



## Research article

## Barriers to distance learning during the COVID-19 outbreak: A qualitative review from parents' perspective



Sawsan Abuhammad\*

Dept. of Maternal and Child Health, Jordan University of Science and Technology, Irbid, 22110, Jordan

## ARTICLE INFO

## Keywords:

Education  
 Psychology  
 COVID-19  
 Facebook  
 Parents  
 School students  
 Distance learning

## ABSTRACT

**Aims:** The goal of this study was to review the content posted in available local Jordanian Facebook groups to explore the perceptions of parents regarding the challenges of distance learning faced by their children during the coronavirus outbreak in Jordan.

**Method:** The Facebook search engine was used to identify local Facebook groups. The search keywords included distance learning, parents, and Jordan. Several faculty professors reviewed the posts and discussion flow on distance learning posted in Facebook groups from March 15<sup>th</sup> to April 25<sup>th</sup> 2020.

**Results:** The study identified a total of 248 posts and threads which categorized thematically for further analysis. The selected threads and answers revealed four underlying themes: (1) personal barriers (2) technical barriers (3) logistical barriers and (4) financial barriers.

**Conclusion:** Overall, parents were not limited to their daily routines during the pandemic. They performed the responsibility of helping school in teaching students. Many parents faced many types of barriers in their endeavors to assist their children with distance learning during the pandemic.

## 1. Introduction

On March 12th, 2020, the World Health Organization (WHO) declared that the outbreak of coronavirus disease (COVID-19), which is caused by the SARS-CoV-2 virus and which was first identified in Wuhan, China, had reached the level of a global pandemic (WHO, 2020). Less than one week later, on March 18th, 2020, UNESCO reported that an estimated 107 nations had closed all schools due to the pandemic (United Nations Educational, Scientific and Cultural Organization, 2020). These school closures have affected approximately 862 million school students, which represents almost half of the school-age population worldwide (Jackson et al., 2016; Abuhammad et al., 2020).

The decision to close schools is generally based on the scientific data that during influenza virus pandemics lower social association among students is necessary to interrupt the spread of the virus (Abuhammad, 2020b). The closing of schools can have a positive impact on mortality by reducing the transmission and incidence of a disease (Abuhammad, 2020a; Anderson et al., 2020; Wenham et al., 2020). However, it can also have a negative impact by reducing the available healthcare workforce to care for the ill because they cannot secure childcare to enable them to go to work.

According to research on school students, the mean value of daily social association when schools are closed is almost half that of when schools are open. On the other hand, there is an increase in contact between school students and parents and other adults when schools are closed (Eames et al., 2010). The evidence on the effectiveness of closing schools and other measures for social distancing almost entirely comes from research undertaken on this measure during influenza outbreaks, and it has been shown in such outbreaks that school students drive virus transmission (Brooks et al., 2020; Hens et al., 2009). It has been shown that closing schools leads to significant reductions in the peak rate of infection compared to the rate of cumulative infection, and based on modeling research, such an approach can have a significant impact on the reproduction of infection rate if the transmission rate of the virus is low (Nafisah et al., 2018). However, the effectiveness of such an approach is unclear in the case of coronavirus outbreaks that have occurred for instance, as a result of severe acute respiratory syndrome (SARS) or Middle East respiratory syndrome (MERS), and more recently and particularly, COVID-19, which seem to have a different transmission dynamic (Bayham and Fenichel, 2020; Shen et al., 2020).

The strategy employed to close schools differs by country and the decision may be made at a national, regional, or local level. In addition,

\* Corresponding author.

E-mail address: [Shabuhammad@just.edu.jo](mailto:Shabuhammad@just.edu.jo).

there may be reactive closures of schools because of the personal choice of numerous parents to withdraw their children from school in reaction to the rate of student infection (Shen et al., 2020).

According to Hannum et al. (2008), distance learning is a platform that many schools use to meet the learning needs of students. It has also been determined that distance learning is an effective approach at the college, university, and high school level parents' perspective (Hannum et al., 2008; Irvin et al., 2010). When school students are required to remain at home, as is the case during the current COVID-19 pandemic, parents not only need good parenting skills, they also need a good level of education. In addition to monitoring the temperament and the performance of their children, parents should attempt to satisfy their children's educational needs as effectively as possible.

