

CASE STUDY

Education technology in the COVID-19 response in Pakistan

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List of acronyms

AEPAM	Academy of Education Planning and Management
ASER	Annual Status of Education Report
ASPIRE	(Emergency) Actions to Strengthen Performance for Inclusive and Responsive Education
DLP	Distance Learning Program
GPE NERRP	Pakistan National Education Response and Resilience Plan
INEE	Interagency Network for Education in Emergencies
KG	Kindergarten
MOFEPT	Ministry of Federal Education and Professional Training
NCHD	National Commission on Human Development
NEAS	National Education Assessment System
NFE	Non-formal education
OOSC	Out of school children
PREP	Pandemic Response Effectiveness in Pakistan (PREP) Project
PTA	Pakistan Telecommunication Authority
PTV	Pakistan Television Corporation
RRREP ESCP	Response, recovery, and resilience in education project — Environmental and Social Commitment Plan
SED	School Education Department (Punjab)
SELD	School Education & Literacy Department (Sindh)
SEP RRREP	Stakeholder engagement plan — (COVID-19) response, recovery, and resilience in education project
SEP	Stakeholder engagement plan
UNICEF	United Nations International Children's Fund
WB	World Bank

Key messages

1. The COVID-19 pandemic impacted around 50 million students in Pakistan upon closure of all educational institutions in March 2020. With Pakistan having one of the highest out of school children number in the world (22.8 million), the disruption in school education may increase this number further.
2. Federal and provincial governments prioritised continuity of education through use of technology in the form of TV, radio, internet and a blended model comprising of free messaging application (WhatsApp) and community teachers.
3. The federal government introduced a nationally televised distance learning program 'TeleSchool' within three weeks of the closure of educational institutes for grade 1–12. Gallup estimates weekly viewership of 6 million students in the age group of 5–15.
4. Provinces have also led initiatives locally in addition to federal level interventions. The province of Punjab launched 'Taleem Ghar'. It primarily utilises cable TV channels for dissemination of lessons for grades 1–10. With 500,000+ downloads, while the dedicated YouTube channel has 13,800 subscribers as of July 2020. The government of Sindh launched the online Digital Learning Platform. Which has web-based video lessons. With the support from UNICEF, Government of Balochistan is leveraging an existing programme through WhatsApp groups to exchange educational information. Around 14,000 group members are currently involved through 375 WhatsApp groups.
5. Pakistan suffers from a weak technological infrastructure, the use and access to which might exacerbate the existing inequities of quality of education, gender and disability. TV remains the most widely available and accessible medium at 63%, and radio a mere 14%. The variance in access for urban and rural dwellings remains quite high.
6. *The social and living standards measurement survey of 2019* puts the use of internet at 34% which has implications for the provincial EdTech initiatives which rely heavily on uninterrupted availability and use of internet and digital devices for access.
7. The initial response by the federal and provincial authorities did not take into account children with disability.
8. The gaps in the current response to the pandemic have been acknowledged by the Ministry of Federal Education and Professional Training in the National Education Response and Resilience Plan for COVID-19 (4th May 2020).

Introduction

Pakistan is included in the list of 166 countries which implemented country-wide school and university closures, by March 2020.

Pakistan is a signatory of the Sustainable Development Goal 4. It is committed to universal access to education under *Article 25* of Constitution of Pakistan. The education sector is composed of 50.29 million students served by 317,313 educational institutions (public and private) including technical and vocational institutions.¹ The country faces severe challenges in providing quality education to children²; it spends 2.3% of its GDP on education³ compared to the global average of 4.21%⁴. Since 2010 education has been deemed a provincial subject under the *18th Amendment*.⁵ While this has afforded greater autonomy to the provinces in terms of governance and management of education, including pedagogy, development of curricula in line with the national curriculum, assessments, monitoring and evaluation, the education statistics have not seen much improvement.

This case study aims to describe the Government of Pakistan's efforts to continue to providing quality education during the COVID-19 pandemic through alternative delivery channels. The data collection involved key informant interviews with civil servants, research organisations, and teachers. We conducted also a literature review, comprising reports, newspaper articles, and policy briefs, for recommendations as a possible course of future action.

