

Coping with Technology: Children's Experience with Learning from Home during the COVID-19 Pandemic

Muassomah Muassomah¹⁾

Maulana Malik Ibrahim State Islamic University Malang

Irwan Abdullah

Gadjah Mada University Yogyakarta

Halimi Halimi

Ismail Ismail

Raden Fatah State Islamic
University Palembang

Umi Zahroh

Sayyid Ali Rahmatullah State Islamic University Tulungagung

Abstract

Technology, long feared to have a deleterious effect on children (and thus best avoided), has become a necessity for distance learning during the COVID-19 pandemic. This article explores how distance learning has been experienced and understood by children, many of whom had little prior knowledge of technology and had rarely applied it. At the same time, this study reveals how education has transformed as children have been compelled to use technology to continue learning. This article employs a qualitative-descriptive approach to analyze data collected through interviews, which were conducted remotely using Zoom and Google Meet. This article shows that the technology used for continued education during the pandemic has not simply caused problems for children, but also laid the necessary framework for replacing the teacher-centered model with a student-centered one. Further research is recommended, with a focus on comparing experiences at different schools and levels of education, as this would allow new directions for education policy in Indonesia to be explored.

Keywords: children's experience, learning from home, technology, education, COVID-19

Corresponding author, ¹⁾ muassomah@bsa.uin-malang.ac.id

Introduction

COVID-19 has provided an important impetus for incorporating technology into the learning process, something long rejected for fear that it would dehumanize education and have a detrimental effect on children (Chusna, 2017; Dewi, 2019). Technology has been argued that it would make children dependent (Joseph et al., 2022). Wolf et al., (2018) for example, found that 95% of American families experienced some degree of technology addiction, and this has reduced cognitive ability, stunted growth, harmed academic performance, and led to other addictive behaviors. It has also contributed to insomnia and obesity among school-age children (Calamaro et al., 2012). As shown by Dias et al., (2017), excessive use of technology can cause ambiguity which results in children losing their childhood. Children would be more interested in spending time with online games or social media applications than playing with their peers outside the home or interacting with family members. Ultimately, however, such risks have been pushed aside as distance learning policies have been implemented to ensure children can continue their schooling during the pandemic.

To date, studies of the link between technology and education have been evaluative, taking a normative perspective. In this context, technology has been perceived as simultaneously facilitating and threatening the learning process (Bokayev et al., 2021; Eborall et al., 2016; Raut & Patil, 2016). Several studies have found that technology can support the learning process (Chen & Liu, 2018; Lothridge et al., 2013; Made Rajendra & Made Sudana, 2018). Consequently, Pribadi, (2017) and Ranius, (2013) both argue that technology can facilitate the achievement of learning goals. Online learning in Kazakhstan during the crisis reaps benefits for building government competence to bring about educational transformation (Bokayev et al., 2021). Conversely, other studies have rejected technology, viewing it as something foreign that could potentially convey negative values (Muassomah et al., 2022; Ngafifi, 2014; Putri et al., 2016). Online learning also causes lacks of social interactions among students (Ewing & Cooper, 2021). Distance learning using technology creates a negative attitude for students, such as the occurrence of distraction among students, students feeling isolated and lonely which results in decreased motivation and learning outcomes (Alaghawat & Alshamailah, 2022). In other words, the integration of technology into the

education system could transform the value dimensions contained therein.

This article seeks to complement the literature by carefully mapping children's experiences with technology and its use in education during the COVID-19 pandemic. This article chiefly aims to explain how children have coped with the distance learning process mediated by technology. In line with this goal, three questions are formulated. First, how is technology in online learning being used in response to Covid-19? Second, how is the experience of students using online learning technology? Third, how can technology drive educational transformation? These three questions are the focuses of this article.

Literature Review

Technology in education

Using technology in education has been intended to transform the conventional education system with an effective and efficient online model (Adducul & Gumabay, 2020; Ho, 2018). Such a model is intended to allow educators and students to obtain materials from the internet, using a computer or other digital device (Divayana et al., 2016; Fitriani et al., 2020). Such an online model is intended to replace the conventional learning model-wherein communication is unidirectional, with teachers conveying materials to students in a classroom setting (Wang et al., 2020)-with a student-centered learning model wherein students take a more active role (Sohibun & Ade, 2017). As such, the technologization of education has significantly transformed teachers' and students' roles in the process, facilitated the interactive distribution of learning materials, removed space and time constraints, and promoted collaboration between teachers and students (Fitriyadi, 2013; Ruliene & Namsaraev, 2016). Technology has been perceived as a means of de-objectifying students and providing them with the opportunity to become involved in the knowledge production process.

Changes in the learning process have also been wrought by the applications used by students when producing knowledge. Several countries, including Indonesia, have developed their own applications for online learning. In Indonesia, applications such as Ruang Guru (Setiawati, 2019), Quipper (Setyawati et al., 2018), and Zenius (Septiani, 2020), have been

popularly used and affected children's motivation. Online quiz applications such as Quizizz have also been widely used by teachers and students (Rahman et al., 2020) to ascertain their command of the materials. Similarly, online dictionaries have found popularity amongst students, providing them with a means of improving their vocabulary without formal courses (Ying et al., 2020). Other apps have been used to improve students' knowledge of Islam, such as Q-Ibadah (Saidin et al., 2015). Other applications, such as Digital Quran (Zakariah et al., 2017) and e-BBQ (Hanafi et al., 2020) have been used to guide students in their worship. Such applications have been used to facilitate independent learning, as they help students hone their ability to search for, understand, and creatively develop information.