One way in which this additional parenting role is being supported is through giving children and parents access to distance learning materials and techniques via the internet. However, while there has been a tremendous increase in the use of online distance learning at all learning stages in various regions, there are still some barriers to distance learning. These barriers can hamper or completely prevent the utilization of distance learning by some groups. It is therefore important to understand the perceptions of parents regarding the barriers to distance learning because doing so will enable government and education decision-makers to create solutions to remove the barriers that most affect parents and prevent them from supporting their children to attain a good education.

It is envisaged that the outcomes of this research, which focuses on the perceptions of parents with school-age children in the Jordanian context, will add to the education knowledge base on how to provide education to school-age children during the outbreak of COVID-19. It is hoped that administrators of schools will be able to use the information presented in this study to enhance the learning experience and performance of students. In addition, an understanding of the barriers encountered by parents could help school administrators and school boards to develop an efficient environment for distance learning during the COVID-19 outbreak and other crises.

## 2. Method

### 2.1. Sample

Although Facebook is quite an unreliable platform, it is a significant source of information because of its ease of use and large number of users (Cole-Lewis et al., 2016). Thus this study analyzed the available Facebook groups to explore the perceptions of parents about distance learning during the COVID-19 outbreak in Jordan.

Many researchers from Faculty of Nursing reviewed the posts and discussion flow on distance learning in the available nine Facebook groups from March 15<sup>th</sup> to April 25<sup>th</sup> 2020. The aim of the review was to identify the topics that explained the perceptions of parents about their roles and responsibilities during the COVID-19 outbreak in the country. This review process produced a total of 288 posts and threads from all nine Facebook groups.

### 2.2. Analysis

A general qualitative method was employed in order to gain a better understanding of the reports of parents regarding their subjective perceptions, attitudes, and convictions about barriers to distance learning during the outbreak of COVID-19. The researchers of this work analyzed all the posts (written words) and comments to understand the data as fully as possible. Most of the posts and comments were in the Arabic language. For purposes of reporting, these were translated from Arabic into English and then back-translated to ensure the preservation of the original content and meaning.

All the posts and comments were coded and de-identified before review. They were then entered into NVivo 11 software (QSR International,

USA). The researcher of this work performed a content analysis on the material. A consensus approach was used to resolve any discrepancies that arose between the two researchers. A limited amount of editing of the posts and comments was done to eliminate meaningless content (e.g., repeated words, stutters, etc.) and to correct grammar. An ellipsis was used to show where such content had been removed. Square brackets were used within the quotations to add words that the participants had omitted to make the sentences grammatical or to substitute sensitive information such as ID number or names. The Institutional Review Board at Jordan University of Science and Technology reviewed and approved the research protocol employed in this study.

## 3. Results

The nine local parents or child Facebook groups consisted of eight private groups and one public group and between them contained a total of 1,775,469 subjects. Table 1 presents more details on the groups. The qualitative review of the content revealed four underlying themes regarding the perceptions of parents about their roles and responsibilities in relation to distance learning among their children during the COVID-19 virus outbreak. These four themes were personal barriers, technical barriers, logistical barriers, and financial barriers. Table 2 provides some examples of the types of posts and comments that fell under these four themes as well as the subthemes that emerged from each of the main themes.

### 3.1. Personal barriers

Many of the posts and threads (144, 50 %) discussed the personal barriers that existed in relation to distance learning activities before and during the outbreak of COVID-19. This theme encompassed four subthemes: (1) lack of training and support (52, 36%), (2) lack of technical expertise (48, 33%), (3) inadequate communication with professionals (24, 17%), and (4) lack of qualifications (20, 14%). Based on the discussions, the parents seemed to have many personal barriers that they felt affected the standard and quality of their children's distance learning experience. It was clear that the parents' own lack of training in how to handle distance learning techniques and materials and the absence of trained personnel who could assist them were key concerns. Moreover, not all parents were able to handle the technology required for distance learning, which prevented them from enabling its efficient use at home. Finally, the parents raised this issue of their own qualifications. Parents with lower levels of education felt that they were not able to assist their children in studying specific subjects and in handling the necessary technology. See Table 2.