COVID-19 and the risk of an aggravated learning crisis

The onset of the pandemic in Pakistan coincided with the scheduled annual assessments for students in public schools (primary till grade 12).⁶ The government of Pakistan ordered a closure of all public and private educational institutions across the country on 13th March 2020. The rapidly deteriorating situation mandated repeated extensions to school reopening date which necessitated a decision to 'promote students to the next grades' on 14th May 2020. The announcement on 9th July 2020 by the Minister of Education stipulated a tentative reopening of all educational institutes after 15th September, conditional upon strict COVID-19 standard operating procedures (SOPs) (see [Figure 1](#) below).

1 AEPAM Pakistan Education Statistics 2016–17.

2 National Education Policy Framework 2018.

3 http://www.finance.gov.pk/survey/chapter_20/Economic_Indicators.pdf.

4 https://www.theglobaleconomy.com/Pakistan/Education_spending/.

5 The *18th Amendment* to the constitution of Pakistan is an act of parliament (April 2010) signified by a constitutional change towards a parliamentary republic from a semi presidential system of governance. The act provided greater autonomy to the provinces of Pakistan through devolving 17 federal functions including education.

6 An academic year in public institution (pre K-12) typically starts in April with final examinations held in March of the following year. Summer break is allowed for 2 months to coincide with the monsoon season (typically end of June to early August). Schools typically break for winter for 10 days by end of December. Public and religious holidays are observed, typically comprising of 12 calendar days in total. For northern areas, longer winter vacations are observed instead of summer break to cater to extreme cold.

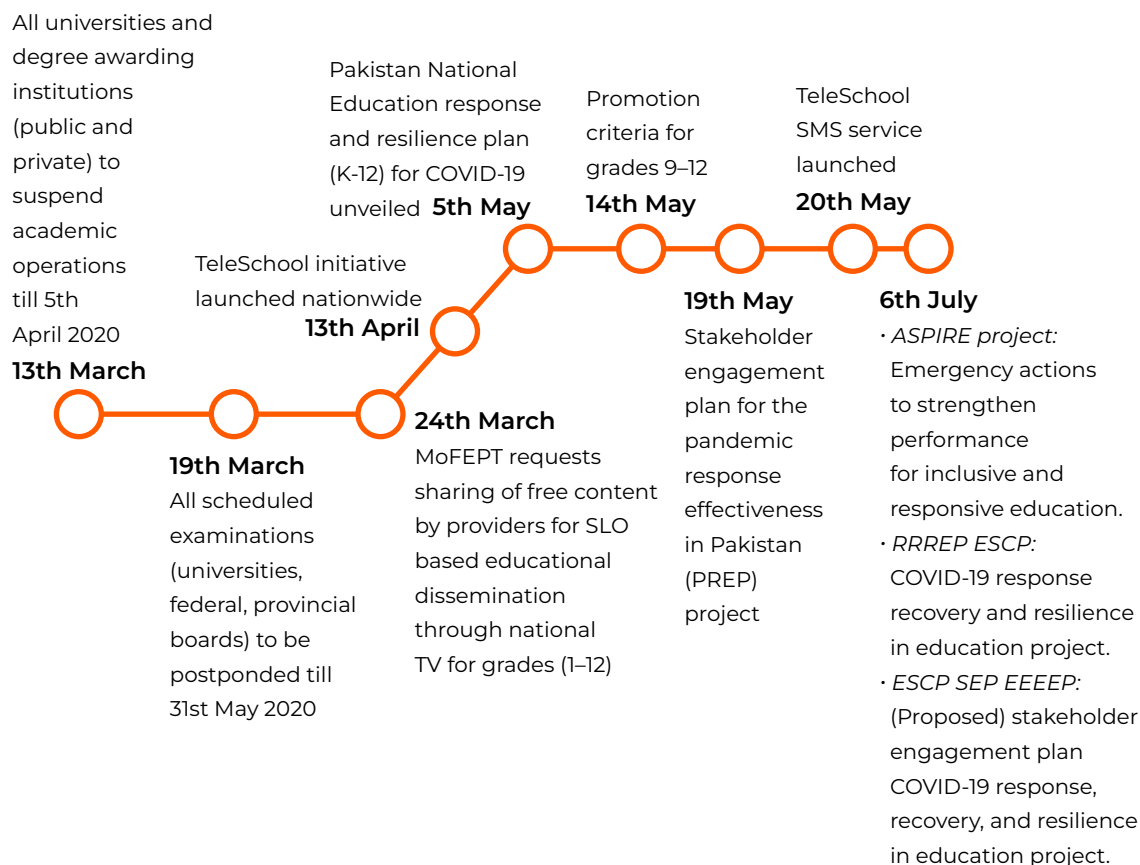


Figure 1

Timeline created by the authors

The Federal Ministry of Education and Professional Training (MoFEPT) rolled out a distance learning programme, called TeleSchool in response to COVID-19 in April 2020.

