2 COVID-19 and education in the global South: Emergency remote learning solutions with long-term implications

Maria Rebeca Barron Rodríguez, World Bank[1]

Cristobal Cobo, World Bank[2]

This chapter highlights the innovative uses of low tech in remote and blended learning in low- and middle-income countries. It identifies emerging lessons that are useful (and replicable) for lower middle-income countries and high-income countries. The chapter gives an overview of the main challenges that lower middle-income countries face while implementing remote learning strategies. It reflects on how the implementation of remote learning during the COVID-19 pandemic may lead to short- and long-term changes in education systems in lower middle-income countries going forward.

Introduction

2020: A very long year

Traditionally, education systems are often accused of being change-resistant or too conservative. On a regular basis, the media, experts and representatives from civil society have a tendency to discuss how little education systems have changed over time.

It is often said that chalk and talk remain almost as it used to be a century ago. The same classroom, the same textbooks, etc.; in many cases, teachers are blamed for doing what their colleagues were doing 20 years or more ago. Although that might be the case in some contexts, the experiences from 2020 have shaken up most, if not all, education systems across the world. It is hard to find a single country that has not taken a set of actions or in some cases disruptive transformations to secure learning during the COVID-19 pandemic.

Many of these emergency responses might need to be adjusted or improved; however, it is hard to undermine the relevance of the undergoing transformations. In terms of the time and the diversity of the actions implemented, the adoption of new means to facilitate learning has been so fundamentally different from the past. In some cases, it can be said that more changes at scale have happened during the last 12 months, from the remote learning perspective, than in the last 12 years. This chapter explores how countries responded to challenges related to supporting teachers, parents and students; the lack of digital infrastructure; and strengthening organisational capacities to deploy remote and blended learning to then extract lessons and reflections going forward.

Lessons learnt

Now is the time to reflect on these emergency plans. What worked well? What did not? Where were there gaps? What can we mainstream going forward? To what extent have remote learning solutions amplified the existing inequalities? Are low-tech[3] interventions back into education systems? What are the best strategies to secure inclusion and equity when deploying national remote learning policies? Did teachers receive appropriate support to teach remotely? All these questions, among many others, will need to be explored. However, there is little doubt that the intensity of the implementations developed recently will demand careful, and thoughtful, analysis. Going beyond the emergency mode, what opportunities can come from this year of intensive "incubation" to take these emergency responses to the next level, adopting and improving them towards more sustainable and long-term policy transformation?

Digital technologies have been incorporated into different forms of teaching and learning for decades. Some cases have had more impact than others. In most instances, these interventions have required regular monitoring, adaptation and improvement. Fortunately, we are not starting from scratch, but at the same time, it is a good idea to learn from the past. We are better positioned today to understand that an effective EdTech integration will require much more than connectivity and access to devices. It will thus be important to capitalise from what we have already learnt, and when possible, integrate those lessons into the novel remote learning initiatives deployed from 2020 in the months to come.

From experimental to exponential

Not all the continuity stories were implemented at a national scale or are equally replicable. While in some cases they were deployed from government to benefit millions of students, in others these experiences were simply deployed at a small scale. Not all emergency responses of remote or blended learning have been equally impactful and it is important to learn from them. Even if some of these interventions are relevant, impactful and scalable, it is fundamental to document and share them with the broader education community. That was the purpose of documenting a variety of innovations and implementations deployed

during the first months of the pandemic. It is extremely relevant to reflect on an unprecedented period and learn lessons from it. It is important to reflect on what has worked (and what has not) and shed light on those innovations that can be adopted and replicated at a large scale, to the benefit of teachers and students across the entire globe.

One example of a lesson learnt are the multichannel strategies implemented in most regions, which integrate old and new technology (e.g. when a remote teaching strategy combines different media such as television with radio or mobile phones or printed materials plus resources delivered digitally). These multichannel strategies have proved to be more effective (and more inclusive) for reaching communities of students from different socio-economic and geographic contexts. Learners who might be living in very different environments, with unequal levels of access to technological infrastructure, benefited from this diversity of remote learning options.

Multiple channels for multiple communities

The set of implementations deployed during the pandemic have shown the importance of understanding that a diverse combination of channels will benefit a more heterogeneous community of learners. At the same time, it will be equally important to design flexible strategies to secure and facilitate regular teacher and student interaction. There is little doubt that without access to learning resources, students will not be able to learn much. It is key to prioritise the importance of the "human interaction" component (Hawkins et al., 2020[1]). Here is worth clarifying the interaction does not have to be (always) in person, does not have to be (necessarily) synchronous (Barron et al., 27 April 2021[2]). The interaction might not require video, but it will need a solid and well-planned strategy to secure that human connection is available. It will, however, need to be there to secure and nurture the engagement needed. Even in moments of high levels of isolation, we have learnt the importance of securing one of the most core attributes of education: the human connection. We have observed that teachers can enrich their impact when parents take part in their children's learning experience. Unlike other moments when parents were busy working in their offices, COVID-19 has shown us that parents' participation, engagement or assistance can be a driver of change. Parents and tutors are increasingly becoming key partners to complement teachers at home.

The pandemic has shown that in addition to the systemic inequalities between countries and between regions, structural inequalities can be observed within countries. Even in the most advanced societies, students from rural areas have suffered much more the consequences during the confinement. Rural students tend to have less infrastructure, less access to connectivity or electricity; they are therefore more unlikely to access remote learning. Although this is not always the case, it is a pattern that remains consistent throughout different regions.

Bridging digital divides

The pandemic has also shown that the so-called "digital divide(s)" (Cobo and Sánchez Ciarrusta, 22 April 2020[3]) is not a single phenomenon linked to a lack of technology, but a much more comprehensive one that also includes human and organisational capabilities. The pandemic has made crystal clear that digital divides can be addressed with a combination of actions that tackle challenges such as a lack of infrastructure (electricity, reliable connectivity or devices); resources (access to learning materials, textbooks, platforms, education software, etc.); capacities (technical skills to learn how to use different technologies, media literacy, knowing how to make the best of the information available, higher order skills, etc.); additional external enabling conditions (external support, training, monitoring, technical help, etc.). More than ever, we have learnt that it is important to flip the page away from the traditional idea that simply providing access to a device will suffice to facilitate learning improvements. The pandemic has shown how important it is to consolidate national capacities to address and orchestrate technical, logistical, pedagogical and human dimensions. Although there is no shortcut for implementing all these dimensions at the same time, the evidence provided in this chapter helps us to better understand how countries can

learn from each other's experiences, particularly from those policies focused or designed to support learning regardless of the circumstances.

Remote and blended learning are here to stay

The pandemic has spurred innovation in different forms of content delivery, teachers have embraced change in so many ways one would need an entire publication to reflect on the innovation of the practices deployed. Although many teachers (Krönke, 2020[4]) have expressed that they were ill-prepared to address the long list of challenges derived from a global school lockdown,[4] many, if not most, educators have made remarkable efforts to mitigate the existing challenges to secure learning continuity. Just like nurses, teachers in many places are working on the front line, risking their health (as well as that of their loved ones). It will be important to reflect on how critical it has been (and will be) to better prepare teachers with the right set of skills to teach remotely and effectively. Although there has been an emergence of initiatives designed to support in-service teachers during the pandemic, it is unlikely that remote learning will disappear once a vaccine becomes accessible to all. Although remote learning might evolve from what we have observed in 2020, it is reasonable to expect that having technical and pedagogical capacities needed for distance teaching will no longer be a "nice to have" set of skills, but critical capacities for a (much) larger part of the teacher community. At the same time, the emergence of different forms of coaching to support students has been observed. In some cases, remote coaching has been provided by peers, or near peers, while in others it has been possible by recruiting new staff as coaches hired to support learners or to assist those who might need additional assistance. Although this is not new – in some countries in Asia, for instance, hiring coaches and remote tutors has been a normal teaching-learning practice for decades – it is likely that this trend will remain (if not expand) in different regions of the world even after the pandemic is over.

If COVID-19 can be considered some kind of a rehearsal of what could be a future environmental crisis as a consequence from global warming (among other unknown crises), once again, it will be critical to reflect on what we have learnt, then ask ourselves how we can do better after this intensive period of challenging adaptation.

How did countries support teachers, parents and students?

Teachers have been one of the key protagonists of this pandemic. Protagonist because they have played a leading role during the implementation of remote learning. But also because they have been, in many cases, coping with limited infrastructure and lacked the necessary skills to provide effective remote learning. They had to quickly adapt to the circumstances and address this challenging context with courage, dedication and creativity.

Documentation from different regions indicates that most educators acknowledge that they were ill-prepared to teach remotely. "Teachers expressed the need for more direct guidance and professional development to equip them with the skills and competencies necessary for implementing a fully central self-direct learning approach", argues one of the continuity stories (Liou and Petrie, 2022[5]). In addition, many educators needed to cope not only with the lack of appropriate skills to teach remotely, but also where the infrastructure in many cases was limited, if not inexistent.

The lack of preparation not only affected teachers, but school principals as well. Not being prepared for the current context was a consequence of limited proficiency for teaching in this new environment, but also of a global shortage of contents, devices and platforms to teach remotely effectively.

Learning to "translate" pedagogies for new environments

In this context, many of the capacity-building activities adopted by countries focused on training teachers and principals in the pedagogical integration of different digital platforms (and incorporating analogue tools, such as radio or television). This emerging reality required not only promoting the acquisition of technical capacities but also, and perhaps more importantly, developing the capacities to "translate" and contextualise the pedagogies into new environments (distance learning).

One clear example of this was the necessity to adjust, contextualise and prioritise education resources suitable for teaching in remote learning settings, where providing short, simple and easy-to-use learning materials is critical. It was unrealistic to expect students to spend an endless number of hours reading learning materials (or listening to educational radio programmes) on their own if there was not an appropriate pedagogical strategy and the needed teacher support. It took time to understand that student's attention was one of the scarcer resources.

Cognitive and socio-emotional resilience

The lack of physical human interaction produced side effects that needed to be addressed by the education community in general and by teachers in particular. Preparing for the transition to a remote learning model also implied the necessity to design strategies to secure the social and emotional well-being of students (and teachers) as a key priority. High levels of isolation, disconnection and frustration required teachers to balance not only cognitive and socio-emotional support, but to also plan different forms of remote assistance for learners. In this context, parents played a significant role.

Similarly, teachers in some cases were overburdened with administrative tasks, which inhibited their ability to effectively support learners when needed. Actions were required to address these challenges and to prioritise where teachers could be particularly helpful, such as providing pedagogical assistance, and monitoring and supporting students' socio-emotional well-being.