### 3.2. Technical barriers

Numerous threads from parents (58, 20%) concentrated on technical barriers, from which two subthemes emerged: (1) insufficient investment and maintenance (38, 66%) and (2) insufficient connectivity (20, 34%). The latter issue was experienced a lot during the period of the COVID-19 outbreak covered by the study. Many of the parents' posts discussed the frequency with which their children were disconnected from the internet and could not proceed with their assignments, classes, or exams. One post concentrated on the quality of the internet speed, which was not suitable for distance learning lessons that used a lot of video content. This point led to an extensive discussion thread, and overall, parents showed a negative attitude toward this barrier during the COVID-19 outbreak. See Table 2.

### 3.3. Logistical barriers

Some parents also reported encountering logistical barriers (37, 13%). These were categorized into three subthemes: (1) difficulties in using distance learning and lack of student preparation (19, 52%), (2)

**Table 1.** A summary of local Facebook groups.

Group	Active since	Number of members	Status	link
Jordanian women	October 2015	100,122	Private	<a href="https://www.facebook.com/groups/641022569311336">https://www.facebook.com/groups/641022569311336</a>
Nashmiat	December 2016	12234	Private	<a href="https://www.facebook.com/groups/276014446129896/">https://www.facebook.com/groups/276014446129896/</a>
Nashmiat Amman	January 2019	11232	Private	<a href="https://www.facebook.com/groups/486456812037879/">https://www.facebook.com/groups/486456812037879/</a>
Women group	May 2015	162188	Private	<a href="https://www.facebook.com/groups/1019457581436861/">https://www.facebook.com/groups/1019457581436861/</a>
Best Women group	April 2015	81243	Private	<a href="https://www.facebook.com/groups/455695901254933/">https://www.facebook.com/groups/455695901254933/</a>
Mother and Child	March 2013	160254	Private	<a href="https://www.facebook.com/pg/%D8%A3%D9%85%D9%87%D8%A7%D8%AA-%D9%88-%D8%A3%D8%B7%D9%81%D8%A7%D9%84-%D9%85%D8%AC%D8%AA%D9%85%D8%B9-%D8%B3%D9%8A%D8%AF%D8%A7%D8%AA-374042839372370/about/?ref=page_internal">https://www.facebook.com/pg/%D8%A3%D9%85%D9%87%D8%A7%D8%AA-%D9%88-%D8%A3%D8%B7%D9%81%D8%A7%D9%84-%D9%85%D8%AC%D8%AA%D9%85%D8%B9-%D8%B3%D9%8A%D8%AF%D8%A7%D8%AA-374042839372370/about/?ref=page_internal</a>
Women group	April 2013	12432323	Private	<a href="https://www.facebook.com/pg/MjtmSydat/about/?ref=page_internal">https://www.facebook.com/pg/MjtmSydat/about/?ref=page_internal</a>
Jordan Parents Meeting	May 2016	4964	Private	<a href="https://www.facebook.com/profile.php?id=10001112967243&amp;fref=search&amp;_tn_=%2Cd%2CP-R&amp;eid=ARDK76f0xFIAUn2zc8U0sovZ0d7SqX5HBk68lSNfPkid1FxlUny_YzGAUGD9FL3rt-sCSx1AydIwPn">https://www.facebook.com/profile.php?id=10001112967243&amp;fref=search&amp;_tn_=%2Cd%2CP-R&amp;eid=ARDK76f0xFIAUn2zc8U0sovZ0d7SqX5HBk68lSNfPkid1FxlUny_YzGAUGD9FL3rt-sCSx1AydIwPn</a>
JO Distance learning	April 2010	24576	Public	<a href="https://www.facebook.com/pg/JoDistancelearning/about/?ref=page_internal">https://www.facebook.com/pg/JoDistancelearning/about/?ref=page_internal</a>

**Table 2.** Summary of themes generated from analysis of facebook posts on distance learning during COVID-19 outbreak in Jordan.