The dedicated televised channel for school was launched on 14th April 2020 in collaboration with existing partners such as the Pakistan Telecommunication Authority (PTA), Digital Pakistan Unit (an initiative of the Prime Minister), and EdTech organisations.

It is important to note that plans focusing on recovery of the education sector were drafted subsequently to the launch of TeleSchool (May–June 2020). Hence the initial response in the form of TeleSchool did not involve a broad consultative process. The current initiatives fall under the broader support of the World Bank's 'Pandemic Response Effectiveness in Pakistan' program. The Global Partnership for Education has also stepped in to offer support in the short to medium term. The National Education Response and Resilience Plan for COVID-19 (4th May 2020), provides a framework of strategies and interventions for Pakistan's education system to cope with the effects of COVID-19.

The adverse impacts of the disruption of education have not been assessed as yet. The World Bank argues that the twin shocks of school closures and global recession to have long-term costs on education and development. The report includes reference to the Pakistan's 2005 earthquake which saw students who had lived closest to the fault line losing learning equivalent to 1.5–2 years of schooling from closure of schools for 3 months, thus increasing learning poverty.

Technology: school goes home⁷

TeleSchool is a broadcast-based remote learning programme accessible through satellite, terrestrial and cable networks. It is aired five days a week from 8am–6pm for students aged 5–16 years. The program follows the government's curricula with subject content in the form of 20 minute videos of English, mathematics, Urdu, general science and Islamic studies for junior grades (1–8). High school students (grade 9–12) are offered additional lessons, as well, in physics, chemistry, computer science and biology. The time table has been designed by the Federal Directorate of Education (FDE), which is accessible through the MoFEPT website. A text messaging system with 250,000 subscribers has also been added in late May so parents and students could engage with dedicated teachers.

TeleSchool consists of ready-made lesson plans in video format, developed by private and non-profit EdTech partners of MoFEPT⁸. The videos are the property of EdTech companies which they have developed to be offered through their own platforms as paid content. These lessons have been made available to the government on a pro-bono basis for an initial period of three months.

MoFEPT collaborated with the Federal Directorate of Education, and Allama Iqbal Open University (AIU)⁹ to select uniformly timed content for each class. The process of video content selection was guided by the National Education Assessment System (NEAS) and aimed at identifying video material that could help explaining challenging concepts to students. Approximately 25,000 videos were sifted through to the selection process.

The Government of Punjab launched Taleem Ghar in the end of April 2020. This is a joint effort between Punjab's School Education Department (SED) with Punjab Information Technology Board (PITB). It utilises primarily cable TV channels for dissemination of lessons for grades 1–10. The content is also available as an Android application on Google Play. The Taleem Ghar website claims more than 500,000 downloads of the app. A dedicated Youtube channel has seen 13,800 subscribers as of July 2020.

The Government of Sindh launched the Digital Learning Platform in May 2020. This is a joint initiative between the Government of Sindh's School Education & Literacy Department (SELD), UNICEF, and SABAQ Muse. The initiative consists of web-based video lessons. However, an offline feature called Sabaq Lite has recently been added as well. SELD Learning App is also available for lessons in English, Urdu and Sindhi (local language) for grades KG-5 (kindergarten).

⁷ The information in this section is based primarily on an in depth interview with a MoFEPT representative.

⁸ The current EdTech partners are Muse App, SABAQ, Idara-E-Taleem-O-Aagahi (ITA), Sabaq.pk, Taleemabad, and Knowledge Platform.

⁹ AIU (<https://www.aiou.edu.pk>) is the first public sector higher education open university in Asia. Apart from offering online courses in philosophy, natural science and social sciences, it has a specialised education wing with expertise in distance learning, special education, continuing and non-formal education, teacher trainings, and education planning and management.

