

# Impact of COVID-19 on the Learning Processes of Typically Developing and Special Needs Students in Pakistan

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**Abstract:** Due to the quick spread of the COVID-19 disease, education institutions across the world had to be closed, and there was an overnight shift to online distance teaching and learning. Majority of the teachers in Pakistan are used to the traditional way of face-to-face teaching and online teaching came as a challenge. Like most of the countries, Pakistan too was not prepared for the sudden shift from face-to-face to online distance learning. Although COVID-19 impacts almost everyone in society, students with disabilities, both physical and mental, are one of the most vulnerable groups due to the restrictions in their activities. Furthermore, studying online devoid of the human touch has induced mental stress among these students. Hence this study focused on the online teaching and learning processes in Pakistan, its challenges and modern pedagogies for emergency situations particularly mental health for students with and without learning disabilities, teachers. The study includes some suggestions for the target group to cope with the sudden catastrophe of COVID-19.

**Keywords:** COVID-19, Learning Disability, Mental-health, Modern Pedagogies, Online Learning.

## 1. Introduction

On February 11, 2020, the World Health Organization gave the name COVID-19 to a disease caused by a novel coronavirus SARS-CoV-2 (severe acute respiratory syndrome coronavirus 2) which started in Wuhan China in December 2019 and spread to the entire world (Vergnaud, 2020). Pakistan reported its first case on February 26, 2020 when a student was tested positive after he arrived from Iran (Wikipedia, 2020). Upon his arrival of four months, Pakistan was reported with 69 cases of C-19, 496 cases with 1483 deaths while 25,271 people have recovered. After the partial lifting of the total lockdown by the government during the holy month of Ramadan, it has spread further and the curve is still rising (Worldometer, 2020). The pandemic has been jeopardizing the workings of almost every organization, educational institutions, and education as a whole has been hit hard throughout the world. The study investigated the impact of COVID-19 on the learning processes of students at all levels. As such a pandemic has never happened in Pakistan, therefore, not much literature is available except for a few articles that had appeared in the local newspapers of Pakistan.

Pakistan, a country which is still struggling to stand on its own feet properly, this pandemic has made things worse for the nation, be it economic, political or concerning education. All educational institutions were closed by the government from March 13, 2020, initially for three weeks (Anadolu Agency, 2020). According to the DAWN newspaper of May 8, 2020, it was decided by the National Coordination Committee (NCC) to extend the closure of educational institutions in the country till July

15 and also to cancel all examinations to be conducted by the boards due to the spread of the coronavirus pandemic (DAWN, 2020).

## **1.1 Research Question**

This study focuses on the following research question:

1. What is the impact of Covid-19 on the learning processes of typically developing and special needs students in Pakistan?

## **2. Literature Review**

### **2.1 Impact of COVID-19 on the Learning Processes of Special Needs Students**

Students at all levels have been affected largely by the spread of COVID-19. To be isolated for months and coping up with the online learning system has become stressful. Under such circumstances students with disabilities are more vulnerable to the changing learning scenario (Zhang, et al., 2020). They are not only at a higher risk health wise but the risk to their education is also greater due to the inaccessibility to their course contents and also they miss their classroom environment (Zhang, et al., 2020).

### **2.2 Impact on Education**

Going to school is not just about having fun but it helps in increasing a child's ability to become socially active. Above all, it builds up their abilities and the child learns the essential skills which he uses in his daily life (Burgess & Sievertsen, 2020). If a child misses out even a day, he has a lot to catch up on in order to be at par with his peers. Currently, it is not about missing a few days but about missing months of face to face learning because the effects of the Coronavirus pandemic are now being felt in the world of education. In response to the C-19 outbreak, countries around the world ordered school closures to prevent the spread of the infection. The worldwide lockdown of educational institutions caused an unforeseen and inconsistent interruption in education where classroom learning, exams and other evaluations have taken a back seat, being cancelled permanently or being substituted by online alternatives. As of current data analyzed by UNESCO's global monitoring of school closures caused by C-19, approximately 900 million students are affected worldwide while 46,803,407 learners have been affected by the closure of educational institutions in Pakistan which include pre-primary, primary, secondary and tertiary levels of education (Education: From disruption to recovery, 2020).