Children's experience with COVID-19

The COVID-19 pandemic, which has rapidly become a global disaster, has significantly affected all parts of everyday life (Daubman et al., 2020; Tanriverdi & Ozcan 2020). This is true not only for adults, but also for children (Bryce, 2020). In response to the pandemic, strict lockdown policies have been implemented around the world, reducing children's opportunities to interact with their peers, exacerbating their sense of isolation, and limiting their everyday activities to the domestic sphere. Children must accept this new reality where offline learning has been replaced by online learning which can only interact socially with their immediate family (Bao 2020; Dian et al., 2019). These experiences have had significant effects on students' emotional well-being (Letourneau et al., 2021; Verlenden et al., 2021). Although experiences vary by age, sex, and family situation, children have become more aggressive, anxious, and hyperactive; this has led to further behavioral issues (Garbe et al., 2020; Toran et al., 2021). Children and the pandemic have thus been inexorably intertwined.

Children's experiences during the COVID-19 pandemic generally fall into three categories. First, children are spending more time with their digital devices (Toran et al. 2021; Quinones and Adams 2021), often using their cellular phones or sitting in front of computer screens for hours at a time (Toran et al., 2021). Children are actively urged to use digital technology and spend their time online, even as their face-to-face interactions are limited to their immediate family (Quinones & Adams, 2021). Second, the pandemic has affected children's health and cleanliness (Ares et al. 2021; Sahoo et al. 2021). Children have had numerous new

experiences during the pandemic, being required to wear personal protective equipment when leaving the house, wash their hands regularly, and bathe more frequently (Ares et al., 2021). Third, the emotional well-being of children has been significantly affected (Garbe et al. 2020; Okuyama et al. 2021). During the COVID-19 pandemic, children's interactions with their friends and peers have been disrupted. Most interactions are during their online classes, and thus they cannot readily focus on their studies (Ewing & Cooper, 2021; Garbe et al., 2020). Such experiences have been common amongst children during the COVID-19 pandemic

Method

This study employs a qualitative-descriptive approach to explore the distance learning process used during the COVID-19 pandemic. This study, in contrary to other studies in general, established the analysis from the perspective of children in order to get emic perspective. In line with this, children are placed as active subjects who have knowledge and perspective on how they survive. The data used in this study have been checked by the ethical committee of the Maulana Malik Ibrahim State Islamic University of Malang for their reliability.

The participants were selected from amongst elementary school-age (6-12 years old) children in Malang, Indonesia. Fifteen participants were selected through random sampling from both urban and rural schools, thereby ensuring that diverse learning experiences were captured. Selected students had no prior experience with technology-mediated learning and low levels of digital literacy, but began using digital technology for their studies after distance learning policies were implemented in response to the COVID-19 pandemic. Children were interviewed regarding their experiences with the transition from face-to-face learning to online learning.

Data were collected through interviews with the participants. In accordance with social and physical distancing policies, face-to-face interviews were not possible, and thus interviews were conducted online using WhatsApp, Zoom, and other digital platforms. Interviews were brief, averaging 5 to 10 minutes each, as this minimized the potential for fear and/or boredom. Interviews were conducted individually, rather than collectively, to

Table 1. *General characteristics of research participants*

No.	Participants	Age	Grade	School
1	P1	11	5	SDN Kotalama
2	P2	12	5	SDN Sukoharjo
3	P3	8	2	MI At-Taroqqi
4	P4	12	6	SD Muhammadiyah 9
5	P5	10	4	MI Nurul Huda
6	P6	10	4	SDI Surya Buana
7	P7	8	2	SD Smart School
8	P8	12	5	MIN 1 Malang
9	P9	9	3	SD Muhammadiyah 8
10	P10	9	3	SD Percobaan
11	P11	13	6	MIN 2 Malang
12	P12	9	3	SDN 1 Tumpang
13	P13	12	5	SD Muhammadiyah 9
14	P14	10	4	SDN Kasin
15	P15	11	4	MI Hidayatul Muftadiin

ensure that information was obtained directly from informants rather than their peers. Likewise, parents and family members were not interviewed. Each child was interviewed two to four times during the course of this study.

Research was conducted between August-December 2020, when the COVID-19 pandemic was reaching its peak in Indonesia. To mitigate the spread of the virus, distance learning policies were implemented, and thus elementary school students were exposed to a new situation. Children were interviewed regarding their experiences using technology during the COVID-19 pandemic, with responses delivered of their own volition. This research is thus novel in its highlighting of children's perspectives regarding technology and its incorporation in the learning process. Data were collected regarding the technology used by informants as well as the transformations experienced by them as a result.

After being collected through interviews, data were analyzed through a qualitative approach. First, data were reduced by selecting data that were relevant to the research topic. Data were subsequently divided into three categories: the legal basis for incorporating technology in the learning process, the factors legitimizing the incorporation of technology

in the learning process, and the transformative effects of technology on the learning process. Second, data were displayed through tables, in accordance with the established scope of this research. Data were presented in their original format, without analysis. Third, data were briefly described while maintaining their originality. Fourth, interpretative analysis was used to give significance to the data in context. Restatement, description, and interpretation were used to ensure continuity between the texts presented and children's experiences with online learning during the COVID-19 pandemic.