In Balochistan, UNICEF has supported an existing programme called 'Mera Ghar Mera School' (My Home, My School).¹⁰ Social media applications such as WhatsApp are the main mean of communication, with about 375 WhatsApp groups created to exchange educational information, involving 14,000 people. During the COVID-19 school closure period, 306 content-based videos of mathematics, science and English have been shared with Parent Teacher School Management Committees (PTSMC) and teachers for primary level classes (KG-5th). The My Home My School program itself has 16,647 home centres established providing continuity of learning to 55,333 children (32,975 boys, 22,358 girls) as of July 2020.

The National Commission on Human Development (NCHD)¹⁰ in collaboration with the Education Department of Gilgit-Baltistan, and Alight Pakistan (NGO) have launched an online distance learning educational program on Radio Pakistan and FM Channels for children in Gilgit Baltistan. Titled, 'Muallim (Teacher)' the program is for grades 1–3 in subjects of English, Urdu, math and general science. Launched on 30th April 2020, the program is aired at 2pm (FM channels) followed by a repeat at 7pm (Radio Pakistan). Recordings are available for download through Facebook, and YouTube channels of Alight Pakistan.

¹⁰ 'Bringing the classroom home in Balochistan' — <https://www.unicef.org/pakistan/stories/bringing-classroom-home-balochistan>.

Key findings about the learning solutions tested and adopted during the COVID-19 response

Despite an absence of mechanisms to manage a prolonged disruption of the education system, federal and provincial education authorities have managed to respond in record time to the challenge posed by COVID-19. The crisis has also prompted plans to establish a Distance Learning Unit within the MoFEPT to ensure sustainability of the initiatives started during the crisis. Other key findings are presented below.

Technology selection for education

The federal government's TeleSchool initiative relies on broadcasting channel on national TV. The choice makes sense since it is the most widely available and accessible technology in Pakistan (refer to [Figure 2](#) below).

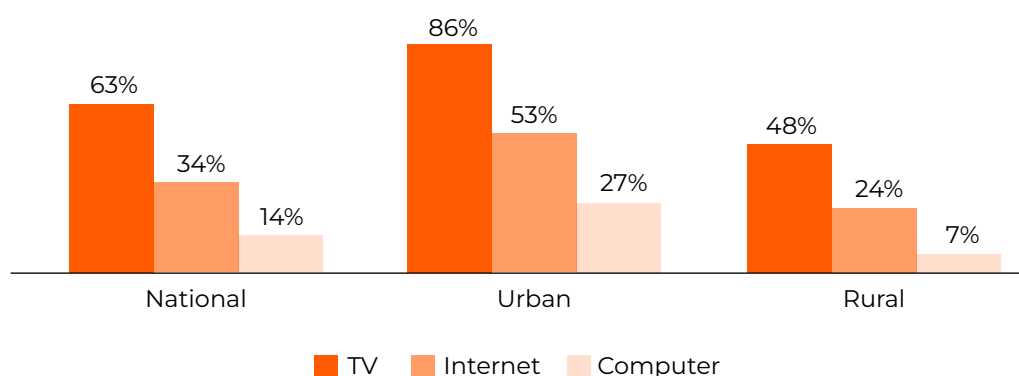


Figure 2

Access to technology in Pakistan (% of population). (Source: Pakistan Social and Living Standards Measurement Survey (PSLM) 2018–19)

Figure 2 above does not provide a granular depiction of access to technology by adults and students. A district-wise analysis estimates that only 55% of students at the primary and secondary schools across Pakistan may have access to TV. The constraints may be cultural, as the mother of an urban area public school student, informed, 'my husband is quite strict and does not allow any TV because I have two daughters at home'.

A Gallup survey estimates that between 1.5–2 million children in the 5–15-year age bracket watch TeleSchool. The weekly viewership is estimated around 6 million children in this age group. The figure is encouraging although information is not available to ascertain if the survey has accounted for the electricity disruption (load-shedding) observed during the summer months to conserve energy. A study conducted by the World Bank in 2016 has put the average disruptions between 3–6 times a day with the provinces of KP and Punjab as the most affected. The Gallup Media Survey 2017 estimates outages 12–18 hours a day in rural areas and 8–12 hours in urban areas. This would also affect the radio and FM channels in Gilgit Baltistan which is only targeting grades one till three.

At the provincial level, both Punjab and Sindh have opted for online and downloadable application based solutions. Punjab is also relying on cable tv network which is not as

widely available as the national TV, especially in the rural areas. Their primary solutions are reliant on mass availability of reliable internet connectivity and corresponding devices for access.

