. The study also revealed that parents who had the most difficulty in DLM were

parents who had more than one school-age child. Parents tend not to be able to allocate time to accompany their children to learn. For example, if parents have three children, then at least three WhatsApp groups must be monitored during DL.

#### *T1-11 (Only One-Way Interaction Occurs, namely from Teacher to Student)*

This theme relates to the lack of interaction between teachers and students. Parents revealed that children could not optimally carry out a question and answer with teachers during DLM. Although general in nature, Demir and Demir (2021) describe the same thing. One of the obstacles that students experience during DL is the limited communication between students and teachers, so the interactions that occur in learning do not run optimally. Several previous studies have also revealed that DLM limits the space for communication and giving feedback by teachers, so students tend to find it challenging to find solutions when experiencing problems in learning mathematics (Chirinda et al., 2021; Davis et al., 2019; Kalogeropoulos et al., 2021). In addition, Özüdoğru (2021) also revealed that students could not communicate, receive messages, and give feedback optimally from the teacher during DL. Students tend to find it challenging to contact the teacher, so when students find problems when doing homework, at least they have to wait until the synchronous learning session to ask the teacher directly.

#### *How Is the Description of Parents' Input in Minimizing the Obstacles?*

As explained in the results of previous studies, there were eight inputs that parents gave related to DLM. Of the eight entries, several things seem to need to be discussed. Here are the details of the discussion.

#### *T2-01 (Face-to-Face Learning)*

T2-01 refers to parents' expectations that face-to-face learning will be implemented immediately. Parents offer two types of face-to-face learning methods, namely face-to-face learning in schools and teachers conducting regular home visits. This study's results align with Kalogeropoulos et al. (2021), who revealed that mathematics teachers expect learning to be done offline. At least with the proportion of 80% for offline learning and 20% for online learning. In this theme, face-to-face learning is not the central focus parents want, but parents expect their children to get direct guidance from the math teacher when they experience an obstacle while learning. Using a different point of view, Araya and Gormaz (2021) also support the results of this study by revealing that students need help in the form of face-to-face with mathematics teachers when they encounter obstacles in learning, even online. Students need time or opportunities to communicate and ask directly to the teacher when experiencing obstacles during DLM (Barlovits et al., 2021).

This input seems to need attention because schools do not have the authority to decide the implementation of face-to-face learning in schools. At the very least, schools must obtain permission from the Education Office, Health Office, and Local Government to implement the face-to-face learning. Even face-to-face learning in schools should be limited by observing strict health protocols. In this new standard era, there seems to be a transformation in the world of education, namely from face-to-face learning to blended learning and online learning (Engelbrecht, Llinares, et al., 2020). Engelbrecht, Borba, et al. (2020), at the end of their research article, revealed a closed question for the world of education. The question is: "Will 2020 be remembered as the year in which education changed?"

#### *T2-02 (Gives a More Detailed Direct Explanation)*

The next suggestion parents offer is that the math teacher provides more detailed direct explanations during the DLM. The results of this study differ from Bergdahl and Nouri (2021), which revealed that teachers should concisely provide instructions or explanations so that students more easily understand the material learned during DL. Furthermore, it was also explained that the critical thing that must be the focus when explaining is the provision of feedback. Teachers are highly recommended to provide input and strengthen the understanding that students already have and are always there when students need help so that the interactions between teachers and students improve during DL.

#### *T2-03 (Effective Online Learning)*

This theme expects math teachers to share materials and explanations through WhatsApp groups, use digital learning platforms, and make more learning videos during DLM. The results of this study are then in line with several previous studies. These studies revealed that mathematics teachers should use social media (Facebook and WhatsApp) to share materials and assignments, utilize various digital learning platforms (Zoom, LMS, and Google Meet), and make videos. Learning is uploaded via YouTube so that students can watch it repeatedly at a more flexible timeframe (Chirinda et al., 2021; Engelbrecht, Llinares, et al., 2020). Bergdahl and Nouri (2021) also revealed several essential elements in DLM, namely the use of video-based communication or digital learning platforms, such as Zoom, Google Hangout, and Microsoft Teams, as well as sharing math materials and assignments through these learning platforms.