In recent months, there has been an abundance of initiatives from governments, civil society and academia to train teachers, provide them with courses, supporting materials, guidance and massive open online courses (MOOCs), among other formal mechanisms to prepare teachers to teach remotely.

Learning by sharing with peers

It is noteworthy that the trends identified during the first wave of the pandemic not only showed the importance of formal training programmes, but also grassroots, bottom-up communities of practice and networks of teachers' initiatives. All these peer-based practices created a wealth of opportunities through social media and other online learning channels to facilitate regular sharing of resources and experiences, building a sense of community between different teachers who shared similar challenges. Many teachers realised that they could not do their work alone, so they decided to shift to a much more collaborative mindset to learn from colleagues, planning together and sharing resources with the members of their community. In some cases, those exchanges were through daily webinars, sharing interesting digital resources, discussing opinions of teaching practices or elaborating additional teaching materials. A remarkable number of initiatives relied heavily on the expertise of the teachers' community as a democratic and easy way to learn from each other.

Communities for and by teachers have been a global trend incentivised by the challenges of this pandemic. Interestingly, many of these human networks are grounded in popular, but non-sophisticated, technologies (WhatsApp, Instagram and Facebook, among others). Unlike previous times, in this case, easy-to-access technologies have played an essential role in facilitating communication within the teacher community, but also in keeping regular contact with students and their families.

Low tech and a high touch

WhatsApp groups between students and teachers were used globally to provide classes, offer support or simply share materials, using text, voice and video, among others. In India, for instance, "within two months, 51 000 groups were created with over 1.9 million parents and 200 000 teachers" (Batra, Nangia and Reimers, 2022[6]). However, other forms of low tech were also implemented, such as education radio for teaching or podcasts. For low- and middle-income countries, mobile phones were one of the most often used tools to facilitate the exchange of learning materials, as well as to facilitate interaction between parents and students both in urban and rural contexts (in rural contexts especially via subsidised services for connectivity such as zero-rating for education services). Although this might not sound disruptive from a technological point of view, it was transformative in the sense that low-cost devices were used to connect students and teachers in most cases, something that was probably less common before the pandemic.

In contrast, where access to smartphones was more limited, teachers decided to use phone calls (and in some case in-person visits) to contact their students. These phone conversations allowed the teacher and the student the chance to get to know each other in a new context and discuss the competencies developed and the challenges they were facing during the pandemic. Teachers provided feedback to their students on their progress and further challenged them. Likewise, students provided feedback to teachers about their learning experience. So, despite the difficult circumstances in the stories included in this compilation, it will be easy to find a large number of remote socio-emotional support initiatives implemented across the globe.

Will these exchanges remain after the pandemic is over? Although it is still too early to understand what the long-term implications of these transformative practices will be, it is easy to see that remote learning, even in environments with limited access to digital infrastructure, has been a valuable resource to enable learning at the individual, but also at a system, level.

Box 2.1. What did we learn in terms of human readiness?

Teachers

The pandemic has shown the importance of supporting teachers in different ways and providing them and school principals with training sessions and curated materials. The elaboration of educational repositories to share good practices and learn from what other teams are doing has been an approach replicated in different regions. Peer-to-peer learning opportunities through social media and online learning resources has been documented in many countries. As observed, encouraging collaboration among professionals can reinforce their sense of community, enabling peer support, as well as sharing past and ongoing good teaching practices. In addition, this sense of community is critical when teachers are under significant demand and stress (professionally and on a personal level). Communities of teachers collaborating can be very active in the production, curation and dissemination of learning materials and other teaching resources. The training and support that teachers receive should not be limited to learning how to use the different (high and low) technologies, but also to effectively plan, design and implement remote and blended learning. We have learnt the importance of involving teachers from the beginning in the design of more flexible ways of teaching. Regular communication between teachers as well as between teachers and students increases engagement, and opens up opportunities to clarify and adjust when there is a potential deviation or when additional assistance is required.

Parents

Parents and caregivers have been key interlocutors in early childhood education, especially when they receive effective guidance and assistance to learn how to promote learning at home. Simple

communication via smartphones (or social media) can be of great help to support parents by sharing supportive guides and toolkits. Learning guides could clarify how to structure the "school day", how to assist students with special educational needs and disabilities, but could also guide non-academic aspects relevant for student' well-being. The key will be to implement an honest and frequent communication with and between all stakeholders (i.e. teachers, principals, administrators, students and their families). This is not only vital to secure academic learning, but also to support the emotional demands imposed by the pandemic.

How did countries face the lack of digital infrastructure and connectivity?

The pandemic caused unprecedented widespread school closures, which at its peak in April 2020, reached over 150 countries and affected 1.6 billion children and youth (UNESCO, 2021[7]; World Bank, 2021[8]). Education systems across the world reacted accordingly and it is estimated that most, if not all, countries implemented at least some form of remote learning (UNESCO, UNICEF and World Bank, 2020[9]). The education response during the coping phase of COVID-19[5] focused on implementing remote learning modalities aiming to reach all students. By nature, most of the responses (policies and interventions) were stop-gap measures aimed at halting or minimising the immediate impact of school closures. They have changed as the macro situation evolved and there is a transition to medium- and long-term learning recovery and remedial measures as schools reopen and blended models of schooling become increasingly common.

While not all countries started at the same level, as some already had previous remote learning programmes, such as education radio in Sierra Leone, education TV in Mexico, or online platforms in Korea and Uruguay, most countries faced challenges related to the lack of digital infrastructure and connectivity; insufficient digital skills among teachers, parents and students; within country inequalities affecting vulnerable populations disproportionally; and a lack of access to devices (mobile phones, tablets, laptops) when the available learning modality required their use.

These socio and technological divides limit children and young people from disadvantaged areas from accessing the same content and opportunities as their connected peers. These inequalities have also resulted in many vulnerable children not being able to access remote learning during the pandemic. For example, almost one-third of all students globally (nearly half in sub-Saharan Africa) did not access any modality of remote learning during the pandemic (UNICEF, 2020[10]). Additionally, traditional social norms may lead to a higher level of household chores assigned to girls, reducing their time for lessons (World Bank Group, 2020[11]).

Box 2.2. A pandemic of inequalities

Some statistics to illustrate the many gaps and divides that existed before and were highlighted during the emergency response to COVID-19:

- More than 1.3 billion students, representing two-thirds of school-aged students (3-17 years old), do not have access to the Internet at home.
- The difference in access to the Internet becomes starker between higher income and low-income countries, with only 6% of students in low-income countries having access vs. 87% in high-income countries.
- Inequalities within countries also exacerbate the gap, with 58% of global students having access to the Internet if they belong to the richest quintile in their country.
- Additionally, there is an urban-rural divide in connectivity, with the largest gap (35%) in Latin America.
- Youth in sub-Saharan Africa are the least connected: approximately 60% are not on line, compared with just 4% in Europe.
- In sub-Saharan Africa, fewer girls than boys possess digital skills. For example, in Ghana, 16% of adolescent boys have digital skills vs. 7% of girls. In the Democratic Republic of Congo, 46% of boys with access to a computer at home use them at least once per week vs. 24% of girls.

Sources: (United Nations Children's Fund and International Telecommunication Union, 2020[12])

Even with all these limitations, countries needed to provide remote learning and reach as many students as possible as part of their emergency response. Some of the strategies used to overcome a lack of infrastructure and connectivity (World Bank Group, 2021[13]) included the use of multichannel strategies, zero-rate or subsidised Internet access, facilitating access to devices, and investing in expanding infrastructure.

Multichannel strategies

Some key factors should be taken into account when providing remote learning modalities, such as thinking about the overall contextual factors or enabling conditions (which, in addition to the digital divides analysis described above, also include factors such as previous experience in the delivery mode, teachers' and parents' level of preparedness, as well as availability and quality of content). From the inclusion point of view, adopting the universal design for learning approach (World Bank, 2020[14]) is important, as the diverse needs of students need to be at the centre. Concrete actions include having content that is available in the language students speak at home and content that is adapted for students with special educational needs.

The overall perception of the effectiveness of remote learning is mixed. For example, 27% of low-income countries consider education TV to be very effective while 15% state the same about radio; in contrast, 24% of lower middle-income countries considers online platforms as the most effective. High-income countries prefer online platforms on average and 43% considers them very effective (UNESCO, UNICEF and World Bank, 2020[15]). Going from overall perception to implementing monitoring and evaluation systems that allow systems to gather the user experience from students, teachers and parents is crucial to ensure lessons are learnt from this crisis. Some countries such as Brazil, Kenya and Uruguay are managing this by organising phone or online surveys (Education Global Practice, 2020[16]).

While further research is needed to determine the most effective combinations of remote learning channels, some country examples show promise for countries with low connectivity. A qualitative

cross-country study focused on the perceived effectiveness of remote learning modalities (Barron Rodríguez et al., 2021[17]) found that the combination of radio and printed material is considered highly effective in Mozambique. At the same time, in Cambodia, complementing printed material with SMS and social media engagement has been deemed as effective (Education Global Practice, 2020[16]). Another important consideration when designing remote learning strategies is the quality of the content and prioritising using resources that are contextually relevant to the local country or, when possible, to adapt open-source content to respond to local needs and learning goals.

The rationale behind applying different remote learning modalities (ranging from low-tech options such as TV, radio and print packages to mobile and online learning, whether synchronous or asynchronous) is to increase uptake and reach a higher number of students in rural and urban areas. Designing a multichannel strategy is complex in the sense that decisions need to be taken to enable the highest levels of complementarity and coherence between modalities. For example, there has been an increase in the use of mobile phones or toll-free lines to complement radio, TV and print materials and add a layer of interactivity to the learning process by allowing parents/teachers to receive feedback on how best to ensure that students practice their lessons and enrich takeaways on what they had just listened to or read. By December 2021, globally, countries are increasingly opting for multichannel or mixed remote learning modalities (Figure 2.1) across education levels, except for higher education, where online platforms are the most common.