The whole world has slowly come to terms with this necessary isolation and worldwide homeschooling has come into practice. The general idea here is that children are not at home to play but that they continue to study and learn at home. This parental teaching and home school idea at first seems plausible, effective and prone to success but while parents can guide a child while they learn at school, being the sole source of education to their children is a big burden to put upon parents even with ample online materials available. While homeschooling seems like a good option and generally viable, it appears to be improbable that it can substitute going to school especially if different factors are taken into account. There will probably be variations between families in the degree to which they can enable their kids to learn, the amount of accessible materials to teach the children, the aptitude of the parents themselves and the availability of online and other resources (Burgess & Sievertsen, 2020). Regardless, technological measures are being taken up worldwide in one way or another to bridge the inevitable disruption that students face due to school closure.

As far as the learning process of special needs students are concerned, it was found that they are more anxious about studying online than their non-disabled peers, particularly when it comes to graduating from one class to the next (Zhang, et al., 2020). The unexpected shift to online learning had a great impact on the students with learning disabilities (LD) especially the autistic students as their

routine and relationship with their teachers were suddenly disrupted (Toseeb, Asbury, Code, Fox, & Deniz, 2020). To educate a LD child at home is a daunting task for parents as compared to a non-LD one. The parents felt it more as they have to be with their LD child all the time and without the support which these kids usually have in schools (Asbury, Fox, Deniz, Code, & Toseeb, 2020). It can be extremely taxing for parents as no one is sure about the reopening of schools because the pandemic is not settling down in Pakistan. However, even if the schools do open, to maintain social distancing and following the other COVID adaptations will be challenging for the LD students.

Pakistan already exists in a harried state of education where multiple avenues of education exist in one society and there is a struggle to keep a large number of young people in school. The lockdown highlights existing problems and yet creates new ones for educational instruction in the country, not the least of which is a prediction that as partial shutdowns proceed; the dropout rate will further increase because more and more impoverished households will withhold children from school in favor of sending them off to work.

### **3. The Division of Digital Resources in Pakistan**

Pakistan is the fifth most populous country in the world but only a small section of its population have access to essential modern innovations like laptops and internet access because there exists a wide chasm in the population with a small percentage of people who have a higher income and are able to take advantage of technology that can guarantee educational instruction proceeds digitally during the pandemic lockdown. According to statistics in 2017, only 15.5% of the population in Pakistan have access to the internet (Pakistan: internet penetration rate 2017, 2020). This is in complete contrast to a huge percentage of the population who lives in poverty and exists on the periphery of modern technology.

The sudden shift to online distance classes has created scarcity in giving special education assistance to students with learning and other disabilities as their parents are not fully trained to become their resource. Moreover, there is a dearth of assistive technologies. This affects developments of children with learning disabilities like Down syndrome or Autism as well as children having any physical disability. The lives of these children need to have special attention worldwide as there are planning needs to be done to cater to the requirements of children with disabilities (Patel, 2020).

The beginning of the Covid-19 pandemic has prompted worldwide dependence on virtual education to help with the interference of educational progress in academic institutions. The government of Pakistan required educational institutions to remain closed until further notice. To allow students to proceed with their educational advancement, the Global response has been a reliance on virtual teaching and learning. Yet in Pakistan, children studying in rural areas or from impoverished backgrounds especially studying in government funded institutions do not have the technology required for virtual learning. This implies that the advancement of more than 47 million students studying in state funded schools will be in danger (Bajwa, 2020). This interruption in their education will have long lasting effects and will effectively compound the educational inequality that exists in the country, the impact of which will resonate long after the pandemic is over.

