Global Knowledge Report:

Good Practice and Lessons Learned on Distance Education during COVID-19

August 2020

Contents

Executive summary

Purpose

This Global Knowledge Report covers past evidence and current practices to support remote learning during and after school closures in response to the COVID-19 crisis. The purpose of the report is to gather global evidence on what has worked in delivering remote learning, to present lessons learned, and to provide insights of relevance to the Middle East and Northern Africa (MENA) region, in preparation for the next stage of the education response to the crisis.

Findings

Past evidence highlights five main risks associated with school closures:

1. Student loss of learning;
2. Threats to physical and mental health;
3. Increased student dropout;
4. Increased risk of teacher attrition; and
5. A decrease in educational financing.

In many countries in the MENA region, these challenges are exacerbated by past and ongoing conflicts, and the additional needs of large refugee populations.

To maximize equity in access and utilization, remote learning technologies need to be used in combination.

Evidence from global responses to the COVID-19 pandemic highlights the importance of taking a comprehensive approach to the delivery and dissemination of remote learning content in order to maximize reach and utilization. Remote learning technologies – including online platforms and resources, TV and radio – need to be used in combination to address inequalities, particularly those associated with unequal levels of internet connectivity and access to digital devices.

Remote learning should also be supplemented with print materials. Once schools reopen, these media can be used in blended learning approaches, in which technology-based education is combined with face-to-face learning.

Access to data, devices and connectivity is not the only barrier to online learning.

While access to technology is an important aspect of the digital divide, other barriers also contribute to the risk that COVID-19

will exacerbate existing inequalities. These barriers can emerge as digital gaps in the following forms:[1]

Digital access gap: The access gap is derived not only from affordability and connectivity barriers. It is also associated with challenges of: i) inclusiveness in terms of language, capacity or disability; ii) children's and parental literacy in reading and digital skills; and iii) discrimination based on age, gender, disability or another factor.

- **Digital user gap:** Poor socio-economic backgrounds, lack of parental support and parental digital literacy may mean that children's engagement with online education at home is less sophisticated and less learning oriented.[2]

- **Schools digital gap:** There is disparity in the capacity of schools and non-formal education providers to deliver distance learning that maximizes learning outcomes.

Educational technology for remote learning is most effective when it is used to supplement the work of teachers, rather than being used instead of a teacher.

The effectiveness of technology for remote learning depends not only on the provision of hardware but also on how the technology is used for teaching, and how it is integrated into teaching. For teachers to be able to work effectively in remote contexts, the application of an additional set of skills and practices is required, as remote learning environments cannot perfectly replicate the physical classroom. In order to contribute to effective student learning, technology should be used in combination with appropriate pedagogical approaches, such as scaffolding and building on prior knowledge.

Multi-partner approaches to delivering remote learning involving state, non-state and private sector actors are key to a successful and rapid roll-out of remote learning.

National-level interventions for the delivery of remote learning should focus on:

- Locally driven responses, whilst supporting teachers and parents with centrally curated learning materials, resources and guidelines;

- Clear, consistent coordination and communication strategies;

- Enhancement of infrastructural capacity and access to educational resources for vulnerable girls and boys, including those with disabilities; and

- Ensuring parental support for remote learning.

School-led delivery is best placed to guarantee the implementation and monitoring of remote learning. The school-level approach should be accompanied by, and harmonized with, the national-level quality assurance and the collection of data on remote learning provision, uptake and outcomes. The collection of student-level data will be critical for the recovery of the education system. Provided with appropriate support and professional autonomy, teachers can develop targeted, child-centred responses in the COVID-19 context.

©UNICEF Jordan

Clear coordination and communication strategies are required to facilitate swift and effective remote learning implementation across multiple sectors and actors. Evidence also suggests that successful implementation relies on systemic interventions to enhance infrastructure capacity and access to good quality digital media.

A further key factor in the swift roll-out and uptake of remote learning during COVID-19 has been the centralized curation of educational content, digital resources and media products. However, beyond infrastructural considerations, the appropriate design of remote learning approaches suitable to children's needs is crucial. Activities should be designed to promote the cognitive engagement of the learner and avoid passivity. This might include content which models the activity, while explaining the thought processes and application of skills involved.