Overarching themes	Subthemes	Selected posts
Personal barriers	Lack of training and support	<p>“Not having training to use distance learning is my main concern.”</p> <p>“It was a hard day, I spent more than 12 h to navigate how this technology works.”</p> <p>“If I have any problem with server, who could help me.”</p> <p>“I am not a computer engineer.”</p>
	Lack of technical expertise	<p>“If you don't have a basic knowledge of how to navigate a computer, it will hold you back immensely.”</p> <p>“There is a lot of technology and software for online classes. What if you don't have enough knowledge for that?”</p>
	Inadequate communication	<p>“I and my child missed the interaction. The face-to-face feedback from the instructor. If he [my child] had a question, it doesn't work like that online.”</p> <p>“It is easy to misunderstand if you use distance learning.”</p> <p>“Schools and/or online providers need to communicate better about distance education.”</p>
	Lack of qualifications	<p>“I am not qualified to teach younger age. I was just need to check what he learned in the school. Now, I explained the lesson to them from scratch.”</p> <p>“The teacher used a different style to the one I could use.”</p>
Technical barriers	Insufficient investment and maintenance	<p>“They need to invest more to make it easier to use.”</p> <p>“The server stopped for many hours.”</p>
	Poor connectivity	<p>“Many people work at the same time, my child got disconnected several times during his exam.”</p>
Logistical barriers	Difficulties in using distance learning and lack of student preparation	<p>“This started suddenly, we are not ready.”</p> <p>“We are not ready to take this large step, Ahmad used my phone to play games with his friend not to study.”</p>
	Dissatisfaction with distance learning modality	<p>“I am dissatisfied, many teachers do not cover all the material and not focus enough on important points in the class.”</p> <p>“It really is disheartening for me to have to say this, but unfortunately, I am not happy with this experience.”</p> <p>“Distance learning is not as effective as the traditional way of teaching classes.”</p>
	Inability of distance learning to meet students' needs	<p>“I do not think my child is getting 70 percent of what they should.”</p> <p>“My child benefits more from a face-to-face lecture than this virtual one.”</p>
Financial barriers	Inability to buy technology	<p>“I do not have the finances to have laptops and to have computers and internet access for my school students.”</p>
	Inability to pay for internet services	<p>“It is so much more expensive to use distance learning.”</p>

dissatisfaction with the distance learning modality (11, 30%), and (3) inability of distance learning to meet students' needs (7, 18%). Many of the posts made by parents indicated that the introduction of distance

learning was not fair, and that their children were not prepared to use distance learning as the main medium of education. In a study, some said that their children lacked computer proficiency and the prerequisite

skills to achieve good results through distance teaching (Irvin et al., 2010). Some parents were dissatisfied with distance learning and felt that this kind of learning should not substitute for face-to-face education despite the benefits of distance learning, such as saving time and effort for school students. In addition, the posts of parents regarding this kind of learning revealed that they felt that it did not meet the educational needs of school students, and they dissatisfied with their children level. Some parents also expressed the view that the distance learning method of education lacks flexibility in meeting the needs of a child because if a child does not understand something, the child cannot get clarification at the time when it is needed. See Table 2.

### 3.4. Financial barriers

Some parents' posts (49, 17%) raised the issue of financial barriers, which were subdivided into two subthemes: (1) inability to buy technology (31, 63%) and (2) inability to pay for internet services (18, 27%). Comments covered the difficulty of paying for expensive laptops and related technology that are required for effective distance learning. Moreover, some posts drew attention to the fact that the internet is not free and data usage is not unlimited. In other words, parents need to pay for internet and if their children must spend more time on the internet for studying purposes this will cost them more money. Many lectures and assignments in a range of subjects require a good-quality internet connection or a large amount of data usage, which both add to the cost of distance learning online. See Table 2.

## 4. Discussion

This study aimed to describe and clarify the perceptions of parents about the barriers to distance learning during the coronavirus crisis in Jordan. It is important to understand these perceptions to enable government and decision-makers to develop solutions to address the barriers that affect parents. From the analysis, it was clear that many barriers were encountered by parents from personal and financial barriers to technical and logistical issues.