Educational instruction in Pakistan is at the mercy of hundreds of side issues including less public spending and uneven access to education across the country which is why virtual education has long been considered as an alternative to traditional education at the university level for impoverished populace in urban zones. Preceding the onset of the C-19 pandemic, with regards to globalization, online instructional platforms were in effect progressively being used to seek educational advancement in accordance with international commitments to reach educational development goals. The National Education Policy 2017-2025 further perceives virtual instruction as a way to prepare bigger portions of Pakistani youth with the aptitudes required to contend in a developing economy and along these lines creating and continuing national financial development. Regardless of this fact, Pakistan is in no shape to compete virtually in the educational field, where only 53% of the population use smartphones without an internet network. To a great extent because of poverty and destitution in the country, infrastructural

limitations and lack of access to ICT merchandise, internet connectivity is commonly restricted to students in the upper and middle socio-economic strata of society (Bajwa, 2020).

#### **4. Reimagining Education in Pakistan**

While physical learning has come to an absolute halt for both public and private schools, virtual learning has come to the fore for private schools catering to the upper and middle social strata that promptly started giving e-classes through free websites and applications like Skype, Zoom, Edmodo and Google Classroom. These online classes in the urban centers of Pakistan specifically limit the damage caused by disruption from the students' usual routine. For most of the educational institutions that come into this income category, it was nothing but a small strain. Most of these children have parents well versed in technology and have a high speed connection. While the online classes are not a total substitute for physical classes, they do make up for a portion of the academic loss with the added advantage that they are making children tech savvy. Students in these virtual classes speak with their instructors, enroll in assignments and figure out how to use email, websites and videoconferencing giving them a developmental edge. The disadvantage is the lack of social communication and face to face interaction, sports and extracurricular exercises which are as significant as academics. If factors like loss of social connection, children's poor capacity for attention, noise and distractions, poor internet connection and a lack of independent study skills are set aside then it can be said that these privileged few students of private educational institutions in the urban parts of the country have a key learning advantage than those who attend state funded institutions (COVID-19 and education: Unequal learning loss, 2020).

This unequal division of internet access and educational instruction has led the Pakistani government to launch a commonplace tool as a remedial measure for distance learning, namely using the humble television. After the government made the call for an educational shut down across the country, on April 14, 2020 the Federal Ministry of education with the state owned PTV launched Pakistan's first dedicated instruction channel "Teleschool," customized with academic content from kindergarten through secondary school with one hour of curriculum per class every day (COVID-19 and education: Unequal learning loss, 2020). The Government of Pakistan and the ministry of education worked rapidly to get Teleschool on air with a working committee of three hundred organizations, individuals, associations and companies who donated their content for the televised broadcast. The World Bank stepped in to help with the hourly expense that an educational program of this scale would incur. The hope in the long run is that Teleschool will continue even after the C-19 emergency and work as an approach to connect out of school children and unskilled adults. The state run channel PTV or Pakistan Television Network on which Teleschool airs covers 90% percent of Pakistan's regions with 63% of Pakistan's families having a TV unit (Naviwala, 2020). The Teleschool channel reflects the bigger issues that underscore the Pakistani education system created during the pandemic. According to educational specialists, the quality of the Teleschool channel is uneven with hits and misses with some content of better quality than can be found in a public school while other content being too fast paced for children of the relevant age and having incomprehensible programming (George, 2020).

#### **5. Impact of School Closure on Mental and Physical Health**

Although measures to substitute school learning and promoting a more digital platform are commendable during the pandemic, there are concerning factors involved relating to the mental and physical health of millions of students out of school. These relate to the fact that prolonged confinement of children inside the home due to the closure of schools might have mitigating negative side effects. There is evidence that suggests that when children are out of school for long periods of time, they are consistently less active and duller, use more digital devices causing them to be exposed to longer periods of screen time, have unpredictable and unhealthy sleep patterns and consume less healthy food bringing

about weight gain (Wang, Zhang, Zhao, Zhang, & Jiang, 2020). The negative consequences become significantly worse if this scenario is put into the context of a social lockdown where children are forbidden to go outside or interact with kids their own age. In Pakistan, where a significant portion of the population is afflicted with abject poverty and resides in simple dwellings, the effect is multiplied. Children in the country especially in the rural areas do not have the luxury of digital playtime and hence the loss there is even greater. The spread of the virus is significantly higher in the urban areas where a large percentage of children go to school. The loss of learning for these students is inevitable but there is also a huge psychological impact on these children in isolation. Stress-inducing agents like staying indoors for long periods of time, fear of viral infection, frustration, anxiety, boredom, insufficient knowledge, lack of interaction with friends and teachers, and family financial issues can have even more problematic and enduring effects on children.