It is important to note that no national figures are available about access or use of mobile/digital technology both in urban and rural area for children in the age group of 5–16. Estimates point to only two thirds of the enrolled students being able to attend online classes without making a distinction between public and private school children (Rehman et al., 2020).

Having said the above, disproportionate availability and access to internet in different parts of the country is a reflection of the poor digital technology infrastructure investment.¹¹ This has an implication on programs such as Balochistan's 'Mera Ghar, Mera School' which employs a blended approach using social media platform WhatsApp coupled with home visits. The program may not be able to achieve significant scale because of low quality of digital technology infrastructure. The students have been raising their voice to raise the issue to the authorities as well.¹²

The weak infrastructure has been deeply felt by students of the province of KP and who have been unable to access EdTech-based facilities. However, it is encouraging to note that a total of 8,228 messages were received by the KP school education department with parents inquiring about the schedule and access to TeleSchool channels.

Inequities in utility of technology

The Gender-wise access to EdTech devices data shows households with female students to have higher availability of tech devices (**Figure 3**). However, a note of caution must be added since this may not necessarily translate into equal access or usage among siblings of different gender or other family members.

11 AIIB Digital Infrastructure Sectoral Analysis categorises Pakistan as 'an emerging market with low quality infrastructure' characterised by an average digital infrastructure investment of USD 13.5 per capita, as compared to USD 200 per capita by highly developed digital markets such as Singapore and Japan. https://www.aiib.org/en/policies-strategies/operational-policies/digital-infrastructure-strategy/content/_download/Full-DISA-Report_final-with-Appendix-2020-01-10.pdf.

12 'Students arrested demanding internet facilities in Balochistan' — <https://advox.globalvoices.org/2020/06/29/students-arrested-for-demanding-internet-facilities-in-balochistan/>.

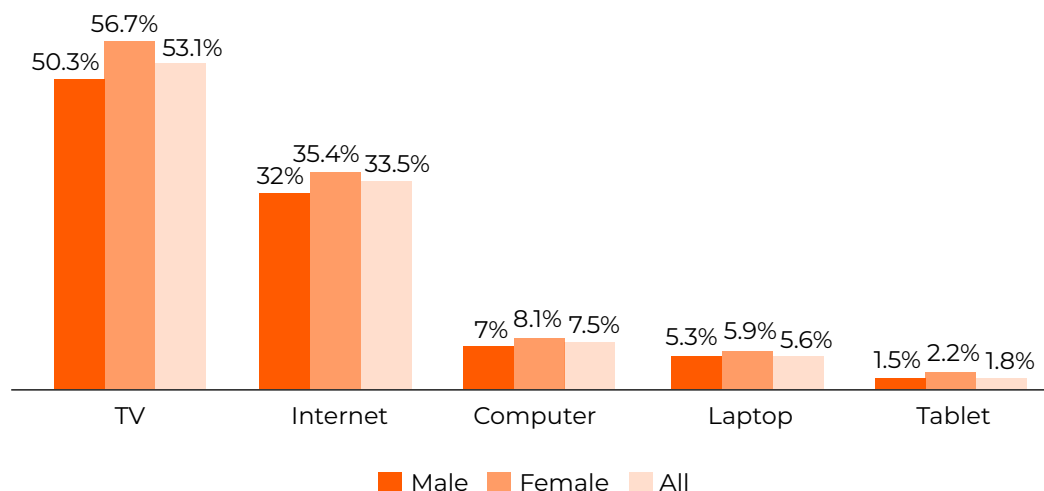


Figure 3

Students with household access to technology (by gender). (Source: Rahman et al. (2020) calculations based on PMSL/HIES 2018–19)

Anecdotal evidence suggests that with school closures, girls are more likely to be involved in household chores than boys, and thus their chance of accessing the available content may be lower than boys. Moreover, actual ownership of mobile phone stands at 80% men and 39% women¹³ indicative of the deep gender digital divide in Pakistan. Even with broadcasting technologies especially Radio (total listenership at average 9%), female listenership is at 5% as compared to 14% males.