Results

Use of technology during distance learning

With the passage of Decision of the Minister of Culture and Education No. 4 of 2020 regarding the Corona Virus Disease (COVID-19), the pandemic became the justification for replacing the conventional face-to-face model with an online one. Principals, being the administrators most directly involved with students, were tasked with implementing distance learning in their schools. Institutions, thus, were required to communicate their new learning policies, forms, and models, as well as their new evaluation systems. The results are presented in Table 2.

The physical and social distancing policies implemented in response to COVID-19 have significantly affected the education system, an unavoidable consequence of the shift from offline to online learning. Table 2 shows that schools communicated their decision to implement online learning through students' teachers, either in-person (in a classroom setting) or through digital platforms (such as WhatsApp and Instagram). Ultimately, as indicated by informants, digital media were more commonly used for communication.

Interviews with students, aside from offering an understanding of schools' communication of their study-at-home policies, provided insight into the forms of distance learning employed by schools. Interactions between teachers and students have transformed as they have been mediated by technology, as have school–student interactions. This is shown in Table 3.

Table 2. *Student experience in obtaining information on changes in the education system*

Participants	Experience	Code
5	My teacher told us that our outbound activities were canceled because of Corona	Direct announcement
1	My teacher said that, starting Monday, children would be off from school. And school would move to our homes.	Direct announcement
3	My ustadzah sent the announcement to my mother's phone.	Mediated by technology
4	The school sent the letter about online schooling to my mom's phone by Instagram	Mediated by technology
6	Mother saw the announcement on the school's website, and they also sent the letter to my mom's phone by Instagram	Mediated by technology
2	My ustadzah sent the announcement about online learning to my class's WhatsApp group	Mediated by technology

Table 3. *The experience of students undergoing learning during COVID-19*

Participants	Experience	Code
5	I haven't been able to see my teachers anymore.	Distance
6	I have to sign the attendance sheet using Google Forms, then do the quiz questions	Online attendance
3	My assignment is to watch the educational program on TVRI at 8:30 every morning, then summarize it and do the assignments.	Online learning
8	Once a week, I'm given a list of things to study. Very detailed information about the materials to be studied.	Needs fulfilled
2	I often don't know whether or not my assignments were correct, and I don't care about this.	Needs ignored
4	While learning at home, I haven't been able to talk to my teacher. She only communicates with my mom.	Needs ignored

Table 3 shows that several teachers have conveyed materials in assignment format, distributed to students through WhatsApp messages to their mothers. Some teachers require students to complete attendance sheets using Google Forms, only distributing Quiz links and passwords to students who have signed in. Other teachers use WhatsApp to instruct students to complete specific worksheets in their books. Still others require their students to watch educational programs on TVRI, then summarize them.

Such lessons have challenged children to improve their knowledge. However, in many cases, students' needs are ignored by schools. First, schools can ensure students' needs are

met by providing weekly schedules that clearly indicate the expected learning goals. Explicit identification of the assignments, recorded through WhatsApp, will help students better understand them. Some teachers send videos to students, providing them with the guidance necessary to complete their assignments correctly. Announcements, schedule changes, and other relevant information are likewise distributed using digital media. Second, the needs of children often go ignored when they are unable to communicate directly with their teachers. During the COVID-19 pandemic, teachers have communicated primarily with parents; consequently, children have not been directly involved in the process. This has made them less motivated to study. At the same time, teachers have not been able to monitor students or explain materials in-depth; without sufficient feedback, they are no longer able to improve students' desired competencies.

Students' experiences with online learning

After years of resistance, the COVID-19 pandemic has accelerated the incorporation of technology into the learning process. Three elements are important to consider in this context: first, the need to socialize digital technology amongst children; second, the requirement for infrastructure and digital literacy; third, children's concerns with technology and its use in learning. These elements are highlighted in Table 4 below.

Table 4 shows that some schools had incorporated technology into the learning process to some extent, such as by using televisions to explain materials, requiring students to search for illustrations on Google, assigning students to download online news stories, or telling students to summarize the information available online. Even then, however, technology was used as a supplement; it was only during the COVID-19 pandemic that technology took a central role.

The difficulties experienced during the shift from conventional to virtual learning have seemed inexorable. Online learning requires not only infrastructure but also digital literacy, and neither is common among Indonesian schoolchildren. Several of the children interviewed were unable to connect to the internet at night, while others described their connection as spotty. Still other children lacked the necessary money to buy cellular data, as a prerequisite for connecting to the internet using their cellular phones. Many families have only one

Table 4. *Children's experiences with technology-based learning*

Participants	Experience	Code
10	There's no explanation of how technology can be used	Socialization
2	My teacher never taught us how to use technology	Socialization
3	Yeah, my teacher explained our science materials (the metamorphosis of butterflies, plants, and humanity; precipitation) using TV	Technology as a medium
8	My teacher taught me dance, singing, and natural disasters using a TV in class.	Technology as a medium
11	My teacher never taught us using technology. In class, we had no TV or computer.	Conventional
5	My teacher assigned us to look for information on the internet and submit it at school, so I had to ask my mom for help finding it.	Introducing technology
1	When I am reading the materials on my phone, the screen keeps dying, and so it interrupts me.	Digital literacy
15	I have trouble looking for information on the web, because I'm not sure which to pick. So many of them are similar.	Digital literacy
13	I have trouble learning with my phone because it takes so long to load, and sometimes the internet just vanishes.	Infrastructural limitations
8	The phone belongs to my mother, so I have to take turns with my siblings. We often argue and fight because of the phone.	Infrastructural limitations
11	Often, in the morning, there's no internet available.	Infrastructural limitations
12	At night, at home, there is no internet, and sometimes my teacher sends our assignments at night. So, I can't work on them, and have to wait for the following day.	Infrastructural limitations
6	I'm confused when trying to answer. I can't tell which web page is correct, so I just answer what I can.	Digital literacy
14	I'm often tempted to play games when I'm using the phone for school.	Disruptions
9	Because I can't read well, it takes me a long time to learn using technology.	Disruptions

cellular phone, tablet, or laptop, and thus children fight amongst themselves to gain access to these necessary devices.

