

# Parents' Lived Experiences of Virtual Education Consequences in First-Grade Elementary Students in COVID-19 Era: A Qualitative Study

Masome Keyvani<sup>1</sup>,  Behnam Talebi\*,  Yosef Adib<sup>2</sup>

<sup>1</sup>Department of Educational Sciences, Islamic Azad University, Tabriz Branch, Tabriz, Iran

<sup>2</sup>Department of Educational Sciences, Tabriz University, Tabriz, Iran

## ABSTRACT

**Background:** Virtual education has become essential during the COVID-19 pandemic, covering all subjects and educational levels. It is still widely used in cases where face-to-face education is not possible. This study aimed to investigate the parents' lived experiences of virtual education's consequences on first-grade elementary students.

**Methods:** This study is based on a qualitative approach and a descriptive phenomenology method to examine the lived experiences of parents during the 2021-2022 academic year. The lived experiences of 14 parents of first-grade students in Urmia City, Iran, have been investigated using one focus group interview and 15 individual semi-structured interviews. The selection of the participants was made using purposeful sampling methods of intensity cases and snowball. The research data's reliability was assessed according to Lincoln and Guba's criteria, with review methods conducted by 10 participating individuals and four non-participating experts. The data analysis was done based on Colaizzi's strategy.

**Results:** Upon conducting the data analysis, 56 codes with two main concepts concerning the consequences of virtual education and seven main themes were found. The educational concepts were included (Teacher: 9 codes, classroom: 13 codes, educational evaluation: 5 codes, and supplementary activities: 6 codes), and contextual concepts included (Individual: 9 codes, Family: 9 codes, and Social: 5 codes).

**Conclusion:** Considering the implications of virtual education during the COVID-19 pandemic underscores the emerging challenges that educational institutions are confronting. This emphasizes the critical need for well-designed programs that address the resultant consequences and challenges effectively.

**Keywords:** Consequences, Education, Distance, First Grade Elementary, COVID-19, Parents, Phenomenology

\*Corresponding author:

Behnam Talebi,  
Department of Educational  
Sciences, Islamic Azad  
University, Tabriz Branch,  
Tabriz, Iran

**Email:** [btalebi1972@gmail.com](mailto:btalebi1972@gmail.com)

Please cite this paper as:

Keyvani M, Talebi B,  
Adib Y. Parents' Lived  
Experiences of Virtual  
Education Consequences  
in First-Grade Elementary  
Students in COVID-19 Era: A  
Qualitative Study. *Interdiscip  
J Virtual Learn Med Sci.*  
2024;15(3):289-299. doi:10.30476/  
ijvlms.2024.98309.1218.

Received: 09-03-2023

Revised: 18-07-2024

Accepted: 29-07-2024

## Introduction

In the second decade of the 21st century, amidst the peak of human technological and medical advancements, the COVID-19 pandemic transformed the life of the modern world, and closing schools as a public health warning was implemented to reduce social contact and prevent the epidemic in different countries (1). At the peak of the COVID-19 pandemic, more than 1.6 billion students in more than 190 countries experienced school closures. Another tsunami has flowed in countries in the form of online education in the last two years (2). There is little evidence to suggest that virtual learning environments are effective for elementary school children (3).

Research findings have shown that virtual education, along with traditional in-person education, enhances learners' engagement by providing diversity, involving them in the learning process, sustaining focus and attention, and opening up new ways to present complex ideas (4, 5). Learning in the virtual space, due to its unique features, can address various challenges in education, including time management, cost efficiency, enhanced motivation, improved communication with learners, collaborative opportunities in multimedia settings, and interaction through electronic conferences (6). Also, researchers have reported increased awareness, accessibility, usefulness, high speed of publication, reproducibility, low cost, personal health protection, community security, and online access as benefits of virtual learning (7).