#### *T2-05 (Manufacture of Teaching Materials)*

Making teaching materials that teachers can use during DLM is one of the inputs that parents provide in this study. This result is in line with Reimers et al. (2020). They recommend that schools or the government provide teaching materials,

such as digital textbooks and interactive teaching materials, so that learning continues during the pandemic. Furthermore, the teaching materials should be adapted to current conditions, can be used on various devices, and can be downloaded. Pepin (2021) also proposes that mathematics teachers make electronic teaching materials during DLM by using the principle of 'connectivity' as a basis for development. The teaching materials must be able to link learning and student learning experiences and utilize digital resources at the time of implementation so that all elements, both at the social level and the material, curriculum, and didactic levels, can run optimally.

#### *T2-06 (Checking Student Work)*

Checking student assignments is the name of this theme. That is, parents expect math teachers to check the assignments given to students during DLM. The results of this study are then in line with several previous studies, which revealed that school principals expect mathematics teachers to explain to parents regarding assignments given to students, provide feedback on these assignments, and check or evaluate the implementation of DLM. These activities are carried out so that learning objectives are achieved, and the quality of learning is well maintained (Aslam & Khan, 2021; Barlovits et al., 2021; Clark-Wilson et al., 2020; Hadriana et al., 2021).

However, checking students' math assignments is not an easy matter for teachers, especially during DLM. It is because checking must be done individually and cannot be done in a short time. For example, when the teacher gives assignments in the morning, some students may respond during the day, and when students ask questions during the day, it may be that the teacher responds in the evening. In the end, the giving of task feedback did not run optimally. In addition, not all math teachers have printers at home, making it challenging to print out assignments that students submit. Teachers tend to find it difficult to check via smartphones because they cannot mark freely and focus on checking (Akar & Erden, 2021).

#### *T2-08/09/10 (Giving More Assignments or Practice Questions/Do Not Give Too Many Assignments/Do Not Give Difficult Questions)*

Parents on the theme of T2-08 provide input so that the mathematics teacher gives more assignments or practice questions. This input does not seem to be implemented because the quantity of assignments, practice questions, or homework is not always directly proportional to the students' mathematics learning outcomes. In other words, teachers should focus more on the quality than the quantity of homework (Jackson, 2007). Özcan and Erktin (2015) also support the previous statement that the assignment should not be too much so that students have a positive perception of learning mathematics. In addition, mathematics assignments must contain problem-solving questions, are challenging, and should not be too difficult so that students do not give up when doing assignments. This statement then supports the themes of T2-09 and T2-10 in this study.

#### *What Is the Percentage of Parental Consent Regarding the Preparation of Distance Teaching Modules Based on Local Wisdom?*

As previously stated, most parents agree that schools should develop local wisdom-based teaching modules that can be used during DLM. The results of this study are also in line with the explanation in the T2-05 theme. Interactive digital teaching materials with the principle of 'connectivity' are one of the recommendations that mathematics teachers can make during DLM. The module should follow students' situations and conditions, as well as the environment around students during the COVID-19 pandemic. In the end, the preparation of distance teaching modules based on local wisdom is expected to be implemented for teachers during DLM to maintain the quality of mathematics learning (Barlovits et al., 2021; Jin & Helkala, 2022; Pepin, 2021; Reimers et al., 2020).

### **Conclusion**

Most of the obstacles that parents experience during DLM are that students do not understand mathematics well because of the lack of material explanations and how to solve problems that the teacher gives. Learning interactions tend to be limited, and children feel less concentrated or bored studying at home, so they cannot learn optimally. Interference with the internet signal and quota limitations became a chief obstacle during DLM. In general, the input that people expect is for schools to carry out face-to-face learning directly at school or during home visits. However, this input does not seem to be fully implemented. Therefore, one possible solution is limited face-to-face learning by implementing strict health protocols. Limited face-to-face learning should be combined with online learning. In other words, blended learning is the best solution to solve problems during DLM. In closing, 85% of parents agree that the remote module is based on local wisdom and adapted to conditions during the COVID-19 pandemic.

### **Recommendations**

There are at least three types of tools that teachers can use to optimize blended learning. First, use social media (WhatsApp and Facebook) as a communication tool to facilitate access to information and share materials with students and parents. Second, optimizing the use of digital learning platforms, such as Zoom, Google Classroom, and Google Meet. Third, make more learning videos to upload to YouTube so students can easily watch and listen to the teacher's

explanations. Math teachers can also upload learning video recordings during DLM or do a YouTube live stream to make it easier for students to follow the lesson. To support blended learning, mathematics teachers should develop digital teaching materials or DL modules using the principle of 'connectivity.' The digital module must consider social aspects, material characteristics, curriculum changes due to the COVID-19 pandemic, and didactic situations in learning. In addition, digital modules should pay attention to student learning experiences as a basis for compiling learning activities in the module. Digital modules should be flexible, used in various conditions, both during face-to-face learning and DLM, and easily accessible by students and parents.