No less important is the digital literacy necessary for successful online learning. Table 4 shows that almost all of the children interviewed use technology for entertainment (playing games, watching films) rather than learning. As such, children are often confused during

distance learning, as they do not know which applications to use or how to filter the plethora of information available.

Technology in the time of COVID-19 has replaced teachers' central role in the learning process, leaving many students-particularly those with low literacy levels-confused. Students without access to the internet have difficulty learning due to the limited information available to them. Others have difficulty ascertaining which information is relevant, as materials had previously been filtered and conveyed by their teachers. As such, students (who are still developing) cannot readily determine which information is necessary to complete their assignments.

Technology: Promoting transformation

The incorporation of technology into teaching has significantly transformed the learning process, from a teacher-oriented model to an independent one, from smaller spaces (classrooms) to a broader one (internet). Technology has also promoted the idea of transparency in education and governance (Table 5).

The transition from offline to online learning has provided children with access to diverse knowledge. Previously dependent on teachers' explanations, children have had to seek their own materials. This transition has shaped them into adaptive, independent, open, and wise children. They have adapted to using technology for learning. Google and YouTube are commonly used by children to find facts, information, and solutions. Other applications, such as WhatsApp, Kine Master, WPS, Recorder, and Video, are also used by children to enrich their knowledge and complete their assignments. In other words, the incorporation of technology into the learning process has provided children with access to a broader body of knowledge than available in a classroom setting.

Digital technology, long avoided in education, has transformed learning culture. Children have actively used technology as a learning resource, becoming members of a virtual society to obtain the knowledge they require. Children have been able to use digital applications and internet technologies to uncover information and solve problems. They are required to determine the information needed precisely. Distance learning has made students more active and independent; they were capable of setting and following their schedules.

Table 5. *Technology and its promotion of transformation*

Participants	Experience	Code
3	Finally, I was provided with my own device so I could learn and play. Before, I had to borrow a phone from a sibling or my mother.	Discretion
10	I've tried searching the web, using Google, to get the facts.	Opportunity
5	I learned to download the applications I needed. Sometimes I succeeded; sometimes not.	Independence
14	I like to look on YouTube if there are any problems I'm having trouble solving.	Openness
1	Sometimes I ask Google Voice to find my answer. It's nice. I don't have to type, and Google Assistant will look for it. Even though a lot of the answers aren't correct.	Openness
6	I have to open a lot of links and read a lot of text to find the best answers.	General knowledge
7	Now, I'm getting used to studying on my own, without my teacher and my friends.	Independence
12	Now, I've been able to adapt to studying on my own, and I remain passionate, even without anyone to talk to.	Adaptation
9	I look for my own materials for the assignments my teacher sends me. I try and find musical notation, traditional dance, traditional homes, etc.	Independence
11	I can choose my own time for work and play. Decide where I would like to study. Often I study while lying down, haha.	Independence
2	If I have any troubles when learning, I open Google, YouTube, or online news	Independence
8	I have to open a lot of links. If one doesn't fit, I'll look for another one, until I find something suited to the assignment	General knowledge
13	When learning with my phone, I don't have to memorize any definitions. Turns out, on Google, there are many definitions I can read.	Openness
7	If I have trouble with my assignments or practice sheets, I ask Google Assistant. Sometimes there's an answer; sometimes not.	Openness

The COVID-19 pandemic has provided the momentum for using technology to implement a more open and participative education system. The conventional system was top-down, with teachers the sole authorities in the transfer of knowledge and students passive recipients. Materials are prepared by teachers, in accordance with curricula that have been expertly designed by diverse stakeholders. The COVID-19 pandemic has challenged the conventional

paradigm by requiring the incorporation of digital technologies, through which materials can be accessed easily, independently, and transparently, and thus studied. This system requires clear operational standards, with careful consideration of the quality and impact of materials.

Discussion

This study has found that the shift from offline to online learning has created significant anxiety amongst and posed numerous obstacles for children because decisions related to education are referred to the values of adults as decision makers (Younie et al., 2020). Treated as objects under the conventional system, children have become objects who choose when, where, and how they study. Children have been provided a space where they can explore themselves and their abilities, even as they access materials and use their cognitive, affective, and psychomotor skills to understand them. Technology has provided an important impetus for children's self-transformation (Bokayev et al., 2021). As noted by Ruliene, L. N., & Namsaraev, (2016), technology-based education has affected both teachers and students. The internet has made it possible for teachers and students to access a broad range of information during the learning process. Likewise, the flexibility of digital learning has made it possible for students to manage their own schedules and potentially collaborate with their teachers and peers (Fitriyadi, 2013).