As regards personal barriers, our study found that personal barriers constituted the most apparent type of barrier. These barriers included lack of training and support, lack of technical expertise, inadequate communication, and lack of qualifications. Indeed, lack of training in the use of distance learning was one of the most often reported barriers. Other studies have also recognized the presence of similar of these barriers in post-secondary agricultural learning (Mbukusa et al., 2017). Our finding is also consistent with Irvin et al., (2010), who identified the lack of trained professionals to be a common barrier in distance learning in the United State. Also, many parents in our study mentioned the lack of technical help. The absence of personnel to manage distance learning has also been identified as a barrier to distance teaching in other studies (Irvin et al., 2010). Parents should have understanding to technology (Bukhkalov et al., 2018). Technology can parents if students are unable to participate in their distance learning lessons because of the unreliability of the home internet and technical devices that are available (Knouse, 2010). The secret of successful distance learning is dependable technology to ensure the online delivery of distance learning classes using engaging distance learning techniques (Bukhkalov et al., 2018). Parents and their school-age children appreciate that technology can improve their experience of distance learning (Menchaca and Bekele, 2008). However, both school students and members of staff in another study identified communication as a barrier to effective distance learning. The only chance for the students to communicate with the distance learning instructor is during the allocated learning time. Facilitators of distance learning have realized that communicating via e-mail can frustrate students because they cannot receive timely assistance or responses via this mode of communication (Ouma et al., 2013). Some students have not engaged in lessons due to a lack of communication with the distance learning instructor. It is important to note that more than 30% of the

participating students reported that a lack of personnel to help them acted as barrier to their distance learning. Some students and parents have reported a lack of the required technical expertise; which has also been identified as barrier in post-secondary environments Renes and Strange (2011).

Our study also found that technical barriers (insufficient investment and maintenance and insufficient connectivity) also impeded distance learning, which is also in line with past research (Astri, 2017. Mousavi et al., 2011), who found that inability to maintain new technology by the school provider prevented students from benefiting from distance learning efficiently or impeded them from benefiting from distance learning.

Furthermore, in our study, some posts revealed that there were associations between logistical barriers and distance learning as well. These barriers included difficulties in using distance learning and lack of student preparation, dissatisfaction with the distance learning modality, and inability of distance learning to meet students' needs (Lloyd et al., 2012). The logistical barriers were the only barriers that were found to have an association with completing a course. Nevertheless, the lack of home technology was related to the minimal utilization of and benefits derived from distance learning.

Furthermore, our analysis revealed an apparent pattern in the issues raised across the various barriers, especially the logistical barriers (i.e., it is difficult to implement distance learning), and personal barriers (i.e., lack of training to facilitate distance learning), which was associated with the subject course, format of delivery, preparation of the student, satisfaction with distance learning, and the extent to which distance learning met the needs of the school student.

Lastly, our study found that financing distance learning is another barrier faced by parents because buying technology for distance learning lessons and the cost of doing the lessons via the internet can result in financial challenges. This is in line with a previous study that showed that parents using distance learning classes, those not utilizing distance learning, and those who used distance learning in the past all identified funding as a barrier to distance learning (Hannum et al., 2008). Parents lack computers, access to the internet, and absence of technology expert (Barter, 2008; Irvin et al., 2010; Williams et al., 2010). Furthermore, the need to buy web cameras for video conferencing adds another burden to the cost of distance learning for remote parents (Hager, 2011).

Other posts on the barriers to participating in distance learning also revealed concerns about money and accessing equipment and technology. The costs related to owning a computer, accessing the internet, and other equipment may be seen as a barrier, particularly if the family has insufficient income to cover such expenses (Adams and Hannum, 2008; Roberts and Hannum, 2018). Nevertheless, the perception of the advantages of distance learning also included funding and accessing technology and instrument. Monetary help may be used in buying equipment for technology and support distance learning. Access to suitable technology is a key issue because, according to Owens et al. (2009), the absence of technology makes it difficult for remote students to complete distance learning classes.