Figure 2.1. Remote learning modalities, by education level
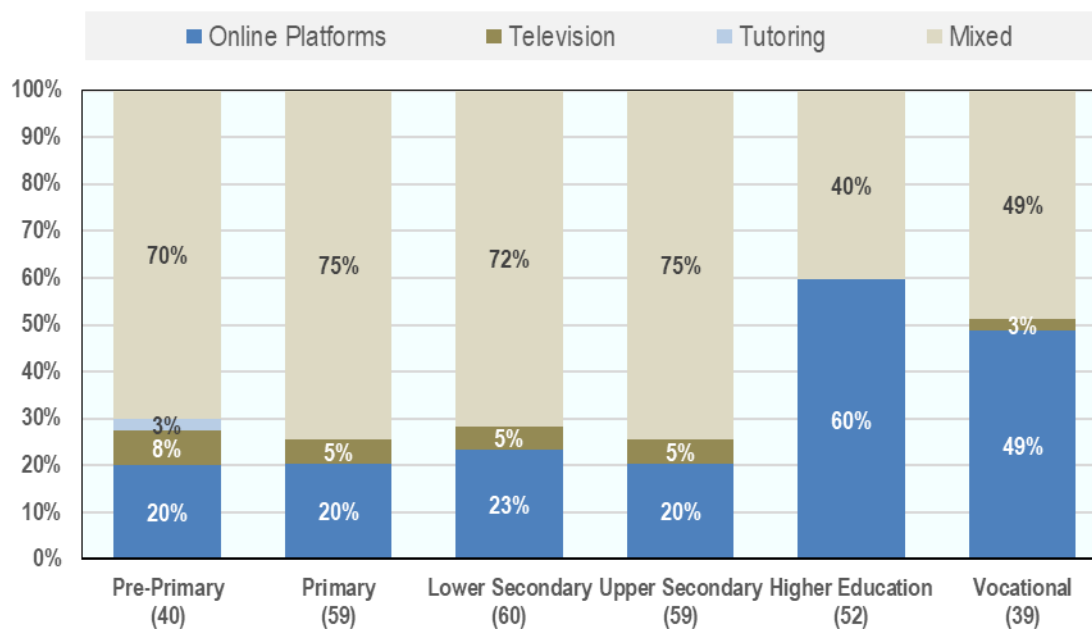
Source: (Johns Hopkins University, World Bank and UNICEF, 2021[18])

Zero or subsidised rates to allow for connectivity, facilitating access to devices and expanding infrastructure

In contexts where connectivity is limited, countries have identified and deployed strategies to increase and/or diversify the solutions: affordability was tackled, for instance, through zero-rating or subsidies and distributing free SIM cards and devices to low-resource families; for access – where there is limited access or generally low coverage of the network, the challenges are either to expand the infrastructure and/or to adopt offline methods (preloaded contents).

For example, from the 134 countries that also participated of the above-mentioned survey (UNESCO, UNICEF and World Bank, 2020[15]), around 60% subsidised or provided Internet access at zero cost, such as granting free access to national online platforms or providing funds for Internet subscriptions. These countries included Chile, Colombia, Saudi Arabia and Thailand. For example, Peru and Brazil entered into agreements for zero-rated data tariffs. Other measures included providing devices at a lower price and supporting access to online learning platforms through mobile phones.

Box 2.3. Debunking a myth: Are radio and TV only used by low- to middle-income countries during the pandemic?

As students and teachers continue to adapt to remote learning, middle- to high-income countries are turning towards TV as a way to engage more learners.

In the United Kingdom, the BBC started broadcasting curriculum-based lessons in January 2021. This includes three hours of primary school programming and at least two hours for secondary pupils. This policy comes amidst concerns that low-income families are struggling to afford data packages as they depend on pay-as-you-go schemes or monthly subscriptions with small data allowances, and their children are unable to take part in online learning as most schools in the United Kingdom use videoconferencing software that can consume a lot of data.

Similarly, in some cities in the United States, educators have teamed up with a broadcast channel and are using "Lets Learn NYC" (a one-hour weekday programme with condensed lessons on a variety of topics) to engage children from public schools that don't have access to the Internet or devices and had been left behind. The divide in education in the United States tends to affect rural, Latino and families of colour. It is estimated that about 15 million students did not have an adequate device or reliable Internet connection at home.

In Viet Nam, the Ministry of Education and Training quickly identified at the start of the pandemic that only 10-20% of students and teachers in less advantaged areas had access to devices at home and realised it was not possible to only implement online learning. Because over 90% of households own a television, broadcasting lessons became the most viable option to reach more students. TV lessons were designed and rethought to best prepare students to complete the school year. Additionally, care was taken to cater to the different needs among localities by involving 28 TV stations and engaging local teachers.

Latvia developed broadcast educational video lessons to be aired on two main channels daily between 9 a.m. and 2 p.m. until the end of the school year on 29 May 2020. These were available on line as well. They identified TV as a good complement to online learning after conducting a survey among parents to get an understanding of the availability of digital devices.

Finland developed Yle Distance School, which compiled a variety of resources produced before the pandemic including TV and radio shows, podcasts, and articles. They also prepared an open slot in the programming schedule to broadcast selected clips.

Box 2.4. What did we learn about technological readiness?

During the crises, pre-existing technology tended to be easier to integrate in remote and blended learning than totally new technologies. During the pandemic, WhatsApp, radio and television have played a central role for students with limited access to the Internet. It is always a good practice to develop both digital and non-digital learning strategies to ensure that all children have access to learning

material and support. Flexibility is important and it is best to prioritise channels of communication that can reach a large number of families while also exploring specific solutions to target those in particularly isolated regions. Instead of siloed solutions, it is best to adopt open and international standards to secure interoperability and integration of remote learning solutions that will facilitate better data collection and a deeper understanding of the learning experience when students are learning remotely. Local broadcasting partners can be part of the solution. In many countries, the national public broadcasting company has been the backbone of remote learning, especially when a large proportion of students do not have access to the Internet. Different countries have managed to open slots in the broadcaster's programming schedule for daily educational TV shows – either using existing material or creating new live content (e.g. live lessons) with teachers.

During the pandemic, education communities in different regions have created an inventory of existing learning resources available to teachers and students. Content aggregation, curation and adaptation are good practices to promote. Curation of learning materials could imply mapping and tagging the resources according to the respective national curriculum (or local curricula) by grade, discipline and topic to make them easily identifiable by teachers and students (as well as parents). When possible, it will be important to ensure that these resources are adaptable to the mobile version, but accessing these resources should not require unnecessary bandwidth consumption. It will be important to sign copyright and intellectual property agreements from day one.

When possible, prioritise locally relevant contents. When it comes to content, the context and the relevance of the resources will be a key attribute. In addition, the more contents are elaborated or adapted the more relevant will it be to implement sound quality control mechanisms. Finally, simplicity and shareability could be valuable attributes. The resources should be short, simple and actionable. Teachers should not need to spend long hours preparing new learning materials but, when possible, prioritise reproposing existing guidance and educational resources to share them through collective platforms for wider use.

The pandemic has shown that perfect is the enemy of the good. This means staying open to feedback, but also being ready to troubleshoot any problems that arise along the way. Deploy capacity to adjust as much as possible based on users' feedback. This means, among others, to activate channels for listening, gathering information and providing guidance (technical, pedagogical, emotional).

Zero rates enable learners to access educational resources through online platforms accessible through mobile phones or through data packages to support families who need it most. Mobile data packages also support the use of messaging and calls that could complement radio and TV learning modalities. For example, in Argentina, browsing the governmental education portal Educ.ar is free of charge through an agreement between the ministry and telephone companies. In Croatia, telecommunications providers have agreed to distribute SIM cards to low-income students to provide them with free Internet access. Jamaica established partnerships with Internet service providers to support subsidised data plans as well, zero-rated learning websites and free SIM cards for parents.

Uruguay's Ceibal en Casa (Ceibal at Home) is an interesting case, featured in the continuity stories, where a versatile learning management system, communication features and more than 170 000 educational resources, including adaptive solutions and gamification resources, are available for students and teachers. The programme also includes facilitating access to devices in households where they were needed and expanding digital infrastructure by 400% to reach disadvantaged students.

These experiences show that, where digital infrastructure is present, facilitating access to content by using free to navigate online portals or providing zero-rate data packages can be a good practice. However, this should not be only a "technical" decision, it is important to take into account the opinions of students and teachers when taking these decisions, since they will be the final users of these tools. Learning management systems can be a flexible portal to provide openly accessible resources for teachers,

students and parents and increase their interaction. More than the cutting-edge attribute of the technology, it is important to ensure that online platforms and the communication channels adopted are easy to use (user-friendly interface, providing guidelines for teachers and students, and rapid help service).

How did countries enhance organisational capacities?

Facing the worst crisis for education and learning in a century (World Bank, 2021[8]) impacted heavily on education systems' capacities as remote learning required redesigning and adapting many key features that were planned for and thought of for in-person learning. Some of these include rethinking curriculum delivery and prioritising learning goals, modifying or adjusting the academic calendar, as well as quickly adapting monitoring and evaluation systems designed for in-person learning to assess if remote learning was being taken up and if students were learning.

Additionally, the emergency response led countries to support and collaborate with other countries as well as to establish partnerships with non-profit and private organisations to further strengthen their remote learning strategies. The massive school closures reminded education systems that they cannot and should not operate in isolation (see Box 2.5).

Rethinking learning goals and adjusting the academic calendar

Banerji (2020[19]) highlighted lessons from previous research on learning losses during summer holidays in India, arguing that a focused effort on foundational skills (such as literacy and numeracy) when schools open can lead to improvements over a short time frame. The challenge of adjusting the curriculum and rethinking learning goals is, however, twofold during the ongoing pandemic. On the one hand, there is a need to have remote learning content that maps to the country's curriculum and, if a multichannel strategy is in place, that these different media complement each other to attain the expected learning goals. On the other hand, as countries started to reopen in the latter half of 2020, education systems which sent students back to some form of in-person learning (e.g. staggered, by shifts, by grades, etc.) needed to accelerate learning to account for the reduced learning that occurred during the lockdown period.

As global school reopenings have moved in a pendular manner following the trajectory of contagion peaks of the virus, the question on what to prioritise (and the unspoken question of what to sacrifice) remained relevant for education systems.

In the Middle East and North Africa, TV lessons focused on average on core subjects of the curriculum or prioritised content for students in grades preparing for high-stakes examinations.[6] In Panama, authorities adapted the curriculum to focus on essential skills and resilience using an integrated platform that combined TV, radio, print and online resources (Ministerio de Educación de la República de Panamá, n.d.[20]). Pakistan prioritised TV lessons focused on English, maths and science. Kenya declared by mid-July that all schools in the country would remain closed until January 2021 and focused on making remote learning more accessible to all students (BBC News, 2020[21]) and utilised TV content and radio lessons that had been developed before the pandemic which helped reach students without access to the Internet (Education Global Practice, 2020[16]). According to the first round of the survey on national responses to COVID-19, 62% of countries were planning to adjust their curriculum by reducing content, reducing subjects or giving each school the autonomy to decide how to re-evaluate learning goals (UNESCO Institute for Statistics, 2020[22]).