On the other hand, virtual education is criticized for the lack of human and emotional interactions, face-to-face communication, and social communication skills in the classroom (8). Some researchers have cited insufficient technical skills and infrastructure, along with the absence of a strategic plan, as educational barriers. They have also noted social isolation and lack of immediate feedback as disadvantages (9).

Despite the fact that virtual education has positive consequences in controlled environments (10), in challenging conditions, it

has led to inequality in learning and deprivation among children, along with a significant number of children discontinuing their education (11). Many researchers have reported the negative consequences of closing schools or using virtual education and its adverse effects on learning progress, social interaction, and physical and mental health (12-15), with the most damaging effects on students in primary schools (16). Researchers have found that virtual education during the COVID-19 pandemic has led to restrictions on social gatherings, limited access to mental health services, increased anxiety, depression, and decreased psychological well-being (17). Furthermore, additional consequences encompass stress and emotional effects (18). Reports have indicated a rise in inequality in children's health and education outcomes (19-23).

Schools of various grades in Iran were closed due to the outbreak of the epidemic, and suddenly, teaching and learning activities shifted to virtual networks, television, and others. However, many students faced difficulties as there was no specific structure for virtual education, and a high percentage of students did not have access to the necessary virtual networks. In total, more than 15 million students have been out of school for 750 days during the pandemic. Among these, more than 8 million students have been studying in primary school, and more than one million and 400 thousand individuals have been studying in the first grade of primary school.

There have been few studies on the consequences of school closures and the shift to online education worldwide during the COVID-19 pandemic. This issue particularly affects first-grade students who are at the stage of developing concrete thinking and require visual stimuli for learning. Furthermore, they may encounter difficulties in learning concepts, language, reading, and writing. Therefore, this study aimed to explore the experiences of parents whose children were in the first grade of elementary school regarding the consequences of virtual education during the COVID-19 pandemic.

## Methods

### *Study Design and Setting*

The research was carried out employing a qualitative approach and a descriptive phenomenological method during the 2021-2022 academic year in Urmia City, Iran.

### *Participants and Sampling*

The sampling method was purposeful involving intensity cases and snowball based on the inclusion criteria. In order to participate in the study, participants needed to meet the following criteria:

a) having at least one other child who has already passed the first grade of elementary school in a traditional school setting, b) Parents, which included individuals responsible for supporting the student's education at home, such as grandparents, older siblings, and others. c) Having at least a high school education, d) Students were not supposed to seek assistance from any other alternative educational methods, such as a private tutor or virtual education. The sampling was conducted until data saturation was reached, resulting in 14 participants.

### *Tools/Instruments*

Data collection tools included 14 semi-structured interviews and a focus group of six parents. The duration of the interviews spanned from 35 to 50 minutes and continued until data saturation. Some sample interview questions are as follows:

How did you see virtual education in the first grade of elementary school for your child? What positive outcomes have you experienced in the virtual education of the first grade of elementary school? Please describe your experience with your child's education. What are the negative consequences of your child's virtual education in the first grade of elementary school? Explain your personal experiences and how.

**Rigor** - To enhance the validity and reliability of the research, we accurately recorded and transcribed the audio without any interference and made efforts to preserve the integrity of the content. Following this,

the interview texts were extracted, and initial themes were identified and sent to the participants for confirmation. The final data analysis was then carried out. Additionally, to ensure the credibility of the content analysis, coding, theme extraction, and peer agreement from three individuals were employed.

### *Data Collection*

The interviews were conducted face-to-face and in compliance with the protective protocols during the COVID-19 pandemic. A focus group was conducted online using Adobe Connect software to complete the interviews. Prior to the interviews and focus group, the participants were provided with the questions via email to facilitate their preparation.