The challenges experienced by children and their parents during the COVID-19 pandemic must be overcome to improve the quality of future generations. Children have nearly unlimited opportunities for growth, especially given the availability of digital technologies (Toran et al., 2021). During the COVID-19 pandemic, children have been actively urged to use cellular phones and other gadgets for learning, even as their face-to-face interactions have been limited to members of their immediate families (Quinones & Adams, 2021). Similarly, parents who had so far handed over responsibility for learning to institutions and teachers during the pandemic they have been required to accompany their children during learning (Ahen et al., 2021), and thus they too have required digital literacy. Parents, children, and teachers interact and collaborate to ensure that students develop their competencies and achieve their learning goals (Lee et al., 2022).

Online learning, used in accordance with the social distancing policies introduced to handle the COVID-19 pandemic, has created a new means of democratizing knowledge and technology (Tyler et al., 2021). Students can readily access information using various virtual platforms and digital applications. This allows students to develop their potential independently, without being influenced by their teachers' instructions and decisions (Maity et al., 2021). Although children remain influenced by their parents' decisions, technology has provided them with the opportunity to develop their potential. Children can independently filter the information they find online and decide what is most important to them. As noted by (Maity et al., 2021), the COVID-19 pandemic has provided the momentum for schools to replace their blackboards with Google Meet, Zoom, WebEx, etc.

This study differs from previous research, which has focused primarily on how COVID-19 has driven schools to move from face-to-face (offline) learning to distance (online) learning. The learning process has become increasingly instrumental, and this has exacerbated the gap between children from well-to-do families and those whose families' financial situation precludes them from easily accessing technology. It contradicts to the ideology of *Pendidikan untuk Semua* (Education for All), which means education provides better welfare for society in the future (Younie et al., 2020). This study, conversely, has shown that the distance learning model introduced in response to COVID-19, while indeed posing significant challenges to students and parents, has also provided children with the opportunity to independently adapt and improve their digital literacy. According to Bokayev et al., (2021), the forced transitions in the education system during the COVID-19 pandemic is a driving force for the realization of an innovative and accessible education system. In other words, the crisis has also wrought positive changes in the realm of education and significantly increased the nations' welfare and potentials (Bokayev et al., 2021).

As such, it is necessary to prevent the regimentation of technology-based learning. Where education is used oppressively, to require children to act as objects in the learning process, it limits their interest in the process and ability to develop their skills. At the same time, however, it is important to develop children's digital literacy and ensure that they have a healthy understanding of social and religious norms. Therefore, the education system must be perceived as an ecosystem of interdependencies among many different components that need to be considered when changes are required (Leask & Younie, 2021).

The COVID-19 pandemic has provided society with an impetus to increasingly incorporate technology into the learning process. This, in turn, has required children to adapt to it, and the success of this adaptation process depends heavily on the availability of the requisite infrastructure and on parents' willingness to support the learning process. It agrees with the notion of Delcker & Ifenthaler (2021) that the success of online education depends on the availability of reliable infrastructure and prepared teachers to use digital teaching methods.

Conclusion

This research concludes that learning during a pandemic, apart from causing many obstacles, has in fact opened up the acceleration of transformation in the world of education. There are at least five things that can be concluded. 1) Regarding challenges, online learning has provided new challenges for children and teachers, such as lack of social interaction, technical problems and lack of access to material. 2) In terms of flexibility, they can set their own study schedule, and can access learning materials anytime and anywhere. 3) Technology, online learning forces children, teachers and parents to be literate in technology, and can expand their knowledge without limits. In relation to innovation, teachers and children can create unique and interesting learning experiences from various platforms. In addition to 5) With regard to inclusive education, online learning can help create inclusive education by providing opportunities for those who have physical limitations and distance. Therefore, learning during a pandemic has provided great opportunities and benefits in the world of education.

This research contributes to the field of children's education in difficult situations such as a pandemic. Firstly, it has provided information and guidance on effective online learning strategies for children, including choosing the right online learning platform, managing time and paying attention to their mental health. Secondly, it has given advice on how to motivate children to stay involved in the learning process, develop creativity, and maintain motivation to learn in difficult situations. Thirdly, it has highlighted the importance of social support in supporting children's learning success, including the role of parents, teachers and the surrounding environment and strengthening the relationship between children and families.

Therefore, this research is expected to help improve the quality of children's learning and improve educational conditions in the midst of a crisis situation.

This study has limited itself to using the perspectives of school-age children who rely heavily on others, including their teachers and their peers. Despite drawing informants from multiple schools, this study is also limited in its scope. To obtain a more comprehensive understanding of online learning, further research with a broader scope (both in terms of territory and level of education) is necessary. Further research should also be undertaken to compare how schools at different levels and in different locations have responded to the COVID-19 pandemic