The psychological impact of C-19 on children with disabilities, both physical and mental, has been found to be greater than the non-disabled children. Many of the modern technologies are not helpful for children with visual or hearing impairment. For children who are physically disabled, being completely isolated from the outside world and only learning through gadgets, become extremely challenging. Same can be said for the Autistic children as they need to be socially active but C-19 has restricted their social development (Patel, 2020).

## **6. Methodology**

The present qualitative study employs phenomenology as a method in gaining data. Largely the purposes of qualitative research are to attain an in-depth knowledge of how people make sense out of their lives, define the process instead of the result of the product, of meaning-making, and explain how people construe their experiences (Merriam, 2009). The targeted population of the study was elementary, secondary, and higher secondary heads of Karachi. Keeping in view of the phenomenological methods, five open-ended in-depth interviews were conducted with the school and college heads to investigate the online distance learning process of both during C-19.

The design of the study follows an interpretive phenomenological research paradigm. Interpretive research, which is where qualitative research is most often located, undertakes that reality is constructed socially. It means that there is no single, observable reality but there are multiple realities, or interpretations, of a single event (Merriam, 2009). According to Creswell (2007), in this world, individuals gain knowledge through the society in which they live and work. Their experiences are idiosyncratic. Due to the varied and multiple meanings, the researcher looks for the complexity of views. It can be said that they are not only imprinted on individuals but are fashioned through interaction with others.

Purposeful sampling method was adopted to ensure that the participants selected are best suited to investigate the learning processes during the pandemic. Sometimes the data analysis becomes overwhelming and exhaustive when the respondents are not screened properly. Therefore, a credential measuring method was applied to make sure that the participants are eligible for the present study (Fluid Survey University, 2013). All the participants were informed of the study in hand and explained the aims of the research. Also they were apprised of what the researcher was trying to investigate during the interviews. Moreover, all the five participants signed a consent letter to participate in the research. All the interviews were taken and recorded on Zoom and typed verbatim. The transcripts were later coded through Atlas-ti 8 software. For the sake of confidentiality their names as well as the names of their institutions are not mentioned.

After the completion of the interviews the transcripts were compared to the audio recordings in order to have complete accuracy. Thematic analysis was used as a technique. The data collected was coded and broader themes were developed. Themes such as Transformation in learning, mental-health, Technology, future of learning, learning disability and Gender Deprivation for Learning were developed.

## 7. Discussion

The havoc created by the C-19 pandemic all around the globe has left mankind in a state of uncertainty. The lock-downs, physical distancing and quarantine have given a blow to all the sectors. The economic statistics according to the IMF shows that the world's economy will be reduced by 3 percent and Pakistan's economy will see a negative 1.5 percent growth in the year 2020. It can be perceived that the worst is yet to be seen in the next two to three years (Ministry of Federal Education and Professional Training, 2020).

The pandemic has adversely affected education and its continuity across Pakistan. The closure of schools, colleges, universities and other professional institutions has directly affected nearly 40,000 students from pre-primary till higher secondary education. This can be vulnerable to the already weak education system with pressures stemming from both endogenous and exogenous factors (Ministry of Federal Education and Professional Training, 2020). However, the sudden shift from face to face to online distance learning has helped, if not to all, but mostly to the private and semi-government education institutions running all across the country. The Ministry of Education took immediate steps by airing online teaching sessions on national television especially to facilitate those who have limited access to the internet (DAWN, 2020).

The first participant, who is heading a renowned private school in Karachi, considers the closure of schools during the pandemic as a blessing in disguise for both the parents and the children. According to her, it seems that a reset button has been pressed. The time children are spending at home can be utilized for teaching them the values, morals and etiquettes which seem to diminish from the society. There is so much education out of the usual academic books. As far as the online learning programs are concerned, it is the children in remote areas who are at a loss. They are unable to attend their classes mostly because of network problems but also due to the unavailability of modern gadgets like computers or smartphones. However, according to her, children have the ability to come up to their required level within six months after resuming schools but the only missing part is human interaction. The teachers as well as the students are missing each other and their peers. They can become sad but they can try to have fun with the people they live with (Lyness, 2020).