### *Data Analysis*

The lived experiences of 14 parents regarding the consequences of virtual education in the first grade of elementary school during the COVID-19 Pandemic have been analyzed using inductive content analysis based on Colaizzi's analysis method. In order to verify the validity of the research, trustworthiness criteria based on Lincoln and Guba criteria, including credibility, transferability, dependability and confirmability, have been used (24). At this stage, we benefited from a review of 11 participants and feedback from three non-participating research experts before presenting the final findings. Finally, the data were analyzed at three levels: open codes, axillary codes (themes), and selective codes (concepts).

**Ethics** - The research has taken into account all ethical considerations, including confidentiality and informed consent of the participants, and has duly considered potential benefits to the participants. All the ethical considerations were approved by the research committee of the Islamic Azad University of Tabrizi, Iran.

## Results

### *Demographic Characteristics*

In the research, there were three individuals

**Table 1:** Demographic characteristics of the interviewee (Parents) in the research

Variable	Category	Frequency	Percent
Gender	Male	0	0
	Female	14	100
Employment Status	Full-time	9	64.28
	Part-time	1	7.14
	Unemployed	4	28.58
Age (Years)	35	1	7.14
	37	3	21.43
	38	4	28.58
	40	2	14.28
	41	2	14.28
	42	2	14.28
Educational status	Bachelor	3	21.43
	Master	11	78.57

with master's degrees and 11 with bachelor's degrees. There were nine full-time workers, one part-time worker, and four housewives. All the participating parents were mothers between 35 and 42 years old (Table 1).

#### *Findings Extracted from Content Analysis*

The results of inductive contents analysis and coding the texts (extracted from interview notes with participants) included 56 open codes, two main concepts (educational and contextual consequences) and seven themes (Teacher, classroom, educational evaluation and supplementary activities, individual, family and social) (Table 2).

An example of expressions extracted from parents' lived experiences is given below:

#### *Consequences in Teachers*

The participants highlighted the crucial role of teachers in virtual education. They noted that the teachers' activities in virtual education are more valuable compared to face-to-face education. However, there was a consensus that teachers in virtual education are more active but less effective than those in face-to-face education.

Participant No. 2 stated:

“Teaching in the first grade of elementary school is really difficult and even skilled and qualified teachers have problems and... the words that the teacher said to the parents... showed that it is a difficult job”.

#### *Consequences in the Classroom*

Participant No. 12 stated:

“Face-to-face training in the form of a weekly schedule of classes...virtual training... didn't have a specific schedule and due to network outages...the classes were irregular”.

#### *Individual Consequences*

Different participants have expressed mostly negative consequences of virtual education in the first grade of elementary school with various expressions.

Participant No. 1 stated:

“Both of my children...became disinterested and didn't feel much responsibility like in a private school...in the first grade, this interest didn't develop and it decreased”.

#### *Family Consequences*

The participants emphasized the greater sensitivity of families and the involvement of most families with their children's education in virtual education. They asserted the need for heightened supervision of their children's education, and families utilized diverse methods for monitoring, or encountered the challenges arising from this deficiency in varying manners.

Participant No. 6 stated:

“We had to go to work and... it was a problem”.

#### *Consequences in Educational Evaluation*

Most of the interviewed parents pointed



**Table 2:** Content analysis of parents' lived experiences of the consequences of virtual education during the COVID-19 Pandemic