### 4.1. Implications for practice and recommendations

This study shed a light on parents' perceptions of the barriers experienced by their children when following distance learning programs of study at home during the COVID-19 outbreak in Jordan. To remove these barriers some modifications are required, including finding ways to develop relationships with other school students and teachers online and implementing support strategies for lower-achieving students. Removing these barriers may enhance the perceptions that parents and their children have in respect of the distance learning modality. This COVID-19 lesson will force a generation of new laws, regulations, platforms and solutions from the government and community for future cases. This lesson will cause using available free tools to transit the traditional school lessons to the online education for future after ending of COVID-19

outbreak to be a part from future teaching and learning Preparing parents and their children to online learning will need additional work for preventing plagiarism and cheating. Moreover, this study was a preliminary qualitative study on perception of parents on distance learning during COVID-19 and other depth approaches such as focusing group and unstructured interviews in futures studies could be used to describe parents perceptions regarding this important subject.

## 5. Conclusion

Overall, parents were not limited to their daily routines during the pandemic. They performed the responsibility of helping school in teaching students. Many parents faced many types of barriers in their endeavors to assist their children with distance learning during the pandemic. According to posts and comments made on Facebook, these barriers were personal, technical, logistical, and financial. To remove these barriers some modifications are required, including finding ways to develop relationships with other school students and teachers online and implementing support strategies for lower-achieving students.

## Declarations

### Author contribution statement

S. Abuhammad: Conceived and designed the experiments; Performed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

### Funding statement

This work was supported by The Foundation for the National Institutes of Health (1R25TW010026-01).

### Declaration of interests statement

The authors declare no conflict of interest.

### Additional information

No additional information is available for this paper.