The outbreak of COVID-19 has created an environment of uncertainty and anxiety around the globe. It has created a stressful situation for both the students and the teachers, as none knows how long the education institutions will remain closed. Students who are supposed to graduate this year might face a delay which in turn can make them more depressed (Sahu, 2020). Students with and without disabilities seem to be suffering more due to the current pandemic as they have less help and the teachers are also not trained enough to make them learn online (UNESCO, 2020).

The second participant, who is a master trainer and works on the emotional well-being of people, thinks the byproduct of this crisis is that the mental and emotional well-being of people have been taken up seriously at all levels. It is a fallacy to consider being positive all the time. It is beyond one's control not to be negative and depressed. However, there are certain ways of coping with stress. The students as well as the faculty and staff should be given training to work under stressful conditions. The pandemic has created self-awareness among masses as it will be helpful in understanding the post-covid world. It has led the education institutions to realize some of their false assumptions. It has made them understand the importance of skill-based learning as those who knew some skills have survived the economic meltdown.

The children with disabilities are facing more stress as compared to their non-disabled peers. It has been observed that parents of children with disabilities experience 44% more stress and 12% anxiety as compared to the stress and anxiety of their children which is 25% and 5% respectively during the days of the lock down (Asbury, Fox, Deniz, Code, & Toseeb, 2020).

The third participant, who is heading a renowned school chain in Karachi, talks about the gender deprivation for learning during C-19. Due to the dip in economic activities during the pandemic, many people, especially in Pakistan's rural areas, pull out their daughters from schools. For some the pandemic became an excuse as sending their daughters was already a burden to them. The reason being,

the old cliché that she will not be the one running the household. In a country where the thinking process involves a patriarchal mindset, the girls stand very little chance of progressing in normal days than to talk during the times of calamities like C-19.

The fourth and the fifth participants talked about the transformation to online distance classes especially with regard to students with learning disabilities. A country like Pakistan which is not as advanced when it comes to technology, taking classes on zoom, Microsoft teams or Google class within a span of a few days after the outbreak of Corona, is a huge transformation. Earlier the orthodox mind set of most of the schools have been observed to be shy of using the latest tools in their classroom pedagogy. The pandemic has led schools, colleges and universities to come up with programs and tools for online distance teaching. It would not be wrong to say that this shift to e-learning was bound to happen sooner or later, what corona did was to act as a catalyst and it expedited the process. The future of education does not lie within the four walls of an institution but it is the tech revolution. Although people were not ready for such a drastic change, what C-19 has done was to force them to accept change. Therefore, the need of the hour is to change the approach towards technology and to understand that it is not the only way to survive but to have a complete control of it.

It goes without saying that during the pandemic of C-19, the students who are most affected are the ones with learning disabilities. After the closure of schools in Pakistan with an overnight shift to e-learning, the LD students are in the most challenging situation. And not only them but their families are facing the same as they are not equipped with the resources needed to give their LD child an easy flow of learning. Learning itself is a huge burden for an LD child and taking a class on zoom has baffled them. They have been observed to be under great pressure which in turn affects their mental health.

## **8. Conclusion & Recommendations**

Pandemics like C-19 can encourage our motivation for embracing the modern and innovative communication technology and e-learning mechanisms (Dhawan, 2020). According to the World Economic Forum, C-19 has stressed how important digital connectivity is to businesses, governments and society. It has created a new sense of earnestness to the digital inclusion schema. Although the calamity has empowered hundreds of millions to join online, it has also intensified the digital divide for 47% of the world's population that remains unconnected. The post-COVID world will be more digital – demanding more connectivity, affordability and digital skills (World Economic Forum, 2020).