Concepts	Themes	Open Codes
Educational	Teachers	1. Ambiguity of teaching role in the classroom 2. Spending more time compared to face-to-face education 3. Inefficiency of teachers due to the special characteristics of the first-grade 4. Problems caused by the lack of technological skills 5. Availability of the teacher 6. Need for more energy and excitement 7. Higher stress and tolerance threshold 8. More repetition to ensure learning 9. Necessity of higher professional motivation
	Classroom	10. Irregularity of class formation 11. Decline of academic motivation 12. Inadequate teaching at the scheduled time 13. Changing educational materials from textbooks to ineffective audio or written files 14. Not paying attention to individual differences 15. Ineffective communication leading to misunderstandings 16. Increased classroom distractions 17. Inability to focus on students' mental readiness 18. Decreased meaningful interactions between teachers and students 19. Accessing class materials and references easily 20. Advantages of flexible locations for attending virtual classes 21. Diverse educational resources 22. Making excuses to avoid answering questions during lessons
	Educational evaluation	23. Incomplete and inconsistent evaluation of educational goals 24. Learning assessment limitations 25. Exam Anxiety 26. Insufficient evidence to identify students' strengths and weaknesses 27. Unreal evaluation scores
	Supplementary activities	28. Lack of attention to mental health issues 29. Neglect of sports and health 30. Lack of group activities 31. Lack of tournaments with peers 32. Elimination of games with classmates 33. Partial elimination of public events
	Individual	34. Improving individual effort for practical tasks 35. Lack of effective social interactions among students 36. Isolation of students 37. Distraction of students in writing assignments at home 38. Students' reluctance 39. Disregard for warnings from educators and guardians 40. Variations in self-confidence 41. Reduction of society's acceptability and legality 42. Web surfing
	Contextual	Family
Social		52. Increase in educational inequality 53. Widening of the social gap between the rich and the poor 54. Diminishment of the professional status of education 55. Proliferation of virtual social networks 56. Rise in the use of VPN software

out the lack of compliance with educational evaluation standards and expressed concerns that virtual education has blurred the standards of separation between students.

Participant No. 8 stated:

*“Mothers or fathers themselves are guilty of unfairly giving marks to their children, and...”*

### *Consequences in Supplementary Educational Activities*

Parents believed that school is not only for learning to read and write; students should also learn various social manners and skills. Based on the lived experiences of parents, topics such as art, sports, activities related to health and well-being, group and cultural activities, class trips, etc., have been neglected.

Participant No. 9 stated:

*“The regular morning routine has advantages, particularly for elementary students”*.

### *Social Consequences*

Parents believed that the abrupt shift to virtual education exposed numerous previously concealed social disparities.

Participant No. 13 stated:

*When some children filled out the form for smart devices, they listed various types of smart devices. However, some students only mentioned their fathers' phones and were upset.*

## **Discussion**

The phenomenological research revealed 56 codes and seven themes, with one theme standing out as the main theme. The main theme included *“virtual education in the first grade of elementary school has direct positive and negative consequences on teachers, family, society, students, educational activities and supplementary educational activities”*.

The results of this research regarding the main themes are consistent with the results of recent research, and in some themes, previously published research was not

available to the researchers. Researchers have reported various consequences, including both positive and negative impacts. Casimir and colleagues (25) have reported insufficient education, student absenteeism, low teaching performance, and inequality. Al Lily and colleagues (26) have reported an increase in the disparities in learning, health, well-being, and inequality. Marchant and colleagues (19) have noted a decrease in learning outcomes. Haelermans and colleagues (12), as well as Fisher and colleagues (27), have documented increased levels of anxiety, depression, and a decline in academic performance. Ashta and colleagues (20) have highlighted student concerns and the challenges of virtual education. Similarly, Fattahiyan and colleagues (28), Sadeghi and colleagues (29), Sarkar and colleagues (16), and Beauregard and colleagues (30) have also reported similar findings. It is reasonable to assume that elementary school children received the least meaningful education outside of what was provided by their parents or other educators at home (3). The reports on school reopening prioritized the return of elementary school children to in-person classrooms (31) due to the negative impact of school absences on academic achievement. Long-term closures can lead to lower test scores and other adverse effects on student learning. Also, physical activity in face-to-face education improves the physical fitness of students (32). Closing schools has wider and unwanted consequences in the areas of child development, health, social and economic consequences (15). School closures cause damage at the family and community level through the loss of parental productivity, income, and childcare responsibilities (14). A study conducted in the UK revealed that over half of teachers have reported that the learning gap between disadvantaged pupils and their peers has widened. The trend of increasing educational disparities has been widely observed on an international scale, encompassing countries across Europe and the United States (21). Such disparities have also been reported in other countries (12). In