Furthermore, the trial of distance teaching modules could be a different research agenda. Revising the teaching module is the expected outcome of the research. The results of implementing teaching modules in the form of responses that students give during learning can be used as a basis for revising. In addition, testing the effectiveness of blended learning in schools can be the next research agenda. The trial results are expected to be evidence or reinforcement that blended learning is quite adequate, especially during DLM.

### Limitations

This research was conducted during the COVID-19 pandemic, so there were several shortcomings, such as no further confirmation of parents' answers (health protocol factors). In addition, not all participants who were targeted in the study filled out a questionnaire, so the themes formed in this study were limited to referring to only 71 participants.

### Acknowledgements

The researcher would like to thank all those who have helped carry out this research, especially all the mathematics teachers willing to share the google form. In addition, the researcher also thanked the parents of students who were willing to fill out the form voluntarily and honestly.

### Funding

This research received research and publication costs from Universitas Nahdlatul Wathan Mataram, Universitas Dayanu Ikhsanuddin, and University of Jeddah.

### Authorship Contribution Statement

Isnawan: The author played a role in drafting the research concept and design, data analysis/interpretation, admin, and manuscript drafting. Azis: The author assisted in the process of data acquisition, securing funding, and final approval. Almazroei: The author is in charge of the critical revision of the manuscript, technical or material support, and supervision.

### References

- Akar, S. S., & Erden, M. K. (2021). Distance education experiences of secondary school math teacher during the pandemic: A narrative study. *Turkish Online Journal of Distance Education*, 22(3), Article 2. <https://bit.ly/3X6aK1k>
- Araya, R., & Gormaz, R. (2021). Revealed preferences of fourth graders when requesting face-to-face help while doing math exercises online. *Education Science*, 11(429), 1–15. <https://doi.org/10.3390/educsci11080429>
- Arkorful, V., & Abaidoo, N. (2015). The role of e-learning, advantages and disadvantages of its adoption in higher education. *International Journal of Instructional Technology and Distance Learning*, 12(1), 29–42. <https://bit.ly/3Cuin9t>
- Aslam, R., & Khan, N. (2021). Secondary school teachers' knowledge and practices about constructive feedback: Evidence from Karachi, Pakistan. *Cakrawala Pendidikan*, 40(2), 532–543. <https://doi.org/10.21831/cp.v40i2.35190>
- Aslan, S., Li, Q., Bonk, C. J., & Nachman, L. (2022). An overnight educational transformation: How did the pandemic turn early childhood education upside down? *Online Learning Journal*, 26(2), 52–77. <https://doi.org/10.24059/olj.v26i2.2748>
- Barlovits, S., Jablonski, S., Ludwig, M., & Recio, T. (2021). Teaching from a distance-Math sessions during COVID-19 in Germany and Spain. *Education Sciences*, 11(8), Article 406. <https://doi.org/10.3390/educsci11080406>
- Becker, J. D., & Schad, M. (2022). Understanding the lived experience of online learners: Towards a framework for phenomenological research on distance education. *Online Learning Journal*, 26(2), 296–322. <https://doi.org/10.24059/olj.v26i2.2642>
- Benavides-lahnstein, A. I., & Ryder, J. (2019). School teachers' conceptions of environmental education: Reinterpreting a typology through a thematic analysis. *Environmental Education Research*, 26(1), 43–60. <https://doi.org/10.1080/13504622.2019.1687649>
- Bergdahl, N., & Nouri, J. (2021). COVID-19 and crisis-prompted distance education in Sweden. *Technology, Knowledge and*