Collaboration and partnerships

Engaging a wider ecosystem of allies or partners allowed countries to better respond to the circumstances and deploy remote learning channels faster without having to start from scratch (World Bank, 2020[23]).

Using contextually relevant content aligned with the curriculum during remote learning was easier for countries that already had experience providing learning through these channels. For example, Peru's Ministry of Education partnered with its Mexican counterpart to be able to access their TV lessons previously developed to cover the rural population, as described in one of the continuity stories. In Liberia and Sierra Leone, the Ministries of Education launched radio educational programming within days of school closures as they had developed content during the Ebola outbreak in 2014 (Lamba and Reimers, 2022[24]). Rising Academies, an organisation that supported radio content, launched "Rising On Air" in these countries (Box 1.A3 in Annex 1.A) and offered its content free of charge, it has been used in approximately 20 countries (HundrED, 2021[25]).

In Nigeria, the State of Edo launched Edo-BEST@Home (Munoz-Najar and Osa Oviawe, 2022[26]), a mobile-based extension of the Edo Basic Education Sector Transformation (Edo-BEST) programme, developed as a public-private partnership between Edo's State Universal Basic Education Board, the World Bank and Bridge International Academies. As one of the continuity stories describes, Edo-BEST@Home has been rapidly scaled at a state level and is also being used by other schools in other states in Nigeria.

Non-profit organisations such as Enseña Peru (Mosso and Reimers, 2022[27]), Enseña Colombia, Fundação Lemann, Fundación Súmate, Fundación ProFuturo, among many others have played a key role in supporting governments in designing and implementing remote learning strategies rapidly, monitoring access, and testing their efficacy.

Better data for better decisions

Monitoring. In times of crisis, investing in "no regret policies" such as enhancing standard data collection on attendance through phone surveys (see, for example, the World Bank's (2020[28]) high-intensity phone surveys to track the impacts of COVID-19) might help countries learn and act as needed to avoid dropouts and be able to determine if students are accessing education modalities (Dercon, 2020[29]; Mendez Acosta and Evans, 2 October 2020[30]). However, systematised and sustained data-collection efforts among countries to check for attendance, engagement and content retention have not necessarily been widespread or at large scale.

Assessment. In addition to data to monitor and guide education policies, assessments have a key role to play as they serve as a feedback mechanism providing teachers, parents and governments with a better vision of the learning process taking place during school closures (Liberman, Levin and Luna-Bazaldua, 2020[31]). Whether formative or summative assessments implemented by teachers at the school level, national examinations, or large-scale system level assessments, all serve to capture learning progress taking place (or lack thereof) and can serve to better tailor remedial strategies in education systems.

Many countries cancelled or postponed high-stakes examinations (e.g. Haiti, Mozambique and Pakistan), and some reduced the curriculum areas to be assessed. For example, Saudi Arabia switched the Standardised Achievement Admission Test to an online format and content was adapted to remove items from the schooling period affected by COVID-19. It is estimated that during COVID-related closures and as schools reopened, the main type of assessment used by education systems was school-based formative assessment, with 65% of countries implementing it at primary level and 62% at secondary level (UNESCO, UNICEF and World Bank, 2020[15]). Examples of countries relying on formative assessment include Cambodia, Estonia and Uruguay.

The COVID-19 pandemic presents significant opportunities to innovate and redesign systemic approaches to monitoring and evaluation. The ubiquity of formative assessment has highlighted the central role of teachers to respond to the different needs of students and adjust their teaching practices accordingly. Not all learning processes are equivalent and developing different competences can require higher, and in some cases lower, levels of interaction according to each student's needs. High- or low-tech solutions and

their limitations might also support the development of some skills better than others, which is something that should be further studied during the second year of the pandemic.

Box 2.5. What did we learn in terms of institutional readiness?

The pandemic has made it clear that Ministries of Education cannot operate in isolation. Given the interdisciplinary nature of the digital education endeavours, it is critical that ministries work in close articulation with other entities (public, private, academic) to effectively orchestrate different players and secure the quality of the overall learning experience instead of leading each one of the critical services needed (e.g. financing, deploying connectivity, acquisition of devices and learning materials, training teachers, monitoring, etc.). In some countries, the preferred institutional model for managing the educational policy is defined by high levels of centralisation, while in others the preference is a more decentralised approach. The overall challenge has been (and will be) to effectively convene and articulate the digital education ecosystem which tends to be very dynamic, convening all the key players (product and service providers). Ministries of Education and related entities can establish partnerships between different stakeholders and rely on existing links and networks at the regional and national levels (ministry, EdTech companies, local and regional authorities, etc.), both to mobilise financial and human resources and to solve logistical problems. Developing partnerships with companies and non-profit organisations is strategic to avoid delays due to bureaucratic procedures. In other words, to maintain constant dialogue, it is important to build and facilitate good relations (and co-ordination) with all stakeholders.

A good practice before mobilising all the required stakeholders is the effective (and timely) diagnostic of the situation, defining the problem and dividing responsibilities for the different aspects of implementing the solution. The diagnostic can be external (to understand the main necessities of the education community and the characteristics of the technological infrastructure and the human capacities available), or internal (to clearly define what capacities are available within the ministry and what could be enriched by external collaborators): understand the context, needs and constraints of the target population, including their level of access to materials (radio, TV, phone, smartphones, connectivity and print) and the support required.

Where possible, externalise areas where the institution does not have enough capacities, experience or simply cannot respond with the effectiveness or in the time needed.

Devote time to think about how the strategy will continue in the future. The emergency responses adopted during the first year of the pandemic will need to be assessed by the competent authorities to define short-, medium- and long-term plans addressing questions such as what support is needed to deploy effective remote and/or blended learning systems? What capacities will need to be consolidated? What institutional designs (at national or international level) can be helpful to consider?

## Lessons learnt: From remote learning to blended and in-person learning?

Box 2.6. What is blended or hybrid learning?

UNESCO (2020[32]) defines blended learning as a learning modality that combines both remote learning channels and in-person learning to improve students' experience and ensure learning continuity. Other definitions understand blended or hybrid learning as any combination of in-person learning with digital or online channels of learning (Fullan et al., 2020[33]; IBE-UNESCO, n.d.[34]).

While this definition may sound simple at first glance, the concept is more complex in the sense that it contains a variety of forms, ranging from a student attending school one day per week and receiving remote learning the other days to students attending school the whole week but using remote learning as a complementary measure to accelerate learning. Students' experiences, learning processes and social experiences therefore vary widely according to which type of blended approach they might be receiving.

The pandemic has caused the largest school closures in recent history (Our World In Data, n.d.[35]) and while the emergency response relied heavily on the use of remote learning, countries across regions are increasingly relying on in-person, blended learning or mixed modalities according to the COVID-19 Global Education Recovery Tracker. By December 2021, in-person learning had increased in Africa, Europe and Central Asia, as well as East Asia Pacific while hybrid learning was still widely used in South Asia (Figure 2.2). Yet, partial and ongoing school closures produced by outbreaks (still) make remote learning a modality for many children and young people for the foreseeable future.

Figure 2.2. Learning modalities during the COVID-19 pandemic at primary school level, per region
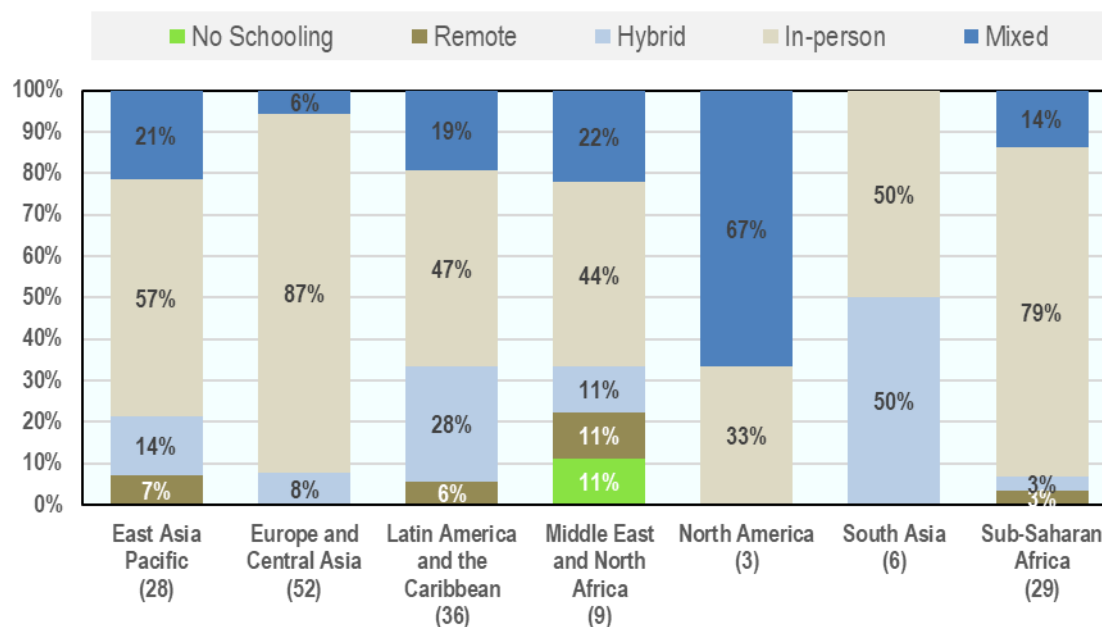
Note: Please note that in these calculations, countries that implement more than one learning modality appear as "mixed". The number of in parenthesis mentions the number of countries that responded.
Source: Johns Hopkins University, World Bank and UNICEF (2021[18]).

Even by the time the pandemic ends, it is possible that there will be a legacy of resilience across education systems going forward. It is also important to highlight the continued national and global efforts to put remote learning modalities in place, oftentimes in record time, as illustrated by the continuity stories. Additionally, rarely have there been so many institutions in the international community, governments, non-profits and the private sector working together to advise, compile and reflect on emerging lessons for education systems.

There are some ideas about how remote learning might become a long-term feature among some education systems.