fact, although the use of new information and communication technologies in the field of virtual education can lead to positive results (10), its optimal use requires the provision of infrastructure in different dimensions (33). In other words, as the use of virtual infrastructure increases, the need for skill-specific training becomes more intense (29). This issue has its difficulties and consequences in the first grade of elementary school, who are still not able to understand abstract content and need visual education. Additionally, they are in the early stages of concept learning, language learning, and reading and writing letters. Al Lily and colleagues have reported the consequences of remote education implementation, including problems caused by stress, anxiety, depression, and family violence, by addressing mandatory virtual education in schools during the COVID-19 pandemic (26). The study by Haelermans and colleagues underscores the importance of implementing interventions that specifically focus on supporting vulnerable students (12).

In a European study conducted across 13 countries, it was found that students considered online learning to be less effective than face-to-face learning. Additionally, a study in South Africa revealed that students who were engaged in online learning felt isolated and sometimes lacked confidence, particularly those who were new to this type of learning (34). The interaction between learning elements is a crucial aspect of the learning process. In the virtual learning environment, interaction involves active two-way communication between participants to manipulate, reflect, exchange, and share content. This interaction occurs simultaneously and asynchronously to achieve the desired learning goals. There are three types of interaction in learning: learner-learner interaction, learner-content interaction, and teacher-learner interaction. Virtual education should prioritize creating and maintaining these interactions.

When considering these findings, it is important to recognize that the negative impact stems from two main factors. Firstly,

the absence of a reliable virtual education infrastructure, including hardware, software, technical and telecommunication equipment, as well as internet access and information and communication technology skills, can significantly disrupt the education process. Secondly, the nature of the first grade and the developmental characteristics of students also play a role in these consequences.

The nature of the first grade is important because the students of this grade enter a new community called school for the first time, which pursues important goals such as language learning and acquisition of reading, writing, and math skills along with other goals of the educational system, and many students of this level do not even have the history of attending preschool education. It is important to note the positive outcomes of virtual education, which can be attributed to its key characteristics. These include flexibility in terms of time and location, increased parental involvement, and access to a diverse range of educational resources. When paired effectively with traditional in-person education, virtual education can enhance overall educational effectiveness.

### *Limitations and Suggestions*

The primary limitation of this study is the constraints of the research method. Accordingly, it is essential to consider the cultural, social, and economic characteristics of the sample being studied in terms of the transferability of data to other societies. Based on the research findings, it is suggested that schools develop appropriate programs to address the deficiencies resulting from virtual education. This will enable them to mitigate the adverse effects of the COVID-19 pandemic on education. Upon establishment of the required infrastructure, it is recommended that virtual education be integrated into a blended format with face-to-face education for suitable courses and situations. Despite the abundance of studies in the field of virtual education, there were numerous research gaps in unplanned and sudden virtual education during the COVID-19 pandemic. Future research could focus on

how to address the negative consequences of this type of education and identify suitable programs to compensate for these negative consequences or enhance the positive ones.

### Conclusion

Any changes in education require careful planning and the proper provision of infrastructure, methods, and tools. The educational institution is best suited for a partial-gradual and systemic policy model rather than sudden and unsystematic changes in order to witness effectiveness. Due to the lack of suitable infrastructure for virtual education, the closure of schools and the shift to virtual learning has resulted in greater damages compared to face-to-face education. This issue necessitates further research.

### Acknowledgements

The authors thank all the participants who helped in the present research process.

### Authors' Contribution

All authors (MK, BT, and YA) contributed equally to data collection, analysis, and article preparation. The final manuscript was reviewed and accepted by all the authors.

### Conflict of Interest

The authors have no conflict of interest.

### Ethical Considerations

This article is taken from the Ph.D. dissertation with the ethical approval code IR.IAU.TABRIZ.REC.1401.168 from the research committee of Islamic Azad University of Tabrizi, Iran. All ethical considerations, including confidentiality and informed consent of the research participants, as well as the potential benefits for the participants, have been taken into account.