Public schools in Pakistan, especially in rural areas, have had extremely limited access to technology before the COVID-19 pandemic. The Annual Status of Education Report (2019)¹⁴ indicates that only 15.6% of elementary schools in rural and 21% in urban areas were equipped with computer labs. For high schools, the ratio is higher with 43.6% for rural and 85.5% for urban schools having at least one computer lab. Given the limited capacity (infrastructure or otherwise) of the public education system, the use of EdTech-based has not been widespread. Hence learners may not be very familiar with operating a mobile device (smart phone) provided it has internet connectivity enabled which they can access.

In the above scenario, the role of teaching staff becomes imperative in the absence of any other instructional avenues. Mera Ghar, Mera School emerges as the only program which has continued active engagement with the community, parents and teachers during this pandemic. The results of a recent survey conducted by UNICEF to measure the efficiency and effectiveness of the WhatsApp educational videos show the popularity of videos not only amongst the program learners, but also, on average each member is reaching out to more than 3 children outside their immediate family circle.

Apart from Balochistan, no active engagement for teachers has been specified by any other educational authority at either federal or provincial level. WhatsApp groups have also been set up to inform students about the possibility to collect books for free in schools. These have been mainly informal initiatives and there has not been any more structured

13 *FII Pakistan 2017 Wave 5 Report — Financial Inclusion Insights.* http://finclusion.org/uploads/file/pakistan-wave-5-report_final.pdf.

communication approach suggested by education authorities. The situation was succinctly summarised by an 8th grade student of a high school for girls, 'well it is a bit confusing. The teacher contacted my mother through WhatsApp only once to ask her to collect the books and summer homework to be completed. But I don't really know what to do for subjects for which I still don't have books. The school is not responding when I call, so I just ask my elder sister... but sometimes she doesn't know the coursework answers either'.

Inequities may further arise because of the differing quality of the content on offer through varied modalities adopted by the federal and provincial authorities. Apart from SELD Learning App (Province of Sindh), course content in the local language is not available. Interview with the education advisor did reveal challenges with the video voice quality, abruptness of lesson start and end as well. Information is not available to gauge the government's plan on addressing these glitches in video quality.

Inquiries at the federal level have remained unanswered with regards to the percentage of course content being covered by TeleSchool. However, a representative of ITA (EdTech partner) has informed that 'Videos we are preparing for primary level are covering around 40–45% of the curriculum being taught in schools. While developing content for the videos, we focus on basic concepts along with the areas students face difficulty. Basic concepts include languages and numeracy'.

Inequities based on disability

The initial response to COVID-19 at the federal and provincial level did not take into account children with special education needs. However, the Education Response Plan did include provisions to make the teaching content available to students with special needs.¹⁴ There have also been discussions for the use of radio as a means to engage students with visual disabilities, and sign-interpretative teaching in TeleSchool videos. One of the challenges, as mentioned by representatives of ITA, is that the narrow definition of disability adopted by the Pakistani Government would make any education response by the government non-inclusive by design. At the moment, the lack of responsiveness makes 88% of children (5–16 years old) with disabilities¹⁵ vulnerable to discontinuity of educational activities.

Highlighting the requirement of psychosocial support particularly for children with disabilities, ITA representative commented:

'Parenting of the children with special needs plays major role in both pre- and post-COVID situation as these children require psychosocial care. Unfortunately, parents lack knowledge about the psychosocial needs of children with disabilities.'

14 The plan doesn't mention the segregated response for disabled students of formal and non-formal education.

15 ASER 2019 reported that 88% of the sampled children with disabilities (considering the broader definition of disability with 13 different types of disability) are enrolled in government, private and special education institutes across Pakistan. This data is not nationally representative as five districts are covered for disability survey. According to British Council (2014), 50,000 children with disabilities were enrolled in 330 special education schools across Pakistan. https://www.britishcouncil.pk/sites/default/files/moving_from_the_margins_final.pdf; http://itacec.org/document/2019/july/Inclusive_Assesments_Report_2019.pdf; http://itacec.org/document/2019/december/Dr_Bari_Policy_Brief.pdf.

In pre-COVID situation, schools were providing this facility through councillors and with friendly environment. But after school closure, vulnerability of students with special needs increased'.

Importance of parental support required at home for disabled children is also elaborated by NOWPDP¹⁶ representative:

'In post-COVID scenario, we maintained regular interaction with students through video calls. For disabled students, we require additional support from parents to make these online sessions effective. For instance, parents' familiarity with the use of braille makes the video session with visually disabled students more effective'.

¹⁶ NOWPDP is an independent organisation working on disability in Pakistan and recently they have piloted the inclusive education project.