Remote learning can help education systems become more inclusive. Leaving no child behind became a priority for countries. In a way, school closures highlighted the inequalities already present but perhaps hidden while student learning occurred at the same place. Families with more income and time to help their children could invest in more learning resources, perhaps even access to tutoring. Families with lower income levels may not have had time to support their children or the means to access devices or data packages. Additionally, the roll-out of remote learning modalities has highlighted inequalities within households; for example, with girls accessing devices less than boys or with children with special educational needs requiring more support than their siblings.

Some continuity stories that illustrate this include:

- *Turkey: Özelim Eğitimdeyim* (Vidal, 2022[36]). The "I am special, I am in education" mobile application specifically designed for students with special educational needs, from learning difficulties to sensory and cognitive impairments, aims to ensure maximum engagement not only from the students, but also to support their families and caregivers with useful educational resources.

- *Peru: Aprendo en Casa (I Learn at Home)* (Munoz-Najar, 2022[37]). The Ministry of Education leveraged existing resources and engaged various stakeholders to build a multichannel remote learning solution that was rapidly scaled at the national level. Ministry officials mobilised and developed resources in three key components of the remote learning strategy: 1) infrastructure and connectivity; 2) content; and 3) delivery platforms. They provided alternative arrangements for students who do not have the required technology or who have special needs or are in remote locations.

Remote learning can reach more students and/or complement in-person learning. It is often easy to forget how two students sitting side by side in a classroom may have very different backgrounds, with one perhaps having to walk for hours to get to school, or how difficult it is to recruit and keep teachers that need to work in remote, rural or dangerous areas. It is well known that some of the resources that are being used now were first developed in response to previous pandemics such as Ebola, but it is not that common to recognise that resources also come from refugee and rural education. In fact, these two areas will benefit from all the widespread production and adaptation of new contents during the COVID-19 pandemic. Educational TV lessons, for example, were used before the pandemic to "support an inadequate supply of secondary education due to a shortage of qualified teachers willing to work in rural or marginalised areas, especially in developing countries" (Calderoni, 1998[38]; Banerjee et al., 2013[39]) as well as in areas with high teacher absenteeism (Navarro-Sola, 2019[40]).

A continuity story that illustrates this is:

- *India (Telangana): Remote learning and village learning circles for disadvantaged students* (Zacharia, 2022[41]). Once the lockdown was lifted and small gatherings were allowed, student-led "village learning circles" were established to ensure that students without access to other forms of remote learning (e.g. mobile phone or TV-based lessons) were not left behind. The village learning circles model can also easily be used in other contexts, including after the pandemic, for instance to accelerate learning or to provide remedial support.

Remote learning can help build resilience into education systems. In the education sector, resilience refers to "the ability of children, families, communities and systems to withstand, adapt to and recover from shocks and stresses". Resilient education systems enable countries to respond to the immediate challenges of safely reopening schools and positions them to better cope with future crises (UNESCO, 2021[7]; Giannini, Jenkins and Saavedra, 2021[42]). The pandemic has made us rethink the way children learn, the role of teachers and of parents, and the use of assessments. It has also forced us to re-evaluate what skills students and teachers need beyond the traditional curriculum. While it might be difficult to impart lessons to students on core academic subjects (language, science, maths, etc.) using a variety of remote learning channels (radio, TV, mobile, online platforms, print), socio-emotional skills such as self-regulation can allow students to adapt better and capitalise on the higher level autonomy that might come with remote learning (Carretero et al., 2021[43]). Additionally, research shows that educational strategies that better support the development of students' cognitive and behavioural skills such as decision making, anxiety control, communication, self-reliance and assertiveness are more likely to succeed, and that holistic education approaches that include mental health and well-being considerations can be effective to support learning in the long term (The Lancet, 2021[44]).

India, New Zealand and Nigeria provide some examples:

- ***Nigeria: Edo-BEST@Home*** (Munoz-Najar and Osa Oviawe, 2022[26]). A mobile-based remote learning programme that extends the pre-existing Edo Basic Education Sector Transformation (Edo-BEST) programme includes a virtual coaching programme and a helpdesk so that teachers can request specific ongoing support.
- ***India: Arts for All, Slam Out Loud*** (Agrawal et al., 2022[45]). Slam Out Loud is an Indian non-profit that uses the arts along with multiple low-tech platforms to deliver support for arts-based socio-emotional learning and mental well-being to the most vulnerable children at scale. Its resources are free of charge, interactive, and accessible in English and Hindi (and being translated into Punjabi, Tamil, Malayalam and Marathi).
- ***New Zealand: Te Rito Toi*** (van Lieshout, 2022[46]). Te Rito Toi is an online resource to support primary education teachers in addressing student well-being as they return to the classroom. Te Rito Toi is a metaphor in Māori representing how the arts (*Toi*) are at the centre of all growth. The project provides guidelines for principals and teachers, lesson plans, detailed strategies for classroom support, and publishes accessible research on the bigger context of art and social and emotional learning on its online platform.

Conclusion

Before concluding, it is important to keep in mind that the innovations documented by the continuity stories were implemented by different governments and organisations in "emergency mode", where rapid response was critical. The experiences included in this publication were not necessarily applied at scale. In some cases, they benefited only a few communities or a small subset of the school systems. After the first year of the pandemic, it is time to reflect deeper on the scalability (at a national level or similar) and the medium- and long-term learning impact of these initiatives. In other words, quality and impact should now be the lenses through which these innovations need to be analysed (USAID, 2020[47]). In some cases, the objection may be to replicate these continuity stories at scale while in others it may be to adapt or transform using lessons learnt or reinvent what can be done much better.

The COVID-19 pandemic will have long-term implications for learning and the economic prospects of this generation

It is estimated that by February 2021, schools had been closed for almost a full school year for 168 million children, with education systems in the Latin America and Caribbean (Panama at 211 days) (UNICEF, 2021[48]) and South Asian regions presenting some of the highest total number of days of school closures. Additionally, there seems to be an association of countries with the longest periods of school closures with a low fixed Internet connection at home, which further exacerbates learning losses.

This generation of students might stand to lose approximately USD 10 trillion in earnings (Azevedo et al., 2020[49]), almost 10% of global gross domestic product, and in a scenario where schools remain closed and there are low mitigation and remediation strategies to support students, it was projected that learning poverty (the capacity to read and understand a simple text) may increase to 63% (World Bank Group, 2020[50]).

Getting students back to learning is crucial and this requires either effective remote learning, consolidated blended modalities or in-person education with the necessary health precautions. However, this will only be the beginning, much more work will be needed in terms of assessing learning losses, supporting the education system to implement remedial programmes and designing new actions to build back better.

Building evidence on the use of remote and blended learning: Countries need to know what is working and if learning is taking place

As countries move from coping mechanisms to face the pandemic towards recovery policies, evaluations must be carried out to find out what has worked, in what context and for whom. While many countries have focused on implementing process evaluations (checking for access and usage of learning modalities, for example), few have evaluated results (i.e. learning outcomes). Evidence from interventions deployed in this period that manage to keep students learning at scale, accompanied by cost effectiveness analysis, are pivotal, as the pandemic has also caused a decrease in national education budgets. In fact, over 60% of low-income countries are decreasing their spending (World Bank, 2021[51]). With an increasing number of schools reopening that will hopefully continue over time, countries will need to decide what interventions to implement in a context of scarce resources. Fortunately, efforts are already in place to help them determine which programmes are the most cost effective, such as the World Bank and FCDO's Global Education Evidence Advisory Panel (Building Evidence in Education; World Bank; Foreign, Commonwealth & Development Office; and UK aid, 2020[52]) which classifies policies according to the level of evidence produced as well as their cost effectiveness.

This chapter has illustrated how low- and middle-income countries as well as high-income ones have almost all devoted efforts to implement learning modalities that have taken classrooms from schools and placed them into homes across the world. Going forward, the focus needs to be on tackling learning losses and working to design and deploy education programmes to help education systems recover and accelerate learning among students. Learning from country experiences and documenting lessons from this unprecedented period is still a priority, as it will lay stronger foundations for longer term educational reforms.

The lessons learnt documented here and the analysis of the different remote learning implementations will shed light on how countries can incorporate these high- and low-tech educational solutions in the future. While many countries are still suffering the consequences of the pandemic, and many schools are still closed for sanitary reasons, the experiences shared in this publication bring some promising opportunities for the future. There is no doubt that many of the experiences included here will require further adaptation or improvement. Some of these initiatives could be useful not only for remote learning, but also during school reopenings and for remedial education that is on the horizon of many educational systems.

Acknowledgements

Annex 2.A. Highlights on continuity stories per topic

> ### Box 2.A.1. Spotlight: Five continuity stories focused on human readiness
>
> While not a comprehensive list, these stories have explored ways to support teachers and keep them connected with their peers, students and parents.
>
> **Colombia: A prender la Onda (To Turn on the Wave)** (Saenz, Medina and Uribe Holguin, 2022[53]). This is an initiative led by a group of Enseña por Colombia (Teach for Colombia) to support students' learning during the COVID-19 crisis. A prender la Onda designs, records and distributes learning audio podcasts through WhatsApp, local radio stations and other streaming platforms.
>
> - A grassroots solution led by teachers, they design and record broadcasts for other teachers, students and their families. Teachers and students received training to design produce and edit podcasts.
>
> **India (Telangana): Remote learning and village learning circles for disadvantaged students** (Zacharia, 2022[41]). Telangana Social Welfare Residential Educational Institutions Society runs residential educational institutions to provide high-quality education to children of scheduled caste communities in Telangana who are disadvantaged and marginalised in India.
>
> - Pedagogically strong teachers from the residential institutions were trained and coached to present TV lessons and created their own.
> - Teachers called students and provided them with one-on-one support when needed or when students experienced difficulties in accessing remote education channels.
> - Teachers were trained on the flipped classroom method via WhatsApp to highlight greater equity between students and teachers.
>
> **Uganda: Popow's radio response to COVID-19** (Kaiser Schuster, Ringe and Reimers, 2022[54]). Prince of Peace Orphans and Widows (POPOW) is a community-based non-profit organisation focused on empowering community youth, orphans and vulnerable children to realise their full potential and achieve sustainable livelihoods.
>
> - For younger Kumam-speaking learners, the non-Kumam broadcasts held a double challenge in learning material and deciphering a language they are not yet fluent in.
> - POPOW sponsored educational radio talk shows for teachers to broadcast their lessons in Kuman to reinforce learning and keep Kumam-speaking students learning in academic and socio-emotional domains.
> - Teachers and students were engaged in panels in which they could speak about their experiences and share multiple perspectives while creating a sense of community among listeners. These panels focused on students' socio-emotional development during the pandemic.
>
> **Chile: Fundación Súmate – Red de Escuelas de Segunda Oportunidad (Súmate Foundation – Second Chance Schools Network)** (Madero, Vargas and Reimers, 2022[55]). The Súmate Foundation supports out of schoolchildren and youth between the ages of 12 and 21 in resuming their schooling by joining a second chance school and participating in an adaptation process.