### Funding/Support

This research has not benefited from any financial support.

### Availability of Data and Materials

The data substantiating the outcomes of

this study is available from the corresponding author upon making a feasible request.

### References

- 1 Hekmati, N. A Qualitative Study on Teaching Visual Texts by Using Reciprocal Teaching Approach in a Virtual General English Course During the COVID-19 Pandemic. *Interdiscip J Virtual Learn Med Sci*, 2022;13(1):15-22. doi: 10.30476/ijvlms.2022.91127.1094.
- 2 Garg, R., Singh, A. Were the Online Training Courses Imparted to Consultants in the COVID Era Really Effective? *Interdiscip J Virtual Learn Med Sci*, 2022; 13(1): 66-67. doi: 10.30476/ijvlms.2022.94510.1136.
- 3 Christakis DA, Van Cleve W, Zimmerman FJ. Estimation of US Children's Educational Attainment and Years of Life Lost Associated with Primary School Closures During the Coronavirus Disease 2019 Pandemic. *JAMA Netw Open*. 2020;3(11): e2028786. doi: 10.1001/jamanetworkopen.2020.28786. PubMed PMID: 33180132; PubMed Central PMCID: PMC7662136.
- 4 Bergdahl N. Engagement and disengagement in online learning. *Comput Educ*. 2022;1(188):104561. doi: 10.1016/j.compedu.2022.104561.
- 5 Yumeng Z, Hongfeng Z, Johnny F.I. L. Cultural Diversity Influences Students' Online Learning Engagement with Online Technologies—A Narrative Analysis. *Proceedings of the 8th International Conference on Education and Training Technologies*. 2022 April 16-18; Macau, China. New York: Association for Computing Machinery; 2022. doi: 10.1145/3535756.3535758.
- 6 Mirzaei E, Alinejad M, Daneshmand B. Explaining Faculty Members' Perceptions of Virtual Learning Based on Various Types of Educational Interactions During the Coronavirus Disease 2019 Outbreak: A Qualitative Content Analysis. *SDME*. 2022;19(1):31-43. doi: 10.22062/sdme.2021.196681.1083.