In order to have sustainable solutions to the problems these natural disasters can bring in a country like Pakistan which is still struggling to keep ends meet, we have to be more innovative and accept the changing scenario. Since the teachers are used to the traditional method of face-to-face teaching, they are hesitant in accepting the change. However, this crisis of the pandemic has left the teaching fraternity no other choice but to embrace the change of online distance teaching and learning. It will be, in the long run, beneficial for the education sector as it could bring some amazing innovations. At the same time, the fact that many students have either limited or no access to the online system of learning as they belong to areas which have connectivity problems. Additionally, their family background is below or at the poverty line, therefore, they lose out much of their academic work. It can further create the gap among different strata of society. Due to the sudden outbreak of the pandemic the world was not ready to cope with it. In Pakistan it took one to two months to get to the severity of the disease. Although the education institutions were the first to be closed but shifting to online became a cumbersome problem as no planning was done to cater to such an issue. This enabled the education sector of Pakistan to learn a lesson that there has to be a plan-B ready to encounter any unforeseen catastrophes. Today, the education sector in Pakistan is being forced to adapt to online distance learning by using either Zoom or Google Class or Microsoft teams.

It would not be wrong to say that children with disabilities both physical and mental are at a greater loss in terms of their academic development. Due to the lack of online resources and parents being not apt with the pedagogies to teach them, they feel helpless and more isolated. Parents are stressed out and feel that their children who are already behind their usual timings would suffer more.

However, it is surely the responsibility of the government to make sure that special needs children must be given equal importance and attention as that being given to the non-disabled children.

Moreover, this pandemic has also taught that students must possess certain specific skills like survival, critical thinking and problem-solving other than their usual academics. The curriculum needs to be designed in a manner to build resilience in order to certify and prioritize the manifestation of these skills. Not only are classes being conducted through the above software but there has been a proliferation of webinars and virtual conferences as well. Not only the education institutions but the business meetings are also conducted through Zoom or Microsoft teams. Therefore, the only way to fill the gap is through collaborations across institutions and boundaries which in turn depends upon the level at which people can master technology. In Pakistan a high level of preparations is required to adapt to the changing environment. An educator must keep five points in mind while conducting online classes: instruction, content, motivation, relationship and mental health (Martin, 2020). For the students to remain connected to their classes the online distance teaching and learning has to be engaging and interesting. For this, teachers need proper support from their education institution as well as from the government. The online distance teaching has exposed the redundant pedagogical techniques used by some of our teachers. To avoid this, ongoing quality management is required. Before implementing any e-learning tool, the management needs to thoroughly research its pros and cons. Additionally, the purpose and the context need to be clearly understood. When proper research and scrutiny is done then it should be made sure that no student is left behind due to connectivity, social status, ethnicity or location.

## 9. Co-author Contribution

My co-author has helped in the introduction section. We have no conflict of interest.

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## 11. References

- Anadolu Agency. (2020, June 2). Retrieved from <https://www.aa.com.tr/en/.../pakistan-closes-schools...coronavirus/1765276>
- Asbury, K., Fox, L., Deniz, E., Code, A., & Toseeb, U. (2020). How is COVID-19 affecting the mental health of children with Special Education Needs and Disabilities and Their Families? *Journal of Autism and Developmental Disorders*.
- Bajwa, W. H. (2020). *Hazoor Bajwa, W. (2020). Covid-19 Pandemic: Preventing an Emerging Educational Crisis in Pakistan* by . Retrieved from NORRAG: <https://www.norrag.org/covid-19-pandemic-preventing-an-emerging-educational-crisis-in-pakistan>
- Burgess, S., & Sievertsen, H. (2020). *The impact of COVID-19 on education*. VOX. Retrieved from CEPR Policy Portal: <https://voxeu.org/article/impact-covid-19-education>
- COVID-19 and education: Unequal learning loss. (2020). *COVID-19 and education: Unequal learning loss*. Retrieved from nation.com.pk: <https://nation.com.pk/01-May-2020/covid-19-and-education-unequal-learning-loss>
- DAWN. (2020, May 8). Retrieved from <https://www.dawn.com/news/1555424>
- DAWN. (2020, April 2). *Education Ministry*. Retrieved from DAWN:



- <https://www.dawn.com/news/1545696>
- Dhawan, S. (2020). Online Learning: A Panacea in the Time of COVID-19 Crisis. *Journal of Educational Technology*, 1-18.
- Education: From disruption to recovery. (2020). *Education: From disruption to recovery*. Retrieved from unesco.org: <https://en.unesco.org/covid19/educationresponse>
- Fluid Survey University. (2013, September 3). *Screening Questions*. Retrieved from FluidSurveysUniversity: <http://fluidsurveys.com/university/screening-questions/>
- George, S. (2020). *In the world's fifth most-populous country, distance learning is a single television channel*. Retrieved from [washingtonpost.com](https://www.washingtonpost.com/world/asia_pacific/pakistan-coronavirus-education-teleschool/2020/05/18/9ee159a8-8): [https://www.washingtonpost.com/world/asia\\_pacific/pakistan-coronavirus-education-teleschool/2020/05/18/9ee159a8-8](https://www.washingtonpost.com/world/asia_pacific/pakistan-coronavirus-education-teleschool/2020/05/18/9ee159a8-8)
- Lyness, D. (2020, July). *KidsHealth from Nemours*. Retrieved from Coronavirus: What Kids Can Do (for Kids) - Nemours KidsHealth: <https://kidshealth.org/en/kids/coronavirus-kids.html>
- Martin, A. (2020). *How to optimise online learning in the age of Coronavirus*. Researchgate Publications.
- Merriam, S. B. (2009). *Qualitative Research. A Guide to Design AND Implementation*. San Francisco: Jossey-Bass.
- Ministry of Federal Education and Professional Training. (2020, May). *Prevention Web*. Retrieved from Pakistan national education response and resilience plan (K-12): <https://www.preventionweb.net/go/71812>
- Ministry of Federal Education and Professional Training, G. o. (2020, May). *PreventionWeb*. Retrieved from Pakistan National Education Response and Resilience Plan (K-12) for COVID-19: <https://www.preventionweb.net/go/71812>
- Naviwala, N. (2020). *How 'Teleschool' Can Revolutionize Pakistan's Education System*. Retrieved from <https://www.usip.org/blog/2020/04/how-teleschool-can-revolutionize-pakistans-education-system>
- Pakistan: internet penetration rate 2017. (2020). *Pakistan: internet penetration rate 2017*. Retrieved from Statista: <https://www.statista.com/statistics/765487/internet-penetration-rate-pakistan/>
- Patel, K. (2020). Mental health implications of COVID-19 on children with disabilities. *Elsevier Public Health Emergency Collection*.
- Sahu, P. (2020). Closure of universities due to Coronavirus Disease 2019 (COVID-19): impact on education and mental health of students and academic staff. *Cereus*.
- Toseeb, U., Asbury, K., Code, A., Fox, L., & Deniz, E. (2020). *Supporting families with children with Special Educational Needs and Disabilities during COVID-19*. Ithaca: Cornell University.
- UNESCO. (2020). *Empowering students with disabilities during the COVID-19 crisis*. Bangkok: United Nations Educational, Scientific and Cultural Organization.
- Vergnaud, D. S. (2020, March). Retrieved from [goodrx.com](https://www.goodrx.com/blog/what-does-covid-19-mean-who-named-it/): <https://www.goodrx.com/blog/what-does-covid-19-mean-who-named-it/>
- 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. doi: 10.1016/s0140-6736(20)30547-x.
- Wikipedia. (2020, May 31). Retrieved from Wikipedia: [https://en.wikipedia.org/wiki/COVID-19\\_pandemic\\_in\\_Pakistan](https://en.wikipedia.org/wiki/COVID-19_pandemic_in_Pakistan)
- World Economic Forum. (2020). *Accelerating Digital Inclusion in the New Normal*. World Economic Forum.
- Worldometer. (2020, May 31). Retrieved from Worldometer: <https://www.worldometers.info/coronavirus/country/pakistan/>
- Zhang, H., Nurius, P., Sefidgar, Y., Morris, M., Balasubramanian, S., Brown, J., & Mankoff, J. (2020, May 11). *Cornell University*. Retrieved from Google Scholar: <https://arxiv.org/abs/2005.0543>