References

- Adducul, R. B., & Gumabay, M. V. N. (2020). Crowdsourcing technology for classroom learning. *International Journal of Advanced Trends in Computer Science and Engineering*, 9(4), 5103-5110. <https://doi.org/10.30534/ijatcse/2020/133942020>
- Ahen, L., Cenderato, C., & Halawa, A. A. (2021). The roles of parents for children's faith education: A catechization review. *Al-Albab*, 10(1), 77-92. <https://doi.org/10.24260/alalbab.v10i1.1953>
- Alaghawat, M., & Alshamailah, I. (2022). Distance learning at the University of Jordan in the setting of COVID-19 pandemic from the students' perspectives. *International Journal of Emerging Technologies in Learning (IJET)*, 17(6), 4-22. <https://doi.org/10.3991/ijet.v17i06.27845>
- Alcántara-Ayala, I., Burton, I., Lavell, A., Mansilla, E., Maskrey, A., Oliver-Smith, A., & Ramírez-Gómez, F. (2021). Editorial: Root causes and policy dilemmas of the COVID-19 pandemic global disaster. *International Journal of Disaster Risk Reduction*, 52, 101892. <https://doi.org/10.1016/j.ijdrr.2020.101892>
- Ares, G., Bove, I., Vidal, L., Brunet, G., Fuletti, D., Arroyo, Á., & Blanc, M. V. (2021). The experience of social distancing for families with children and adolescents during the coronavirus (COVID-19) pandemic in Uruguay: Difficulties and opportunities. *Children and Youth Services Review*, 121, 105906.

- <https://doi.org/10.1016/j.chilyouth.2020.105906>
- Bao, W. (2020). COVID -19 and online teaching in higher education: A case study of Peking University. *Human Behavior and Emerging Technologies*, 2(2), 113-115.
<https://doi.org/10.1002/hbe2.191>
- Bokayev, B., Torebekova, Z., Davletbayeva, Z., & Zhakypova, F. (2021). Distance learning in Kazakhstan: Estimating parents' satisfaction of educational quality during the coronavirus. *Technology, Pedagogy and Education*, 30(1), 27-39.
<https://doi.org/10.1080/1475939X.2020.1865192>
- Bryce, I. (2020). Responding to the accumulation of adverse childhood experiences in the wake of the COVID-19 pandemic: Implications for practice. *Children Australia*, 1-8.
<https://doi.org/10.1017/cha.2020.27>
- Calamaro, C. J., Yang, K., Ratcliffe, S., & Chasens, E. R. (2012). Wired at a young age: The effect of caffeine and technology on sleep duration and body mass index in school-aged children. *Journal of Pediatric Health Care*, 26(4), 276-282.
<https://doi.org/10.1016/j.pedhc.2010.12.002>
- Chen, C. L. P., & Liu, Z. (2018). Broad learning system: An effective and efficient incremental learning system without the need for deep architecture. *IEEE Transactions on Neural Networks and Learning Systems*, 29(1), 10-24.
<https://doi.org/10.1109/TNNLS.2017.2716952>
- Chusna, P. A. (2017). Pengaruh media gadget pada perkembangan karakter anak. *Dinamika Penelitian: Media Komunikasi Penelitian Sosial Keagamaan*, 17(2), 315-330.
<https://ejournal.uinsatu.ac.id/index.php/dinamika/article/view/842>
- Daubman, B. R., Black, L., & Goodman, A. (2020). Recognizing moral distress in the COVID-19 pandemic: Lessons from global disaster response. *Journal of Hospital Medicine*, 696-698. <https://doi.org/10.12788/jhm.3499>
- Delcker, J., & Ifenthaler, D. (2021). Teachers' perspective on school development at German vocational schools during the COVID-19 pandemic. *Technology, Pedagogy and Education*, 30(1), 125-139. <https://doi.org/10.1080/1475939X.2020.1857826>
- Dewi, E. (2019). Potret pendidikan di era globalisasi teknosentrisme dan proses dehumanisasi. *Sukma: Jurnal Pendidikan*, 3(1), 93-116.
<https://doi.org/10.32533/03105.2019>

- Dian, P. P., Dewi, K. Soedarsono, M. S. (2019). Pengaruh penggunaan fitur ruang belajar terhadap tingkat pemahaman siswa pengguna aplikasi ruang guru. *E-Proceeding of Management*, 6(2), 5176-5186. <http://surl.li/gmmnb>
- Dias de Castro, T. S. P., Osório, A., & Bond, E. (2017). The networked effect of children and online digital technologies. *Encyclopedia of Information Science and Technology, Fourth Edition*, 7312-7326. <https://doi.org/10.4018/978-1-5225-2255-3.ch636>
- Divayana, D. G. H., Suyasa, P. W. A., & Sugihartini, N. (2016). Pengembangan media pembelajaran berbasis web untuk matakuliah kurikulum dan pengajaran di jurusan pendidikan teknik informatika universitas pendidikan ganesha. *Jurnal Nasional Pendidikan Teknik Informatika (JANAPATI)*, 5(3), 149-157. <https://doi.org/10.23887/janapati.v5i3.9922>
- Eborall, H. C., Virdee, S. K., Patel, N., Redwood, S., Greenfield, S. M., & Stone, M. A. (2016). “And now for the good news...” the impact of negative and positive messages in self-management education for people with Type 2 diabetes: A qualitative study in an ethnically diverse population. *Chronic Illness*, 12(1), 3-17. <https://doi.org/10.1177/1742395315577965>
- Ewing, L. A., & Cooper, H. B. (2021). Technology-enabled remote learning during COVID-19: Perspectives of Australian teachers, students and parents. *Technology, Pedagogy and Education*, 30(1), 41-57. <https://doi.org/10.1080/1475939X.2020.1868562>
- Fitriani, W., Haryanto, H., & Atmojo, S. E. (2020). Motivasi berprestasi dan kemandirian belajar mahasiswa saat pembelajaran daring. *Jurnal Pendidikan: Teori, Penelitian, Dan Pengembangan*, 5(6), 828-834. <http://journal.um.ac.id/index.php/jptpp/article/view/13639>
- Fitriyadi, H. (2013). Integrasi teknologi informasi komunikasi dalam pendidikan: Potensi manfaat, masyarakat berbasis pengetahuan, pendidikan nilai, strategi implementasi dan pengembangan profesional. *Pendidikan Teknologi Kejuruan*, 21(3), 268-284. [10.21831/jptk.v21i3.3255](https://doi.org/10.21831/jptk.v21i3.3255)
- Garbe, A., Ogurlu, U., Logan, N., & Cook, P. (2020). COVID-19 and remote learning: experiences of parents with children during the pandemic. *American Journal of Qualitative Research*, 4(3), 45-65. <https://doi.org/10.29333/ajqr/8471>
- Hanafi, Y., Murtadho, N. M., Ikhsan, A., & Diyana, T. N. (2020). Reinforcing public