*Learning*, 26(3), 443–459. <https://doi.org/10.1007/s10758-020-09470-6>

- Breiger, R. L. (1995). Social structure and the phenomenology of attainment. *Annual Review of Sociology*, 21(1), 11–136. <https://doi.org/10.1146/annurev.so.21.080195.000555>
- Brown, A., & Danaher, P. A. (2017). CHE principles: Facilitating authentic and dialogical semi-structured interviews in educational research structured interviews in educational research. *International Journal of Research & Method in Education*, 42(1), 76–90. <https://doi.org/10.1080/1743727X.2017.1379987>
- Cevikbas, M., & Kaiser, G. (2020). Flipped classroom as a reform-oriented approach to teaching mathematics. *ZDM Mathematics Education*, 52(7), 1291–1305. <https://doi.org/10.1007/s11858-020-01191-5>
- Chirinda, B., Ndlovu, M., & Spangenberg, E. (2021). Teaching mathematics during the COVID-19 lockdown in a context of historical disadvantage. *Education Sciences*, 11(4), Article 177. <https://doi.org/10.3390/educsci11040177>
- Clark-Wilson, A., Robutti, O., & Thomas, M. (2020). Teaching with digital technology. *ZDM Mathematics Education*, 52(7), 1223–1242. <https://doi.org/10.1007/s11858-020-01196-0>
- Clements, D. H., & Sarama, J. (2018). Myths of early math. *Education Sciences*, 8(2), Article 71. <https://doi.org/10.3390/educsci8020071>
- Creswell, J. W., & Creswell, J. D. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). Sage Publication, Inc.
- Dalkin, S., Forster, N., Hodgson, P., Lhussier, M., & Car, S. M. (2020). Using computer assisted qualitative data analysis software (CAQDAS; NVivo) to assist in the complex process of realist theory generation, refinement and testing. *International Journal of Social Research Methodology*, 24(1), 123–134. <https://doi.org/10.1080/13645579.2020.1803528>
- Davis, N. L., Gough, M., & Taylor, L. L. (2019). Online teaching: Advantages, obstacles and tools for getting it right. *Journal of Teaching in Travel & Tourism*, 19(3), 256–263. <https://doi.org/10.1080/15313220.2019.1612313>
- Demir, E., & Demir, C. G. (2021). Investigation of parents' opinions about distance education during the COVID-19 pandemic. *Turkish Online Journal of Distance Education*, 22(2), 42–57. <https://doi.org/10.17718/tojde.906485>
- Diana, R. R., Chirzin, M., & Bashori, K. (2021). Parental engagement on children character education: The influences of positive parenting and agreeableness mediated by religiosity. *Cakrawala Pendidikan*, 40(2), 428–444. <https://doi.org/10.21831/cp.v40i2.39477>
- Engelbrecht, J., Borba, M. C., Llinares, S., & Kaiser, G. (2020). Will 2020 be remembered as the year in which education was changed? *ZDM Mathematics Education*, 52(5), 821–824. <https://doi.org/10.1007/s11858-020-01185-3>
- Engelbrecht, J., Llinares, S., & Borba, M. C. (2020). Transformation of the mathematics classroom with the internet. *ZDM Mathematics Education*, 52(5), 825–841. <https://doi.org/10.1007/s11858-020-01176-4>
- Esposito, A. (2012). Research ethics in emerging forms of online learning: Issues arising from a hypothetical study on a MOOC. *Electric Journal of E-Learning*, 10(3), 315–325. <https://academic-publishing.org/index.php/ejel/article/view/1635>
- Finkelstein, S., Sharma, U., & Furlonger, B. (2019). The inclusive practices of classroom teachers: A scoping review and thematic analysis. *International Journal of Inclusive Education*, 1–28. <https://doi.org/10.1080/13603116.2019.1572232>
- Frolova, E. V., Rogach, O. V., Tyurikov, A. G., & Razov, P. V. (2021). Online student education in a pandemic: New challenges and risks. *European Journal of Contemporary Education*, 10(1), 43–52. <https://doi.org/10.13187/ejced.2021.1.43>
- Gann, C., & Carpenter, D. (2017a). STEM educational activities and the role of the parent in the home education of high school students. *Educational Review*, 71(2), 166–181. <https://doi.org/10.1080/00131911.2017.1359149>
- Gann, C., & Carpenter, D. (2017b). STEM teaching and learning strategies of high school parents with homeschool students. *Education and Urban Society*, 50(5), 461–482. <https://doi.org/10.1177/0013124517713250>
- Hadriana, Mahdum, Isjoni, Futra, D., & Primahardani, I. (2021). Online learning management in the era of COVID-19 pandemic at junior high school in Indonesia. *Journal of Information Technology Education: Research*, 20, 351–383. <https://doi.org/10.28945/4819>
- Husband, G. (2020). Ethical data collection and recognizing the impact of semi-structured interviews on research respondents. *Education Sciences*, 10(8), Article 206. <https://doi.org/10.3390/educsci10080206>
- Isnawan, M. G., Suryadi, D., Turmudi, T., & Marfuah, M. (2022). Parental obstacles during distance learning mathematics in Indonesia: A phenomenology study. *European Journal of Educational Research*, 11(2), 873–883. <https://doi.org/10.12973/eu-jer.11.2.873>