- Súmate relied on free social networks, such as WhatsApp, Instagram and Facebook, and on students' mobile phones as communication channels to continue providing emotional support to students and their families, as well as to teachers.

- It encouraged collaboration among teachers and provided peer support to balance the educators' personal lives with the demands of the young people they help. Teachers have become more open to knowing more about other teachers in this virtual setting. A strong culture of teacher engagement in the school was developed.

United States and Ukraine: Virtual Edcamps (Modica, 2022[56]). The Edcamp model is built on the idea that teachers can learn from and inspire one another to enhance their professional skills with the goal of improving student outcomes.

- Since March 2020, dozens of flexible and low-cost online Edcamps have supported tens of thousands of teachers to learn about and share their experiences with teaching remotely during the COVID-19 crisis.

- Edcamp Ukraine successfully hosted the national online Edcamp, "High Five for Education" and in the United States, Digital Promise hosted a series of online Edcamps collectively titled "Edcamp: Powerful Learning at Home".

Box 2.A.2. Spotlight: Five continuity stories focused on technological readiness

While not a comprehensive list, these stories have highlighted how to support education continuity by making it more inclusive, even amidst challenges such as the lack of digital infrastructure and connectivity.

India (Madhya Pradesh): #Ab Padhai Nahi Rukegi (#Learning will not stop) (Batra, Nangia and Reimers, 2022[6]). COVID-19 school closures in Madhya Pradesh led to strategies to continue learning through digital (prioritising sharing content through WhatsApp) and non-digital channels (radio, TV and printed workbooks) under the campaign "Learning will not stop".

- Large-scale randomised calling was set up at the state level to get feedback from teachers and parents on the implementation on the ground.

- Once schools reopen, the digital library and WhatsApp communication channels established during the pandemic can be integrated with in-person instruction, and leveraged to reinforce everyday lessons, as going back to school may include regular periods of school closures.

India, Kenya, Lebanon, Pakistan and Zambia: Education Above All's Internet Free Education Resource Bank (IFERB) (Maheshwari-Kanoria, Zahir and Petrie, 2022[57]). Education Above All developed IFERB (Education Above All, n.d.[58]) to promote continuity of education for the world's most marginalised learners.

- IFERB contains over 120 project-based learning resources as well as an activity bank for students with disabilities that can be implemented using minimal materials while requiring virtually no Internet connection. Its resources can be implemented using a variety of media depending on the context, including phone calls, SMS or other text-messaging applications using feature phones or smartphones, radio and in-person classes.

- IFERB's adoption in over five countries suggests that it is relevant across geographical contexts and user types. Materials have been translated into eight languages and continue to be contextualised by partners.

Colombia: Colombia Aprende Móvil (Colombia Learns Mobile) (Sánchez Ciarrusta, 2022[59]). The Ministry of National Education provided a wide variety of free educational resources to the educational community through its online platform, but to guarantee access to this educational content nationwide during the pandemic, the government also required that mobile operators to provide zero-rating.

- As 44.9% of individuals use a computer in Colombia and 85.2% a mobile phone, the Ministry of National Education decided to create a mirror portal of Colombia Aprende (Colombia Aprende, n.d.[60]) for mobile phone in collaboration with the Ministry of Information Technology.
- The initiative facilitates access for teachers, parents and students in rural and urban areas through free navigation in the mobile version of the Colombia Aprende platform.
- The programme was not a stand-alone initiative. It has been combined with the broadcasting of educational content both on radio and on television.

Brazil: Secretaria Estadual de Educação de São Paulo (São Paulo State Department of Education) (Dellagnelo and Reimers, 2022[61]). The State of São Paulo was the first state in Brazil to implement consistent measures to respond to school closures due to the COVID-19 pandemic. Enabling factors were a combination of strong leadership and the collaborative work of a dedicated executive team and a network of influential donors.

- To reach the maximum number of students and their families, the state offered a combination of printed material, TV programmes and online platforms. This model has been replicated in other states of Brazil.
- The state redirected financial resources towards sponsoring students' Internet access and the contract with the TV station to broadcast the media centre's video classes.

Pakistan: TeleSchool and Taleem Ghar (Educational TV at Home) (Zacharia, 2022[62]). Pakistan's Ministry of Federal Education and Professional Training launched an education TV initiative called TeleSchool and, at a regional level, the Punjab province's School Education Department launched its own local initiative called Taleem Ghar.

- Television reach stands at roughly 95% of the population across Pakistan and roughly 90% across the province of Punjab, making television the viable option for remote learning.
- TV broadcast scheduling and communication campaigns were developed to spread awareness regarding programming to students, parents/caregivers and teachers.

Box 2.A.3. Spotlight: Five continuity stories focused on institutional readiness

While not a comprehensive list, these stories have highlighted how countries leveraged existing content (both their own and third party) and how they have revaluated learning goals and prioritised foundational skills during the lockdown.

Peru: Aprendo en Casa (I Learn at Home) (Munoz-Najar, 2022[37]). Peru's Ministry of Education, with support from non-governmental organisations, technology companies, telecommunication operators and broadcasters launched a multichannel remote learning initiative to mitigate learning loss as a result of school closures: Aprendo en Casa.

- A large pedagogical team at the Ministry of Education created as well as curated already existing content, which consisted of mainly educational videos and digital workbooks.

- This team also curated external content that third-party organisations such as Plaza Sesamo (Mexico) and Paka Paka (Argentina) agreed to share for free with Aprendo en Casa.

Mexico: Aprende en Casa (Learning at home) (Florencia Ripani and Zucchetti, 2022[63]). Aprende en Casa was created by the Secretary of Public Education of Mexico to provide pedagogical continuity to 25 million students from preschool to primary and secondary education nationwide.

- The backbone of the initiative was educational TV, a field in which Mexico had long-standing experience since the creation, in 1968, of Telesecundaria, a national literacy initiative based on TV shows for secondary schools in rural and isolated areas.
- Mexico's lines of implementation, involving the use of several complementary outputs, resources and services such as radio, printed materials, online contents and teacher training.

Sierra Leone and Liberia: Rising Academy Network On Air (Lamba and Reimers, 2022[24]). Rising On Air is a 20-week programme of free, ready-to-air, radio scripts and SMS content made available to partner organisations around the world.

- The programme leverages Rising's structured curriculum content redesigned for delivery via existing, widely available technologies: radio, phone and SMS. A new standardised foundational curriculum had to be created for radio so the content could be adapted for other countries and contexts.
- Radio lessons are currently being translated into Arabic for use in refugee camps, as extended school closures or intermittent school closures around the world have become likely during the COVID-19 pandemic.
- The programme has the potential to support the most remote rural students both during the pandemic and afterwards to ensure they have access to education.

Brazil: Educação Infantil no Maranhão (Early Learning in Maranhão) (Paulet Piedra and Reimers, 2022[64]). The Brazilian State of Maranhão ranks tenth in the country's population size and is home to more than 1.8 million public school students. The secretariat's response began promptly two weeks after the initial decree mandating school closures and involved the distribution of educational content through state-owned radio and 40 regional subsidiaries.

- Compliance with National Education Board guidelines for remote learning in early childhood education required that the secretariat face a multifaceted challenge because materials had to be created with parents, not teachers, as the key target audience.
- Given the social and economic conditions in a poor state such as Maranhão, the adopted solution could help empower families to see themselves as educational agents, regardless of their own schooling trajectories.

Spain: #SeeYouInDigital (ensuring the continuity of learning) (Encinas-Martin, 2022[65]). To mitigate the consequences of school closures across the world triggered by COVID-19, the digital education programme ProFuturo put in place a contingency plan ensuring the continuity of teacher training and student learning away from classrooms.

- ProFuturo adapted its blended training methodology (usually a mix of online and face-to-face) to fully remote training including WhatsApp forums, and an offline app for teacher training.
- Some resources that were only available locally have been adapted so they can now be used at a global scale; for example, Oráculo Matemágico, an app that gamifies maths that was created by Telefónica Foundation Peru. The app was launched globally in mid-April and adapted to all Spanish-speaking contexts.

References

Agrawal, S., J. Labroo, G. Singh and S. Zacharia (2022), "India: Arts For All, Slam Out Loud", in Vincent-Lancrin, S., C. Cobo Romaní and F. Reimers (eds.), *How Learning Continued during the COVID-19 Pandemic: Global Lessons from Initiatives to Support Learners and Teachers*, OECD Publishing, Paris, https://doi.org/10.1787/bbeca162-en. [45]

Azevedo, J., A. Hasan, D. Goldemberg, S. Iqbal and K. Geven (2020), *Simulating the Potential Impacts of the COVID-19 School Closures on Schooling and Learning Outcomes: A Set of Global Estimates*, World Bank, Washington, DC, https://www.worldbank.org/en/topic/education/publication/simulating-potential-impacts-of-covid-19-school-closures-learning-outcomes-a-set-of-global-estimates. [49]

Banerjee, A., P. Glewwe, S. Powers and M. Wasserman (2013), *Expanding access and increasing student learning in post-primary education in developing countries: A review of the evidence*, Abdul Latif Jameel Poverty Action Lab, https://core.ac.uk/download/pdf/71361947.pdf. [39]

Banerji, R. (2020), *Learning "Loss" and Learning "Gain" in Primary School Years: What Do We Know from India That Can Help Us Think Forward in the COVID-19 Crisis?*, RISE Insight Note, Research on Improving Systems of Education, https://riseprogramme.org/sites/default/files/publications/20200723_RISE%20Insight%202020 _19_Banerji_UP.pdf. [19]

Barron Rodriguez, M., C. Cobo, A. Munoz-Najar and I. Sanchez Ciarrusta (2021), *Remote Learning During the Global School Lockdown : Multi-Country Lessons*, World Bank, Washington, DC, https://openknowledge.worldbank.org/handle/10986/36141. [17]

Barron, M., C. Cobo, I. Ciarrusta and A. Munoz Najar (18 February 2021), "The changing role of teachers and technologies amidst the COVID 19 pandemic: Key findings from a cross-country study", *Education for Global Development Blog*, https://blogs.worldbank.org/education/changing-role-teachers-and-technologies-amidst-covid-19-pandemic-key-findings-cross. [66]