- university student's worship education by developing and implementing mobile-learning management system in the ADDIE instructional design model. *International Journal of Interactive Mobile Technologies*, 14(2), 215-241.
<https://doi.org/10.3991/ijim.v14i02.11380>
- Ho, W. Y. J. (2018). Mobility and language learning: A case study on the use of an online platform to learn Chinese as a foreign language. *London Review of Education*, 16(2), 239-249. <https://doi.org/10.18546/LRE.16.2.05>
- Joseph, G. V., Thomas, A. M., Elizabeth, S., Vargheese, S., & Thomas, J. (2022). The impact of screen time and mobile dependency on cognition, socialization and behaviour among early childhood students during the covid pandemic- perception of the parents. *Digital Education Review*, (41), 114-123. <https://doi.org/10.1344/DER.2022.41.114-123>
- Leask, M., & Younie, S. (2021). *Education for all in times of crisis: Lessons from COVID-19*. Routledge. <https://doi.org/10.4324/9781003155591>
- Lee, J., Choi, I. S., & Lee, S. Y. (2022). Experiences and perceptions of distance learning among early childhood pre-service teachers in Korea during the COVID-19 pandemic. *Asia-Pacific Journal of Research in Early Childhood Education*, 16(2), 275-291. <https://doi.org/10.17206/apjrece.2022.16.2.275>
- Letourneau, N., McDonald, S., MacKay, L. J., Bell, R. C., Hetherington, E., Deane, A. J., Dewey, D., Edwards, S., Field, C. J., Giesbrecht, G. F., Graham, S., Lebel, C., Leung, B., Madigan, S., McArthur, B. A., McMorris, C., Racine, N., Ross, K. M., Wu, M., & Tough, S. C. (2021). Cross-sectional study protocol for the COVID-19 impact survey of mothers and their 7-11 year old children in Alberta, Canada. *Frontiers in Psychiatry*, 12, 597759. <https://doi.org/10.3389/fpsy.2021.597759>
- Lothridge, K., Fox, J., & Fynan, E. (2013). Blended learning: Efficient, timely and cost effective. *Australian Journal of Forensic Sciences*, 45(4), 407-416.
<https://doi.org/10.1080/00450618.2013.767375>
- Made Rajendra, I., & Made Sudana, I. (2018). The influence of interactive multimedia technology to enhance achievement students on practice skills in mechanical technology. *Journal of Physics: Conference Series*, 953(1), 012104. <https://doi.org/10.1088/1742-6596/953/1/012104>
- Maity, S., Sahu, T. N., & Sen, N. (2021). Panoramic view of digital education in COVID-19:

- A new explored avenue. *Review of Education*, 9(2), 405-423.
<https://doi.org/10.1002/rev3.3250>
- Muassomah, M., Abdullah, I., Hasanah, U., Dalmeri, D., & Sihombing, A. A. (2022). The academic demoralization of students in online learning during COVID-19 pandemic. *Frontiers in Education*, 7, 287. <https://doi.org/10.3389/feduc.2022.888393>
- Ngafifi, M. (2014). Advances in technology and patterns of human life in socio-cultural perspective. *Jurnal Pembangunan Pendidikan: Fondasi dan Aplikasi*, 2(1), 33-47. 10.21831/jppfa.v2i1.2616
- Okuyama, J., Seto, S., Fukuda, Y., Funakoshi, S., Amae, S., Onobe, J., Izumi, S., Ito, K., & Imamura, F. (2021). Mental health and physical activity among children and adolescents during the COVID-19 pandemic. *Tohoku Journal of Experimental Medicine*, 253(3), 203-215. <https://doi.org/10.1620/tjem.253.203>
- Pribadi, R. B. A. (2017). *Media dan teknologi dalam pembelajaran*. Jakarta: Kencana.
- Putri, W. S. R., Nurwati, N., & S., M. B. (2016). Pengaruh media sosial terhadap perilaku remaja. *Prosiding Penelitian dan Pengabdian Kepada Masyarakat*, 3(1), 47-51. <https://doi.org/10.24198/jppm.v3i1.13625>
- Quinones, G., & Adams, M. (2021). Children's virtual worlds and friendships during the COVID-19 pandemic. *Video Journal of Education and Pedagogy*, 5(1), 1-18. <https://doi.org/10.1163/23644583-bja10015>
- Rahman, R., Kondoy, E., & Hasrin, A. (2020). Penggunaan aplikasi quizziz sebagai media pemberian kuis dalam meningkatkan motivasi belajar mahasiswa. *JISIP (Jurnal Ilmu Sosial Dan Pendidikan)*, 4(3), 60-66. <https://doi.org/10.36312/jisip.v4i3.1161>
- Ranius, A. (2013). Pemanfaatan e-learning sebagai media pembelajaran. *Jurnal Ilmiah Matrik*, 53-62. <http://surl.li/gmmng>
- Raut, V., & Patil, P. (2016). Use of social media in education: Positive and negative impact on the students. *International Journal on Recent and Innovation Trends in Computing and Communication*, 4(1), 281-285. <http://surl.li/gmmlk>
- Ruliene, L. N., & Namsaraev, S. D. (2016). The shape of a transforming educational process in post-industrial society. *SHS Web of Conferences EDP Sciences*, 29, 01059. <https://doi.org/10.1051/shsconf/20162901059>
- Sahoo, K. C., Pati, S., Negi, S., Patel, K., Mishra, B. K., & Palo, S. K. (2021). Challenges in