- 7 Nosratabadi M, Masoudiyekta L, Majidipour N, Sarabi N. The Effect of Virtual Education on Fear Caused by COVID-19 Pandemic in Pregnant Women: A Quasi-Experimental Study. *Journal of Midwifery and Reproductive Health*. 2022;10(2):3248-57. doi: 10.22038/jmrh.2022.62694.1784.
- 8 Najafi H. Comparing of the effect of Blended and Traditional Teaching on Learning. *Research in Medical Education*. 2019;11(2):54-63. [in Persian]. doi: 10.29252/rme.11.2.54.
- 9 Sadeghzadeh N, Rahimi S, Ahmadzadeh J, Parizad N. Satisfaction Rate with Virtual Education Programs during COVID-19 Pandemic and Its Relationship with Their Academic Performance among Nursing Students. *Journal of Health and Care*. 2022;24(1):40-51. [in Persian], doi: 10.52547/jhc.24.1.40.
- 10 Zamani, F., Talebi, B. Comparing Students' Academic Engagement Based on How Much They Use Social Networks in Learning English. *Interdiscip J Virtual Learn Med Sci*, 2018; 9(2): e65552. doi: 10.5812/ijvlms.65552.
- 11 Panakaje N, Rahiman HU, Rabbani MR, Kulal A, Pandavarakallu MT, Irfana S. COVID-19 and its impact on educational environment in India. *Environ Sci Pollut Res Int*. 2022;29(19):27788-27804. doi:10.1007/s11356-021-15306-2. PubMed PMID: 34981385; PubMed Central PMCID: PMC8723802.
- 12 Haelermans C, Korthals R, Jacobs M, and colleagues Sharp increase in inequality in education in times of the COVID-19-pandemic. *PLOS One*. 2022;17(2): e0261114. doi:10.1371/journal.pone.0261114. PubMed PMID: 35108273; PubMed Central PMCID: PMC8809564.
- 13 Hoffman JA, Miller EA. Addressing the Consequences of School Closure Due to COVID-19 on Children's Physical and Mental Well-Being. *World Med Health Policy*. 2020;12(3):300-310. doi:10.1002/wmh3.365. PubMed PMID: 32904951; PubMed Central PMCID: PMC7461306.
- 14 Van Lancker W, Parolin Z. COVID-19, School Closures, and Child Poverty: A Social Crisis in the Making. *Lancet Public Health*. 2020;5(5):e243-e244. doi:10.1016/S2468-2667(20)30084-0. PubMed PMID: 32275858; PubMed Central PMCID: PMC7141480.
- 15 Armitage R, Nellums LB. Considering inequalities in the school closure response to COVID-19. *Lancet Glob Health*. 2020;8(5): e644. doi:10.1016/S2214-109X(20)30116-9. PubMed PMID: 32222161; PubMed Central PMCID: PMC7195275.
- 16 Sarkar B, Islam N, Das P, Abdul M, Manoj Da, Manoj De, Ranjan R. Digital learning and the lopsidedness of the education in government and private primary schools during the COVID-19 pandemic in West Bengal, India. *E-Learning and Digital Media*. 2022; 20(5). doi:10.1177/20427530221117327.
- 17 Lappalainen P, Lappalainen R, Keinonen K, Kaipainen K, Puolakanaho A, Muotka J, Kiuru N. In the shadow of COVID-19: A randomized controlled online ACT trial promoting adolescent psychological flexibility and self-compassion. *J Contextual Behav Sci*. 2023; 27:34-44. doi: 10.1016/j.jcbs.2022.12.001. PubMed PMID: 36514308; PubMed Central PMCID: PMC9731646.
- 18 Iosif L, Țâncu AMC, Didilescu AC, Imre M, Pițuru SM, Ionescu E, Jinga V. Perceptions and Expectations of Academic Staff in Bucharest towards the COVID-19 Pandemic Impact on Dental Education. *Int J Environ Res Public Health*. 2023;20(3):1782. doi: 10.3390/ijerph20031782. PubMed PMID: 36767150; PubMed Central PMCID: PMC9914722.
- 19 Marchant E, Todd C, James M, Crick T, Dwyer R, Brophy S. Primary school staff perspectives of school closures due to COVID-19, experiences of schools reopening and recommendations for the future: A qualitative survey in Wales. *PLOS One*. 2021;16(12):e0260396. doi:

- 10.1371/journal.pone.0260396. PubMed PMID: 34855789; PubMed Central PMCID: PMC8639092.
- 20 Ashta JK, Weingart R, Gazmararian JA. The Impact of COVID-19 on Education Experiences of High School Students in Semi-Rural Georgia. *J Sch Health*. 2023;93(4):257-265. doi: 10.1111/josh.13269. PubMed PMID: 36414540; PubMed Central PMCID: PMC10006293.
- 21 Bonal, Xavier, and Sheila González. The Impact of Lockdown on the Learning Gap: Family and School Divisions in Times of Crisis. *Int Rev Educ*. 2020;66(5-6):635-655. doi: 10.1007/s11159-020-09860-z. PubMed PMID: 32952208; PubMed Central PMCID: PMC7490481.
- 22 Oostdam R, van Diepen M, Zijlstra B, Fukkink R. Effects of the COVID-19 school lockdowns on language and math performance of students in elementary schools: implications for educational practice and reducing inequality. *European Journal of Psychology of Education*. 2023; 39:129–149. doi: 10.1007/s10212-023-00679-4.
- 23 Wright S, Park YS, Saadé A. Insights from a Catholic school's transition to distance learning during COVID-19. *Open Learning: The Journal of Open, Distance and e-Learning*. 2024;39(1):37-51. doi: 10.1080/02680513.2022.2152667.
- 24 Pashayee, J., Talebi, B., Daneshvar, Z. School Human Resource Development's Policymaking Model: A Grounded Theory Study. *School Administration*. 2021;9(4):148-161. doi: 10.34785/J010.2021.002.
- 25 Casimir OA, Blake SC, Klosky JV, Gazmararian JA. Adaptations to the Learning Environment for Elementary School Children in Georgia during the COVID-19 Pandemic. *J Child Fam Stud*. 2023;32:1585–1598. doi: 10.1007/s10826-022-02531-7. PubMed PMID: 36714375; PubMed Central PMCID: PMC9872751.
- 26 Al Lily AE, Ismail AF, Abunasser FM, Alhajhoj Alqahtani RH. Distance education as a response to pandemics: Coronavirus and Arab culture. *Technol Soc*. 2020;63:101317. doi: 10.1016/j.techsoc.2020.101317. PubMed PMID: 32836570; PubMed Central PMCID: PMC7387275.
- 27 Fisher HH, Hawkins GT, Hertz M, Sliwa S, Beresovsky V. Student and School Characteristics Associated With COVID-19-Related Learning Decline Among Middle and High School Students in K-12 Schools. *J Sch Health*. 2022;92(11):1027-1039. doi: 10.1111/josh.13243. PubMed PMID: 35989509; PubMed Central PMCID: PMC9538687.
- 28 Fattahiyan M, Okati-Aliabad H, Seraji M. Psychopathology in Virtual Education for Primary School Students in the COVID-19 Pandemic: A Qualitative Analysis. *J Educ Health Promot*. 2022;11:289. doi: 10.4103/jehp.jehp\_1537\_21. PubMed PMID: 36439005; PubMed Central PMCID: PMC9683463.
- 29 Sadeghi M, Niazazari K, Taghvaie Yazdi M. The Impact of Virtual Approach Substructures on Competency-Based Education towards Fourth Generation Universities. *Educational Development of Judishapur*. 2019;10(4):363-375. [In Persian] doi: 10.22118/edc.2019.99757.
- 30 Beauregard PL, Connolly M, Haeck C, Molnár TL. Primary School Reopenings and Parental Work. *Can J Econ*. 2022;55(Suppl 1):248-281. doi:10.1111/caje.12566. PubMed PMID: 38607861; PubMed Central PMCID: PMC9111663.
- 31 Schweingruber, H., Dibner, K., Bond, E. C., eds. *Reopening K-12 Schools During the COVID-19 Pandemic: Prioritizing Health, Equity, and Communities*. Washington, DC: National Academies Press (US); 2020. doi:10.17226/25858. PubMed PMID: 33231959.
- 32 Neil-Sztramko SE, Caldwell H, Dobbins M. School-based physical activity programs for promoting physical activity and fitness in children and adolescents aged 6 to 18. *Cochrane Database Syst Rev*. 2021;23(9):CD007651. doi: 10.1002/14651858.CD007651.pub3.

- PubMed PMID: 34555181; PubMed Central PMCID: PMC8459921.
- 33 Zamani F, Talebi B. Explaining the effects of language learners' use of virtual social networks on their academic engagement with PLS approach. *Technology of Education Journal (TEJ)* 2021;16(1):49-58. [in Persian]. doi: 10.22061/tej.2021.6136.2339.
- 34 Tosto SA, Alyahya J, Espinoza V, McCarthy K, Tcherni-Buzzeo M. Online learning in the wake of the COVID-19 pandemic: Mixed methods analysis of student views by demographic group. *Soc Sci Humanit Open*. 2023;8(1):100598. doi: 10.1016/j.ssaho.2023.100598. PubMed PMID: 37366390; PubMed Central PMCID: PMC10284669.