Barron, M., C. Cobo, I. Sanchez Ciarrusta and A. Munoz-Najar (27 April 2021), "What is hybrid learning? How can countries get it right?", *Education for Global Development Blog*, https://blogs.worldbank.org/education/what-hybrid-learning-how-can-countries-get-it-right (accessed on 16 September 2021). [2]

Batra, G., A. Nangia and F. Reimers (2022), "India (Madhya Pradesh): #Learning will not stop", in Vincent-Lancrin, S., C. Cobo Romaní and F. Reimers (eds.), *How Learning Continued during the COVID-19 Pandemic: Global Lessons from Initiatives to Support Learners and Teachers*, OECD Publishing, Paris, https://doi.org/10.1787/bbeca162-en. [6]

BBC News (2020), "Coronavirus: Kenyan schools to remain closed until 2021", BBC News, https://www.bbc.com/news/world-africa-53325741 (accessed on 21 September 2021). [21]

Building Evidence in Education; World Bank; Foreign, Commonwealth & Development Office; and UK aid (2020), *Global Education Evidence Advisory Panel*, World Bank, Washington, DC, https://thedocs.worldbank.org/en/doc/542371603461026964-0090022020/original/GEEAPTORcleanRev10222020fin.pdf. [52]

Calderoni, J. (1998), "Telesecundaria : Using TV to bring education to rural Mexico", *Education* [38]

and Technology Technical Notes Series, Vol. 3/2, World Bank Group, Washington, DC, https://documents.worldbank.org/en/publication/documents-reports/documentdetail/559251468774647437/telesecundaria-using-tv-to-bring-education-to-rural-mexico.

Carretero, S., J. Napierała, A. Bessios, E. Mägi, A. Pugacewicz, M. Ranieri, K. Triquet, K. Lombaerts, N. Robledo-Bottcher, M. Montanari and I. Gonzalez-Vazquez (2021), *What Did We Learn from Schooling Practices During the COVID-19 Lockdown? Insights from Five EU Countries*, JRC Science for Policy Report, Publications Office of the European Union, Luxembourg, http://dx.doi.org/10.2760/135208.   [43]

Cobo, C. and I. Sánchez Ciarrusta (22 April 2020), "Successful examples of scaling up teaching and learning in response to COVID-19", *Education for Global Development Blog*, https://blogs.worldbank.org/education/successful-examples-scaling-teaching-and-learning-response-covid-19 (accessed on 16 September 2021).   [3]

Colombia Aprende (n.d.), *Colombia Aprende website*, http://aprende.colombiaaprende.edu.co/cainicio (accessed on 22 September 2021).   [60]

Dellagnelo, L. and F. Reimers (2022), "Brazil (São Paulo): São Paulo State Department of Education", in Vincent-Lancrin, S., C. Cobo Romaní and F. Reimers (eds.), *How Learning Continued during the COVID-19 Pandemic: Global Lessons from Initiatives to Support Learners and Teachers*, OECD Publishing, Paris,, https://doi.org/10.1787/bbeca162-en.   [61]

Dercon, S. (2020), *No-Regret Policies for the COVID-19 Crisis in Developing Countries*, CGD Note, Center for Global Development, Washington, DC, https://www.cgdev.org/publication/no-regret-policies-covid-19-crisis-developing-countries.   [29]

Education Above All (n.d.), "Education resources for home schooling", web page, Education Above All, https://resources.educationaboveall.org (accessed on 22 September 2021).   [58]

Education Global Practice (2020), *Is Remote Learning Working? Experts Perceptions and Global Experiences*, manuscript in preparation, World Bank, Washington, DC.   [16]

Encinas-Martin, M. (2022), "Spain: Learn at home", in Vincent-Lancrin, S., C. Cobo Romaní and F. Reimers (eds.), *How Learning Continued during the COVID-19 Pandemic: Global Lessons from Initiatives to Support Learners and Teachers*, OECD Publishing, Paris, https://doi.org/10.1787/bbeca162-en.   [65]

Florencia Ripani, M. and A. Zucchetti (2022), "Mexico: Learning at home", in Vincent-Lancrin, S., C. Cobo Romaní and F. Reimers (eds.), *How Learning Continued during the COVID-19 Pandemic: Global Lessons from Initiatives to Support Learners and Teachers*, OECD Publishing, Paris, https://doi.org/10.1787/bbeca162-en.   [63]

Fullan, M., J. Quinn, M. Drummy and M. Gardner (2020), *Education Reimagined: The Future of Learning*, New Pedagogies for Deep Learning and Microsoft Education, https://edudownloads.azureedge.net/msdownloads/Microsoft-EducationReimagined-Paper.pdf.   [33]

Giannini, S., R. Jenkins and J. Saavedra (2021), *Mission: Recovering Education 2021*, World Bank, https://blogs.worldbank.org/education/mission-recovering-education-2021.   [42]

Hawkins, R., M. Trucano, C. Cobo, A. Twinomugisha and I. Sánchez Ciarrusta (2020), *Reimagining Human Connections: Technology and Innovation in Education at the World*   [1]

Bank, World Bank Group, Washington, DC,
https://www.worldbank.org/en/topic/edutech/publication/reimagining-human-connections-technology-and-innovation-in-education-at-world-bank.

HundrED (2021), "Rising On Air is a 20-week program of free, ready-to-air, radio scripts and SMS content", hundrED, https://hundred.org/en/innovations/rising-on-air#9d5638b1 (accessed on 21 September 2021). [25]

IBE-UNESCO (n.d.), "Blended learning", web page, International Bureau of Education, Geneva, http://www.ibe.unesco.org/en/glossary-curriculum-terminology/b/blended-learning (accessed on 21 September 2021). [34]

Johns Hopkins University, World Bank and UNICEF (2021), *COVID-19 Global Education Recovery Tracker*, last updated as of 25 June 2021, John Hopkins University, Baltimore; World Bank, Washington, DC; United Nations Children's Fund, New York, NY, https://www.covideducationrecovery.global. [18]

Kaiser Schuster, P., F. Ringe and F. Reimers (2022), "Uganda: Popow's Radio Response to Covid-19", in Vincent-Lancrin, S., C. Cobo Romaní and F. Reimers (eds.), *How Learning Continued during the COVID-19 Pandemic: Global Lessons from Initiatives to Support Learners and Teachers*, OECD Publishing, Paris, https://doi.org/10.1787/bbeca162-en. [54]

Krönke, M. (2020), *Africa's Digital Divide and the Promise of E-learning*, africaportal, http://www.africaportal.org/publications/africas-digital-divide-and-promise-e-learning (accessed on 16 September 2021). [4]

Lamba, K. and F. Reimers (2022), "Sierra Leone and Liberia: Rising Academy Network on ai", in Vincent-Lancrin, S., C. Cobo Romaní and F. Reimers (eds.), *How Learning Continued during the COVID-19 Pandemic: Global Lessons from Initiatives to Support Learners and Teachers*, OECD Publishing, Paris, https://doi.org/10.1787/bbeca162-en. [24]

Liberman, J., V. Levin and D. Luna-Bazaldua (2020), *Are students still learning during COVID-19? Formative assessment can provide the answer*, World Bank, https://blogs.worldbank.org/education/are-students-still-learning-during-covid-19-formative-assessment-can-provide-answer. [31]

Liou, Y. and C. Petrie (2022), "Chinese Taipei: Contingency plans for hybrid models of learning", in Vincent-Lancrin, S., C. Cobo Romaní and F. Reimers (eds.), *How Learning Continued during the COVID-19 Pandemic: Global Lessons from Initiatives to Support Learners and Teachers*, OECD Publishing, Paris, https://doi.org/10.1787/bbeca162-en. [5]

Madero, C., E. Vargas and F. Reimers (2022), "Chile: Súmate Foundation – Second Chance Schools Network", in Vincent-Lancrin, S., C. Cobo Romaní and F. Reimers (eds.), *How Learning Continued during the COVID-19 Pandemic: Global Lessons from Initiatives to Support Learners and Teachers*, OECD Publishing, Paris, https://doi.org/10.1787/bbeca162-en. [55]

Maheshwari-Kanoria, J., L. Zahir and C. Petrie (2022), "India, Pakistan, Zambia, Kenya and Lebanon: Education Above All's Internet Free Education Resource Bank (IFERB)", in Vincent-Lancrin, S., C. Cobo Romaní and F. Reimers (eds.), *How Learning Continued during the COVID-19 Pandemic: Global Lessons from Initiatives to Support Learners and Teachers*, OECD Publishing, Paris, https://doi.org/10.1787/bbeca162-en. [57]

Mendez Acosta, A. and D. Evans (2 October 2020), "COVID-19 and girls' education: What we know so far and what we expect", *Center for Global Development Blog*, https://www.cgdev.org/blog/covid-19-and-girls-education-what-we-know-so-far-and-what-we-expect-happen (accessed on 21 September 2021). [30]

Ministerio de Educación de la República de Panamá (n.d.), *Plan de Acción de la Estrategia de MEDUCA para enfrentar el COVID-19: «La Estrella de la Educación no se Detiene»*, https://siteal.iiep.unesco.org/sites/default/files/sit_accion_files/11087.pdf. [20]

Modica, A. (2022), "United States and Ukraine: Virtual Edcamps", in Vincent-Lancrin, S., C. Cobo Romaní and F. Reimers (eds.), *How Learning Continued during the COVID-19 Pandemic: Global Lessons from Initiatives to Support Learners and Teachers*, OECD Publishing, Paris, https://doi.org/10.1787/bbeca162-en. [56]

Mosso, F. and F. Reimers (2022), "Peru: Teach for Peru", in Vincent-Lancrin, S., C. Cobo Romaní and F. Reimers (eds.), *How Learning Continued during the COVID-19 Pandemic: Global Lessons from Initiatives to Support Learners and Teachers*, OECD Publishing, Paris, https://doi.org/10.1787/bbeca162-en. [27]

Munoz-Najar, A. (2022), "Peru: I Learn at Home", in Vincent-Lancrin, S., C. Cobo Romaní and F. Reimers (eds.), *How Learning Continued during the COVID-19 Pandemic: Global Lessons from Initiatives to Support Learners and Teachers*, OECD Publishing, Paris, https://doi.org/10.1787/bbeca162-en. [37]