Encouraging parents, family members and the wider community to support home-based education is critical for success, as is recognizing the differing family circumstances in which children live. [3] Parents and family members can influence the activities of their children, determine the use of devices and establish norms and priorities – such interventions are particularly

useful in relation to girls' education.[4]

Evidence from COVID-19 responses highlighted the crucial role of teachers in the design and delivery of remote learning.

School closures and the move to remote learning have resulted in an abrupt and significant shift in the demands on teachers. Firstly, teachers require support in setting up the structure and content of new learning provisions; particularly teachers who work with disadvantaged and marginalized communities. Teachers also need to be supported to enable them to harness the potential of technology and to teach effectively through new media.

Learning recovery programmes can mitigate against learning lost during school closures due to COVID-19, and prevent future increases in student dropout.

Evidence shows that students from poorer socio-economic backgrounds are less able to benefit from remote learning, particularly during school closures. Targeted learning recovery interventions, such as catch up or accelerated learning programmes, can help to mitigate increasing inequalities. Such efforts should be designed to make education systems more inclusive and resilient, with the intention to build back better after the current crisis.

Teachers will face a changed professional reality once schools fully or partially reopen, and professional development will be necessary to support teachers in their new tasks. It is likely that school curricula and delivery modalities might need to be adapted to enable key learning objectives to be met for the ongoing and subsequent school years.

Providing mental health and psychosocial support for children is essential during and after school closures.

The COVID-19 pandemic has posed unprecedented challenges that may adversely affect the mental health of children and young people; these include lockdown, school closures, social isolation and economic pressures. These stresses may also exacerbate existing gender inequalities.

Evidence shows that children's wellbeing, resilience and self-esteem can be supported through e-learning materials, videos and online training for teachers, school counsellors and caregivers, developed with a focus on mental health and psychosocial support (i.e., dealing with anxiety and distress; nurturing a sense of hope and acceptance). Parents, caregivers, teachers and school counsellors can also play an essential role in identifying children who show symptoms of distress and providing them with necessary support and assistance.

The impact of school closures

©UNICEF Jordan

By late-June 2020, more than a billion children around the world remained affected by school closures.[5] In the Middle East and North Africa (MENA) alone, school closures affected almost 110 million children. [6] Given that schools in many countries remain closed, data on the impact of COVID-19 related school closures on students has not yet been compiled to form a significant evidence base. However, important lessons can be learned from past disruptions in education. This section summarizes five impacts of past school closures to shed light on the likely ramifications of the current crisis.

2.1 Five lessons learned from past school closures and their implications for the current crisis

Evidence of learning loss

Past evidence suggests that there is likely to be a significant loss of learning as a result of school closures.[7] Every year, a well-researched phenomenon called the summer slide or summer setback occurs, in which students' average achievement scores declined over the summer break. This setback is thought to be equivalent to one month's worth of school-year learning. It is thought that this loss occurs because students do not actively engage with what they have learned during the vacation period. For students from disadvantaged backgrounds in both high-[8] and low-income countries,[9] who have less access to resources and support that facilitates informal learning, the loss can be even more dramatic. [10]

Research has also pointed to the importance of young children developing reading skills and the detrimental effect that lost learning in the literacy domain can have on children's

later development. Reading proficiency was found to be lower, at the point when they enter school, among children from disadvantaged socioeconomic backgrounds. This achievement gap between more and less affluent students increases as children progress through the education system. The gap grows much more slowly during the school year, when all children are supported by teachers, than during holidays.[11] A study found summer learning loss to be more significant for students achieving higher grades, due to the more specialized cognitive demands involved.[12]