The World Bank and the Global Partnership for Education have stepped forward to provide technical and financial assistance for response and recovery of the public education sector. A structured consultative and collaborative approach helped the design of interventions based on public/private partnerships that leveraged inclusive technologies. At the time of writing (August 2020), the following steps have been taken to strengthen NERRP:

- Response Effectiveness in Pakistan (PREP) Project — Stakeholder Engagement Plan.
- Emergency Actions to Strengthen Performance for Inclusive and Responsive Education (ASPIRE) project.
- Response, Recovery and Resilience in Education Project (RRREP).

The plans recognise the gaps in the current response to pandemic by supporting mechanisms and structures which incentivise out of school children to return to class rooms. The plans point to a long term vision of creating a central role for technology. Establishment of Distance Learning Wing,¹⁷ development of an E-Taleem Portal¹⁸ and Ilm ka Aangan all point to mechanisms based on efficiency and efficacy which technology can bring. It identifies National Commission for Human Development (NCHD) and Basic Education Community Schools (BECS),¹⁹ as pivotal in social mobilisation and awareness of programs such as distance learning through its workforce. The role of School Management Committees has been recognised especially in terms of returning children post school reopening. Ministry of Health has been made a primary stakeholder for development and implementation of SOPs in a post COVID-19 period for reopening educational institutes in a responsible manner.

Having said the above, MoFEPT does not currently have a sophisticated monitoring or evaluation system to gather access and use disaggregated data from TeleSchool to help inform the adaptation of the strategy and implementation of the response initiatives.

17 A continuity learning framework is being developed for TeleSchool with support from UNICEF, to supplement classroom learning after schools reopen as informed by KII with Education Advisor.

18 MOFEPT's initiative to create a repository of TeleSchool content through embedded video links, allowing students to replay lessons at their discretion.

19 Directorate General of BECS works under Federal Directorate of Education with the geographical presence across Pakistan.

Conclusion

The priorities for the Government of Pakistan during the response to COVID-19 in the education sector have been: to avoid interrupting education services, the speed of the response, and the cost-effectiveness of the solutions adopted during the response.²⁰

The shock to the education system has driven the institutional and structural machinery of the sector to focus on emergency planning which had been missing till date to cater to the current scenario. While the National Emergency Plan does consider leveraging technology to support teaching and learning, it does not explicitly address the poor technology infrastructure in the country which limits the use of technology in schools.

With limited education monitoring and evaluation capabilities, the impact of the government initiatives on teaching and learning is uncertain. Technology is not a silver bullet to solve educational challenges arising out of limited investment in the education sector. There is a need to look at multimodal approach to blended learning to cater to disparities in access and quality in terms of gender, disability, and learning outcomes.

Possible initiatives that we want to suggest based on the findings of this case study are:

- Design a National Education Emergency policy including minimum standards of education during emergencies and disruptions. The policy could include instructions for policy and implementation coordination mechanisms between federal and provincial governments.
- The role of teachers during emergencies and disruption could include the gathering of information about learners and households, especially when they struggle to remain involved with school activities.
- Parent Teacher committees who'll be made mandatory at all levels to strengthen the communication channels between education agencies, schools, and families.
- Prioritised exploration of multimodal approach (utilising radio and TV along with other sources) needs to be conducted in order to extend existing response to the accelerated learning program for OOSC collaboration with the distance learning partners.
- The federal and provincial education departments could invest in gathering evidence about children residing in areas with low access to ICT, low educational support at home, and children with disabilities. This evidence could help design accelerated learning programs that ensure inclusivity.