- Jackson, B. Y. B. (2007). Homework inoculation and the limits of research. *Phi Delta Kappan*, 89(1), 55–59. <https://doi.org/10.1177/003172170708900109>
- Jin, T., & Helkala, K. (2022). An on-campus approach to online mathematics teaching: A case study on a pre-calculus course. *European Journal of Mathematics and Science Education*, 3(2), 191–207. <https://doi.org/10.12973/ejmse.3.2.191>
- Kalogeropoulos, P., Roche, A., Russo, J., Vats, S., & Russo, T. (2021). Learning mathematics from home during COVID-19: Insights from two inquiry-focussed primary schools. *Eurasia Journal of Mathematics, Science and Technology Education*, 17(5), Article em1957. <https://doi.org/10.29333/ejmste/10830>
- Kamanetz, A. (2020). 'Panic-gogy': Teaching online classes during the coronavirus pandemic. NPR. <https://n.pr/3X2yCCS>
- Lawshe, C. H. (1975). A quantitative approach to content validity. *Personnel Psychology*, 28(4), 563–575. <https://doi.org/10.1111/j.1744-6570.1975.tb01393.x>
- Lee, Y. J., Davis, R., & Li, Y. (2022). Implementing synchronous online flipped learning for pre-service teachers during COVID-19. *European Journal of Educational Research*, 11(2), 653–661. <https://doi.org/10.12973/eu-jer.11.2.653>
- Mailizar, Almanthari, A., Maulina, S., & Bruce, S. (2020). Secondary school mathematics teachers' views on e-learning implementation barriers during the COVID-19 pandemic: The case of Indonesia. *Eurasia Journal of Mathematics, Science and Technology Education*, 16(7), Article em1860. <https://doi.org/10.29333/EJMSTE/8240>
- Majola, M. X., & Mudau, P. K. (2022). Lecturers' experiences of administering online examinations at a South African open distance e-learning university during the COVID-19. *International Journal of Educational Methodology*, 8(2), 275–283. <https://doi.org/10.12973/ijem.8.2.275>
- Marfuah, M., Suryadi, D., Turmudi, T., & Isnawan, M. G. (2022). Providing online learning situations for in-service mathematics teachers' external transposition knowledge during COVID-19 pandemic: Case of Indonesia. *Electronic Journal of E-Learning*, 20(1), 69–84. <https://doi.org/10.34190/ejel.20.1.2388>
- Megatsari, H., Dwi, A., Ibad, M., Tri, Y., Putri, K., Ardiansyah, R., Geno, P., & Nugraheni, E. (2020). The community psychosocial burden during the COVID-19 pandemic in Indonesia. *Heliyon*, 6, 1–5. <https://doi.org/10.1016/j.heliyon.2020.e05136>
- Moliner, L., Alegre, F., & Lorenzo-Valentin, G. (2022). The COVID-19 pandemic's impact on 9th grade students' mathematics achievement. *European Journal of Educational Research*, 11(2), 835–845. <https://doi.org/10.12973/eu-jer.11.2.835>
- Morrison, D., Lichtenwald, K., & Tang, R. (2019). Extending the online focus group method using web-based conferencing to explore older adults online learning. *International Journal of Research & Method in Education*, 43(1), 78–92. <https://doi.org/10.1080/1743727X.2019.1594183>
- Özcan, Z. Ç., & Erktin, E. (2015). Enhancing mathematics achievement of elementary school students through homework assignments enriched with metacognitive questions. *Eurasia Journal of Mathematics, Science and Technology Education*, 11(6), 1415–1427. <https://doi.org/10.12973/eurasia.2015.1402a>
- Özüdoğru, G. (2021). Problems faced in distance education during COVID-19 pandemic. *Participatory Educational Research*, 8(4), 321–333. <https://doi.org/10.17275/per.21.92.8.4>
- Palacios, E. B., & Simons, M. (2021). Can I take a look at your notes?: A phenomenological exploration of how university students experience note-taking using paper-based and paperless resources. *Educational Philosophy and Theory*, 53(13), 1334–1349. <https://doi.org/10.1080/00131857.2021.1876667>
- Paulus, T., Woods, M., Atkins, D. P., & Macklin, R. (2015). The discourse of QDAS: Reporting practices of ATLAS.ti and NVivo users with implications for best practices. *International Journal of Science Research Methodology*, 20(1), 35–47. <https://doi.org/10.1080/13645579.2015.1102454>
- Pepin, B. (2021). Connectivity in support of student co-design of innovative mathematics curriculum trajectories. *ZDM-Mathematics Education*, 53(2), 1221–1232. <https://doi.org/10.1007/s11858-021-01297-4>
- Pigden, L., & Jegede, F. (2019). Thematic analysis of the learning experience of joint honours students: Their perception of teaching quality, value for money and employability and employability. *Studies in Higher Education*, 45(8), 1650–1663. <https://doi.org/10.1080/03075079.2019.1661985>
- Rana, H., Rajiv, R., & Lal, M. (2014). E-learning: Issues and challenges. *International Journal of Computer Applications*, 97(5), 20–24. <https://doi.org/10.5120/17004-7154>
- Reimers, F., Schleicher, A., & Saavedra, J. (2020). *Supporting the continuation of teaching and learning during the COVID-19 pandemic: Annotated resources for online learning*. OECD. <https://bit.ly/3CNPHs0>