- maternal and child health services delivery and access during pandemics or public health disasters in low-and middle-income countries: A systematic review. *Healthcare (Switzerland)*, 9(7), 828. <https://doi.org/10.3390/healthcare9070828>
- Saidin, A. Z., Mohamed, K. S., Adzmi, Z. H., & Azhar, N. W. (2015). Q-ibadah mobile application: A usability pilot testing. *Jurnal Teknologi*, 77(29), 49-54. <https://doi.org/10.11113/jt.v77.6812>
- Satyawati, S. A., & Sari, D. E. (2018). Efektivitas penggunaan e-learning quipper school sebagai media pembelajaran berbasis digital. *Seminar Nasional Pendidikan III*, 49-57. <http://hdl.handle.net/11617/10215>
- Septiani, D. (2020). Penggunaan aplikasi zenius education untuk meningkatkan hasil belajar pesesrta didik pada materi sistem peredaran darah. <https://repository.unpas.ac.id/50043/>
- Setiawati, M., & Rahmadani, N. S. (2019). Aplikasi pendidikan online “Ruang Guru” sebagai peningkatan minat belajar generasi milenial dalam menyikapi perkembangan revolusi industri 4.0. *Bahastra: Jurnal Pendidikan Bahasa dan Sastra Indonesia*, 3(2), 241-246. <https://jurnal.uisu.ac.id/index.php/Bahastra/article/view/3179>
- Sohibun, S., & Ade, F. Y. (2017). Pengembangan media pembelajaran berbasis virtual class berbantuan google drive. *Tadris: Jurnal Keguruan dan Ilmu Tarbiyah*, 2(2), 121-129. <https://doi.org/10.24042/tadris.v2i2.2177>
- Tanriverdi, O., & Ozcan, M. (2020). Questions asked through two examples of dilemmas of publication ethics in the process of COVID-19. *Medical Oncology*, 37(10), 1-2. <https://doi.org/10.1007/s12032-020-01411-8>
- Toran, M., Sak, R., Xu, Y., Şahin-Sak, İ. T., & Yu, Y. (2021). Parents and children during the COVID-19 quarantine process: Experiences from Turkey and China. *Journal of Early Childhood Research*, 19(1), 21-39. <https://doi.org/10.1177/1476718X20977583>
- Tyler, C. J., Debevec, T., & Cheung, S. S. (2021). Keeping environmental physiology education up and running during the COVID-19 pandemic. *Advances in Physiology Education*, 45(3), 538-540. <https://doi.org/10.1152/advan.00070.2021>
- Verlenden, J. V., Pampati, S., Rasberry, C. N., Liddon, N., Hertz, M., Kilmer, G., Viox, M. H., Lee, S., Cramer, N. K., Barrios, L. C., & Ethier, K. A. (2021). Association of children’s mode of school instruction with child and parent experiences and well-being during the COVID-19 pandemic - COVID experiences survey, United States, October

- 8–November 13, 2020. *MMWR Recommendations and Reports*, 70(11), 369.
<https://doi.org/10.15585/mmwr.mm7011a1>
- Wang, G., Zhang, Y., Zhao, J., Zhang, J., & Jiang, F. (2020). Mitigate the effects of home confinement on children during the COVID-19 outbreak. *The Lancet*, 395(10228), 945-947. [https://doi.org/10.1016/S0140-6736\(20\)30547-X](https://doi.org/10.1016/S0140-6736(20)30547-X)
- Wolf, C., Wolf, S., Weiss, M., & Nino, G. (2018). Children's environmental health in the digital era: Understanding early screen exposure as a preventable risk factor for obesity and sleep disorders. *Children*, 5(2), 31. <https://doi.org/10.3390/children5020031>
- Ying, Y., Ruomei, F., & Susilo, P. M. (2020). Smart word application design for learning Mandarin-Indonesia vocabulary. *Journal of Physics: Conference Series*, 1477(4), 042015. <https://doi.org/10.1088/1742-6596/1477/4/042015>
- Younie, S., Leask, M., & Hudson, B. (2020). Policy options and consequences: What has to be done, when and with whom. *Education System Design*, 253-264.
<https://doi.org/10.4324/9780429261190-26>
- Zakariah, M., Khan, M. K., Tayan, O., & Salah, K. (2017). Digital quran computing: Review, classification, and trend analysis. *Arabian Journal for Science and Engineering*, 42, 3077-3102. <https://doi.org/10.1007/s13369-017-2415-4>