Munoz-Najar, A. and J. Osa Oviawe (2022), "Nigeria: Edo-BEST@Home", in Vincent-Lancrin, S., C. Cobo Romaní and F. Reimers (eds.), *How Learning Continued during the COVID-19 Pandemic: Global Lessons from Initiatives to Support Learners and Teachers*, OECD Publishing, Paris, https://doi.org/10.1787/bbeca162-en. [26]

Navarro-Sola, L. (2019), "Secondary school expansion through televised lessons: The labor market returns of the Mexican Telesecundaria", *Job Market Paper*, https://laianaso.github.io/laianavarrosola.com/Navarro-Sola_JMP.pdf. [40]

Our World In Data (n.d.), "School closures during the COVID-19 pandemic, Mar 21, 2020", https://ourworldindata.org/grapher/school-closures-covid?time=2020-03-21. [35]

Paulet Piedra, N. and F. Reimers (2022), "Brazil (Maranhão): Early Learning in Maranhão", in Vincent-Lancrin, S., C. Cobo Romaní and F. Reimers (eds.), *How Learning Continued during the COVID-19 Pandemic: Global Lessons from Initiatives to Support Learners and Teachers*, OECD Publishing, Paris, https://doi.org/10.1787/bbeca162-en. [64]

Saenz, M., A. Medina and B. Uribe Holguin (2022), "Colombia: To Turn on the Wave", in Vincent-Lancrin, S., C. Cobo Romaní and F. Reimers (eds.), *How Learning Continued during the COVID-19 Pandemic: Global Lessons from Initiatives to Support Learners and Teachers*, OECD Publishing, Paris, https://doi.org/10.1787/bbeca162-en. [53]

Sánchez Ciarrusta, I. (2022), "Colombia: Colombia Learns Mobile", in Vincent-Lancrin, S., C. Cobo Romaní and F. Reimers (eds.), *How Learning Continued during the COVID-19 Pandemic: Global Lessons from Initiatives to Support Learners and Teachers*, OECD Publishing, Paris, https://doi.org/10.1787/bbeca162-en. [59]

The Lancet (2021), "COVID-19: The intersection of education and health", *The Lancet*, Vol. 397/10271, p. 253, http://dx.doi.org/10.1016/s0140-6736(21)00142-2. [44]

The World Bank (2020), *Household monitoring systems to track the impacts of the COVID-19 pandemic*, The World Bank, https://www.worldbank.org/en/topic/poverty/brief/high-frequency-monitoring-surveys. [28]

UNESCO (2021), "Education: From disruption to recovery", United Nations Educational, Scientific and Cultural Organization, Paris, https://en.unesco.org/covid19/educationresponse (accessed on 21 September 2021). [7]

UNESCO (2020), *COVID-19 Response – Hybrid Learning: Hybrid Learning as a Key Element in Ensuring Continued Learning*, United Nations Educational, Scientific and Cultural Organization, Paris, https://en.unesco.org/sites/default/files/unesco-covid-19-response-toolkit-hybrid-learning.pdf. [32]

UNESCO Institute for Statistics (2020), *Response to COVID-19 School Closures, 1st Iteration*, based on UNESCO-UNICEF-World Bank Survey on National Education, https://infogram.com/final-unesco-education-covid-19-data-1hke60d1x7m525r. [22]

UNESCO, UNICEF and World Bank (2020), *Survey on National Education Responses to COVID-19 School Closures, Round 2*, United Nations Educational, Scientific and Cultural Organization, Paris; United Nations Children's Fund, New York, NY; The World Bank, Washington, DC, http://tcg.uis.unesco.org/survey-education-covid-school-closures. [15]

UNESCO, UNICEF and World Bank (2020), *What Have We Learnt? Overview of Findings from a Survey of Ministries of Education on National Responses to COVID-19*, United Nations Educational, Scientific and Cultural Organization, Paris; United Nations Children's Fund, New York, NY; UNICEF Office of Research – Innocenti, Florence; and World Bank, Washington, DC, http://tcg.uis.unesco.org/wp-content/uploads/sites/4/2020/10/National-Education-Responses-to-COVID-19-WEB-final_EN.pdf. [9]

UNICEF (2021), *COVID-19 and school closures, one year of education disruption*, UNICEF, New York, https://data.unicef.org/resources/one-year-of-covid-19-and-school-closures/. [48]

UNICEF (2020), "COVID-19: At least a third of the world's schoolchildren unable to access remote learning during school closures, new report says", press release, United Nations Children's Fund, New York, NY, http://www.unicef.org/press-releases/covid-19-least-third-worlds-schoolchildren-unable-access-remote-learning-during. [10]

United Nations Children's Fund and International Telecommunication Union (2020), *How many children and young people have internet access at home? Estimating digital connectivity during the COVID-19 pandemic*, UNICEF, New York, https://data.unicef.org/resources/children-and-young-people-internet-access-at-home-during-covid19/. [12]

USAID (2020), *Remote Developmental Evaluation: A Guide for Funders and Practitioners*, United States Agency for International Development, https://pdf.usaid.gov/pdf_docs/PA00X6FM.pdf. [47]

van Lieshout, K. (2022), "New Zealand: Reconnecting students through the arts", in Vincent-Lancrin, S., C. Cobo Romaní and F. Reimers (eds.), *How Learning Continued during the COVID-19 Pandemic: Global Lessons from Initiatives to Support Learners and Teachers*, OECD Publishing, Paris, https://doi.org/10.1787/bbeca162-en. [46]

Vidal, Q. (2022), "Turkey: I am special, I am in education", in Vincent-Lancrin, S., C. Cobo [36]

Romaní and F. Reimers (eds.), *How Learning Continued during the COVID-19 Pandemic: Global Lessons from Initiatives to Support Learners and Teachers*, OECD Publishing, Paris, https://doi.org/10.1787/bbeca162-en.

World Bank (2021), "Two-thirds of poorer countries are cutting education budgets due to COVID-19", press release, World Bank, Washington, DC, https://www.worldbank.org/en/news/press-release/2021/02/22/two-thirds-of-poorer-countries-are-cutting-education-budgets-due-to-covid-19. [51]

World Bank (2021), *Urgent, Effective Action Required to Quell the Impact of COVID-19 on Education Worldwide*, https://www.worldbank.org/en/news/immersive-story/2021/01/22/urgent-effective-action-required-to-quell-the-impact-of-covid-19-on-education-worldwide. [8]

World Bank (2020), "Engage the ecosystem: Reimagining human connections technology and innovation in education at the World Bank", World Bank, Washington, DC, https://www.worldbank.org/en/topic/edutech/brief/engage-the-ecosystem-reimagining-human-connections-technology-and-innovation-in-education-at-the-world-bank?cid=edu_tt_education_en_ext_edutapproach&cid=edu_tt_education_en_ext (accessed on 21 September 2021). [23]

World Bank (2020), *Pivoting To: Leveraging Lessons from the COVID-19 Crisis for Learners with Disabilities*, World Bank, Washington, DC, http://pubdocs.worldbank.org/en/147471595907235497/IEI-Issues-Paper-Disability-Inclusive-Education-FINAL-ACCESSIBLE.pdf. [14]

World Bank Group (2021), "Online learning models: How to include youth in low bandwidth areas", *Knowledge Brief Series*, Issue 13, World Bank Group, Washington, DC, https://www.s4ye.org/sites/default/files/2021-04/S4YE%20Brief%20Online%20Learning%20Models%20for%20Low%20Bandwidth%20Areas%20.pdf. [13]

World Bank Group (2020), "Gender dimensions of the COVID-19 pandemic", Policy Note, World Bank Group, Washington, DC, https://openknowledge.worldbank.org/bitstream/handle/10986/33622/Gender-Dimensions-of-the-COVID-19-Pandemic.pdf. [11]

World Bank Group (2020), *Learning Poverty in The Time Of Covid-19: A Crisis Within A Crisis*, World Bank Group, Washington, DC, https://documents1.worldbank.org/curated/en/163871606851736436/pdf/Learning-Poverty-in-the-Time-of-COVID-19-A-Crisis-Within-a-Crisis.pdf. [50]

Zacharia, S. (2022), "India (Telangana): Remote learning and village learning circles for disadvantaged students", in Vincent-Lancrin, S., C. Cobo Romaní and F. Reimers (eds.), *How Learning Continued during the COVID-19 Pandemic: Global Lessons from Initiatives to Support Learners and Teachers*, OECD Publishing, Paris, https://doi.org/10.1787/bbeca162-en. [41]

Zacharia, S. (2022), "Pakistan: TeleSchool and Taleem Ghar (Educational TV at Home)", in Vincent-Lancrin, S., C. Cobo Romaní and F. Reimers (eds.), *How Learning Continued during the COVID-19 Pandemic: Global Lessons from Initiatives to Support Learners and Teachers*, OECD Publishing, Paris, https://doi.org/10.1787/bbeca162-en. [62]

Notes

[1] María Rebeca Barron Rodríguez, Education and Technology Analyst, World Bank.
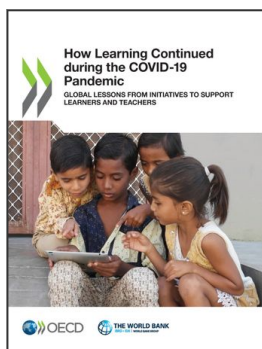
[2] Cristobal Cobo, Senior Education and Technology Specialist, World Bank.

[3] Low tech is technology that is designed to be as simple as possible. It can also be associated with a higher availability and with a lower learning curve (is easier to use). Examples include solutions which are more affordable, such as television and radio, landline phone calls, basic feature phones, or printed materials. Low tech can also encompass those devices that require connectivity but can work in contexts of irregular sporadic access to the Internet or no access at all.

4 To give one illustrative example, in Brazil, according to a survey conducted by Instituto Peninsula, 83% of teachers did not consider themselves prepared to teach remotely, 67% were anxious, 38% felt tired, and less than 10% were happy or satisfied (Barron et al., 18 February 2021[66]).

5 The World Bank recommended a set of policies focused on mitigating the twin shocks caused by COVID 19: 1) the near-universal closing of schools at all levels; and 2) the economic recession sparked by measures to control the pandemic. These were mapped to three phases: coping, managing continuity, and improvement and acceleration. Coping policies are designed to help education systems manage the immediate impacts of school closures, such as preventing learning loss through remote learning. Managing continuity policies aims to guarantee that schools reopen and reintegrate students to start learning recovery. Improvement and acceleration policies focus on recommendations to build stronger education systems, incorporating innovations developed during the crisis response.

6 For example, Egypt, Lebanon and Tunisia (Barron Rodríguez et al., 2021[17]).