20 Key informant interview with MOFEPT education advisor.

References

- Academy of Educational Planning and Management (AEPAM). (2017). *Pakistan education statistics 2016–2017*. <http://library.aepam.edu.pk/Books/Pakistan%20Education%20Statistics%202016-17.pdf>.
- Ahmed, R.U. (2020). *Students arrested demanding internet facilities in Balochistan*. Advox Global Voices. <https://advox.globalvoices.org/2020/06/29/students-arrested-for-demanding-internet-facilities-in-balochistan/>.
- Annual Status of Education Report Pakistan. (2019). *ASER National 2019*. http://aserpakistan.org/document/aser/2019/reports/national/ASER_National_2019.pdf.
- Asian Development Bank. (2019). *School education in Pakistan: A sector assessment*. <https://www.adb.org/sites/default/files/institutional-document/518461/pakistan-school-education-sector-assessment.pdf>.
- Baloch, I., Kaye, T., Koomar, S., & McBurnie, C. (2020, July 9). *Pakistan topic drief: Providing distance learning to hard-to-reach children in urban slums and remote areas*. (EdTech Hub helpdesk response no. 17). <https://docs.edtechhub.org/lib/9TKV7H6E>.
- Baqi, H., Malik, A.S., & Weibel, C. (2020, July 9). *Bringing the classroom home in Balochistan, United Nations International Children's Emergency Fund (UNICEF)*. <https://www.unicef.org/pakistan/stories/bringing-classroom-home-balochistan>.
- Dawn. (2011). *Cabinet approves devolution of seven ministries*. <https://www.dawn.com/news/640139/cabinet-approves-devolution-of-seven-ministries>.
- Hamid, S. (2020, July 7). *Poor internet access for students echoes in KP assembly*. Express Tribune. <https://tribune.com.pk/story/2251303/1-poor-internet-access-students-echoes-assembly>.
- Ministry of Federal Education & Professional Training. (2018, July 9). *National education policy framework 2018*. <http://mofept.gov.pk/SiteImage/Policy/National%20Educaion%20Policy%20Framework%202018%20Final.pdf>.
- Ministry of Federal Education & Professional Training, Government of Pakistan. (2020, July 8). *COVID-19 response, recovery, and resilience in education project*. <http://mofept.gov.pk/SiteImage/Misc/files/Draft%20SEP%20RRREP.pdf>.
- Ministry of Federal Education & Professional Training, Government of Pakistan. (2020, July 5). *COVID-19 education updates*. http://mofept.gov.pk/SiteImage/Misc/files/0_%20NERRP%20COVID-19%20MoFEPT%204%20May%202020%20Ver%2001.pdf.
- Ministry of Federal Education & Professional Training, Government of Pakistan. (2020, July 8). *Environmental and Social Commitment Plan (ESCP)*. <http://mofept.gov.pk/SiteImage/Misc/files/Draft%20ESCP%20RRREP.pdf>.
- Ministry of Finance, Government of Pakistan. (2020, July 2). *Pakistan economic survey 2019–20*. http://www.finance.gov.pk/survey/chapter_20/Economic_Indicators.pdf.
- Naviwala, N. (2020, July 8). *How 'TeleSchool' can revolutionise Pakistan's education system*. United States Institute of Peace. <https://www.usip.org/blog/2020/04/how-teleschool-can-revolutionize-pakistans-education-system>.

The Global Economy. (2020, July 2). *Pakistan: Education spending, percent of GDP*.
https://www.theglobaleconomy.com/Pakistan/Education_spending/.

The World Bank (2020, July 5). *Emergency actions to strengthen performance for inclusive and responsive education (ASPIRE) project*. <http://mofept.gov.pk/SitelImage/Misc/files/Draft%20ESSA%20ASPIRE.pdf>.

United Nations. (2020, July 9). *Shared responsibility, global solidarity: Responding to the socio-economic impacts of COVID-19*. https://www.un.org/sites/un2.un.org/files/sg_report_socio-economic_impact_of_covid19.pdf.

United Nations Educational, Scientific and Cultural Organisation (UNESCO). (2020, July 5). *Inclusion and education: All means all*. https://docs.wfp.org/api/documents/WFP-0000117088/download/?_ga=2.148208567.1454921938.1593953972-815983111.1593953972.

United Nations International Children's Emergency Fund (UNICEF). (2020, July 9). *Education: Giving every child the right to education*. <https://www.unicef.org/pakistan/education>.

United Nations International Children's Emergency Fund (UNICEF). (2020, July 6). *Pakistan COVID-19 weekly situation report no. 2*. https://www.unicef.org/appeals/files/UNICEF_Pakistan_CoViD19_Situation_Report_5_April_2020.pdf.

United Nations International Children's Emergency Fund. (UNICEF). (2020, July 9) *Education: Giving every child the right to education*. <https://www.unicef.org/pakistan/education>.

Winthrop, R. (2020, July 7). *COVID-19 and school closures: What can countries learn from past emergencies?* <https://www.brookings.edu/research/covid-19-and-school-closures-what-can-countries-learn-from-past-emergencies/>.

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