## References

- Abuhammad, S., 2020a. Parents' knowledge and attitude towards COVID-19 in children: a Jordanian Study. *Int. J. Clin. Pract.*, e13671
- Abuhammad, S., 2020b. Violence against women during COVID-19 outbreak. *Int. J. Clin. Pract.*, e13671
- Abuhammad, S., Khabour, O.F., Alzoubi, K.H., 2020. COVID-19 contact-tracing technology: acceptability and ethical issues of use. *Patient Prefer. Adherence* 14, 1639–1647.
- Adams, J., Hannum, E., 2008. Beyond cost : rural perspectives on barriers to education. In: *Creating Wealth and Poverty in Postsocialist China*. Stanford University Press, Palo Alto, California, USA.
- Anderson, R.M., Heesterbeek, H., Klinkenberg, D., Hollingsworth, T.D., 2020. How will country-based mitigation measures influence the course of the COVID-19 epidemic? *Lancet* 395 (10228), 931–934.
- Astri, L.Y., 2017. Barrier factors that influence satisfaction of e-learning: a literature study. *Adv. Sci. Lett.* 23 (4), 3767–3771.
- Bayham, J., Fenichel, E.P., 2020. Impact of school closures for COVID-19 on the US health-care workforce and net mortality: a modelling study. *Lancet Public Health* 5 (5), 271–278.
- Barter, B., 2008. Learning about rural education: graduate students' perspective. In: *Symposium* (pp. 11-20).
- Brooks, S.K., Smith, L.E., Webster, R.K., Weston, D., Woodland, L., Hall, I., Rubin, G.J., 2020. The impact of unplanned school closure on children's social contact: rapid evidence review. *Euro Surveill.* 25 (13), 2000188.
- Bukhkalov, S.I., Ageicheva, A., Komarova, O., 2018. Distance learning main trends (Doctoral dissertation, HTY" XIII").
- Cole-Lewis, H., Perotte, A., Galica, K., Dreyer, L., Griffith, C., Schwarz, M., Augustson, E., 2016. Social network behavior and engagement within a smoking cessation Facebook page. *J. Med. Internet Res.* 18 (8), 205–210.
- Eames, K.T., Tilston, N.L., White, P.J., Adams, E., Edmunds, W.J., 2010. The impact of illness and the impact of school closure on social contact patterns. *Health Technol. Assess.* 14 (34), 267–312.
- Hager, P.J., 2011. Concepts and Definitions of Lifelong Learning. *The Oxford Handbook of Lifelong Learning*, 1–26. London, UK.
- Hannum, W.H., Irvin, M.J., Lei, P.W., Farmer, T.W., 2008. Effectiveness of using learner-centered principles on student retention in distance education courses in rural schools. *Dist. Educ.* 29 (3), 211–229.
- Hens, N., Ayele, G.M., Goeyvaerts, N., Aerts, M., Mossong, J., Edmunds, J.W., Beutels, P., 2009. Estimating the impact of school closure on social mixing behaviour and the transmission of close contact infections in nine European countries. *BMC Infect. Dis.* 9 (1), 187.
- Irvin, M.J., Hannum, W.H., de la Varre, C., Farmer, T.W., 2010. Barriers to distance education in rural schools. *Q. Rev. Dist. Educ.* 11 (2), 73–78.
- Jackson, C., Vynnycky, E., Mangtani, P., 2016. The relationship between school holidays and transmission of influenza in England and Wales. *Am. J. Epidemiol.* 184 (9), 644–651.
- Knouse, S.B., 2010. What's wrong with distance learning-and what we can do about it. *Compet. Forum* 8 (1), 129–136.
- Lloyd, S.A., Byrne, M.M., McCoy, T.S., 2012. Faculty-perceived barriers of online education. *J. Online Learn. Teach.* 8 (1), 72–79.
- Mbukusa, N.R., Kibuule, D., Lates, J., 2017. Overcoming barriers of isolation in distance learning: building a collaborative community in learning. *Adv. Soc. Sci. Res. J.* 4 (17), 34–42.
- Menchaca, M.P., Bekele, T.A., 2008. Learner and instructor identified success factors in distance education. *Dist. Educ.* 29 (3), 231–252.
- Mousavi, M., Mohammadzadeh Nasrabadi, M., Pezeshki-Rad, G.R., 2011. Identifying and analyzing barrier and inhibitor factors for implementation and development of E-learning in payame noor university. *Quart. J. Res. Plan. Higher Edu.* 17 (1), 137–154.
- Nafisah, S.B., Alamery, A.H., Al Nafesa, A., Aleid, B., Brazanji, N.A., 2018. School closure during novel influenza: a systematic review. *J. Infect. Pub. Health* 11 (5), 657–661.
- Owens, J., Hardcastle, L., Richardson, B., 2009. Learning from a distance: the experience of remote students. *J. Distance Educ.* 23 (3), 53–74.
- Ouma, G.O., Awuor, F.M., Kyambo, B., 2013. E-Learning readiness in public secondary schools in Kenya. *Eur. J. Open Distance E-Learn.* 16 (2), 97–110.
- Renes, S.L., Strange, A.T., 2011. Using technology to enhance higher education. *Innovat. High. Educ.* 36 (3), 203–213.
- Roberts, P., Hannum, E., 2018. Education and equity in rural China: a critical introduction for the rural education field. *Aus. Int. J. Rural Edu.* 28 (2), 1–8.
- Shen, K., Yang, Y., Wang, T., Zhao, D., Jiang, Y., Jin, R., Shang, Y., 2020. Diagnosis, treatment, and prevention of 2019 novel coronavirus infection in children: experts' consensus statement. *World J. Pediatr.* 13 (3), 1–9.
- United Nations Educational, Scientific and Cultural Organization, 2020. COVID-19 Educational Disruption and Response. <https://en.unesco.org/themes/education-eme rgencies/coronavirus-school-closures>. (Accessed 19 March 2020).
- Williams, P., Sheridan, S., 2010. Conditions for collaborative learning and constructive competition in school. *Educ. Res.* 52 (4), 335–350.
- Wenham, C., Smith, J., Morgan, R., 2020. COVID-19: the gendered impacts of the outbreak. *Lancet* 395 (10227), 846–848.
- World Health Organization, 2020. WHO Director-General's Opening Remarks at the Mission Briefing on COVID-19–12 March 2020, p. 2020.