- Richard, K. A. R., & Hemphill, M. A. (2018). Practical guide to collaborative qualitative data analysis. *Journal of Teaching Physical, 37*(2), 225–231. <https://doi.org/10.1123/jtpe.2017-0084>
- Roberts, L. D., & Allen, P. J. (2015). Exploring ethical issues associated with using online surveys in educational research. *Educational Research and Evaluation, 21*(2), 95–108. <https://doi.org/10.1080/13803611.2015.1024421>
- Sarama, J., & Clements, D. H. (2009). *Early childhood mathematics education research: Learning trajectories for young children*. Routledge. <https://doi.org/10.4324/9780203883785b>
- Scharp, K. M., & Sanders, M. L. (2018). What is a theme? Teaching thematic analysis in qualitative communication research methods communication research methods. *Communication Teacher, 33*(2), 117–121. <https://doi.org/10.1080/17404622.2018.1536794>
- Smith, C. (2020). *What is zoom for Online classes? How to use for online learning and meetings!* HITC. <https://bit.ly/3GxnerE>
- Soloveva, R. A., Barakhsanov, V. P., Batorov, A. R., Kibalnik, A. V., & Moskalyonova, N. A. (2020). The internet and prospective engineers: Results analysis for studies conducted during the pandemic. *Journal of Educational Psychology, 8*(3), Article e714. <https://doi.org/10.20511/pyr2020.v8nSPE3.714>
- Stewart, W. H., Baek, Y., & Lowenthal, P. R. (2022). From emergency remote teaching (ERT) to sustained remote teaching (SRT): A comparative semester analysis of exchange students' experiences and perceptions of learning online during COVID-19. *Online Learning Journal, 26*(2), 170–197. <https://doi.org/10.24059/olj.v26i2.2661>
- Stolz, S. A. (2013). Phenomenology and physical education. *Educational Philosophy and Theory, 45*(9), 949–962. <https://doi.org/10.1080/00131857.2013.785355>
- Stolz, S. A. (2020). Phenomenology and phenomenography in educational research: A critique. *Educational Philosophy and Theory, 52*(10), 1077–1096. <https://doi.org/10.1080/00131857.2020.1724088>
- Sugilar. (2021). Students' barriers to online tutorial. *Turkish Online Journal of Distance Education, 22*(1), 170–178. <https://doi.org/10.17718/tojde.849901>
- Tall, D. (2008). The transition to formal thinking in mathematics. *Mathematics Education Research Journal, 20*(2), 5–24. <https://doi.org/10.1007/BF03217474>
- Van-Lancker, W., & Parolin, Z. (2020). COVID-19, school closures, and child poverty: A social crisis in the making. *The Lancet Public Health, 5*(5), e243–e244. [https://doi.org/10.1016/S2468-2667\(20\)30084-0](https://doi.org/10.1016/S2468-2667(20)30084-0)
- Wijaya, A., Retnawati, H., Setyaningrum, W., Aoyama, K., & Sugiman. (2019). Diagnosing students' learning difficulties in the eyes of Indonesian mathematics teachers. *Journal on Mathematics Education, 10*(3), 357–364. <https://doi.org/10.22342/jme.10.3.7798.357-364>
- Zhou, L., Li, F., Wu, S., & Zhou, M. (2020). "School's out, but class's on", the largest online education in the world today: Taking China's practical exploration during the COVID-19 Epidemic prevention and control as an example. *Best Evidence in Chinese Education, 4*(2), 501–519. <https://doi.org/10.15354/bece.20.ar023>