More important than the grade level of students, however, according to other research, is the home environment in which they find themselves over the summer break[13] or the enrichment programmes to which they have access.[14] Overall, evidence generated prior to the COVID-19 pandemic suggests that the crisis could deepen the existing inequalities in society, affecting the most vulnerable, including learners with disabilities, children on the move (migrant, refugee and internally displaced children), children in the most rural hard-to-reach and poorest communities, minorities, and girls tasked with caring for family members who are ill[15]. They are vulnerable and at risk of school dropouts. However, evidence is not conclusive about which student demographic is most affected by school closures. But clearly school closures lead not only to losses in cognitive domains but also to a loss of socio-emotional learning.[16]

In the current crisis, it is expected that learning losses will be particularly substantial for those students unable to engage with remote learning,[17] as school closures threaten to deepen the pre-existing learning crisis.[18] Learners with disabilities, struggling learners, minorities, slum dwellers, street

In the current crisis, it is expected that learning losses will be particularly substantial for those students unable to engage with remote learning,17 as school closures threaten to deepen the pre-existing learning crisis.

children, children in institutions, children on the move (migrant, refugee and internally displaced children), as well as children in the most rural hard-to-reach and poorest communities, are most at risk of missing out on remote learning.[19]

The dependence on technology for remote learning means that students who are unable to access technology, for example because of their socioeconomic status, or are unable to effectively engage in remote learning, for example because of a disability, are likely to fall further behind in their education. Girls' education is particularly likely to suffer during and after COVID-19, as girls have less access to technology, even in households were computers, laptops, tablets or smartphones are available.[20] Girls in a crisis context are also especially at risk of becoming victims of gender-based violence. The United Nations Population Fund (UNFPA) estimated that an additional 15 million cases of gender-based violence can be expected globally for every 3 months that countries continue to operate lockdowns. [21]

A recent World Bank report used data from 157 countries to estimate the loss of learning caused by COVID-19. The data suggest that, depending on the quality of schooling available under normal conditions, school closures result in a loss of between 0.3 and 0.9 years of schooling.[22] In the MENA region, the new crisis must also be addressed in the context of existing challenges like persistent conflicts and a high number of out-of-school children. [23]

Threats to the physical and mental health of students

Past school closures have led to increases in child abuse, particularly gender-based violence, while simultaneously leaving

victims unable to report the abuse and seek help.[24] Vulnerable girls and boys, including refugees, are especially at risk of violence, exploitation and abuse.[25] Social isolation, anxiety, and the potential loss of family members during the pandemic are likely to negatively affect students' socio-emotional wellbeing.[26]

In April 2020 the Jordan Field Office of the United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA) carried out a survey among Palestinian refugees to assess the impact on their lives of COVID-19. Thirty-one per cent of respondents reported an increase in aggressive behaviour and familial conflicts.[27]

The World Food Program (WFP) estimates that there are currently 352 million children that are missing out on school meals due to the COVID-19 pandemic.[28] In MENA alone, the WFP supported 2.5 million children with school meals.[29]

Teachers have a crucial role to play in identifying at-risk children and providing psychosocial support during and after school closures.[30] In the context of the current crisis, remote learning can provide an online platform where teachers and students can interact and communicate with each other.

Increased risk of school dropouts

The World Bank estimates that up to 7 million children could drop out of primary and secondary education because of financial pressures arising from the current pandemic.[31] The risk of increased dropouts will persist not only during and directly after COVID-19, but will linger as long as the economic impact of the pandemic threatens the livelihoods of families.

352 million children that are missing out on school meals due to the COVID-19 pandemic.

up to **7** million The World Bank estimates that up to 7 million children could drop out of primary and secondary education because of financial pressures arising from the current pandemic.

school closures result in a loss of between 0.3 and 0.9

A recent World Bank report used data from 157 countries to estimate the loss of learning caused by COVID-19. The data suggest that, depending on the quality of schooling available under normal conditions, school closures result in a loss of between 0.3 and 0.9 years of schooling

©UNICEF Jordan

From past health crises which had a negative socioeconomic impact, we know that child labour is likely to increase.[32] The International Labour Organization (ILO) and the United Nations Children's Fund (UNICEF) estimate that an increase in poverty of just 1 per cent can lead to a 0.7 per cent increase in child labour.[33] The same study reported that children in Jordan are already beginning to work in the unregulated agricultural sector.[34] Cases of early marriage for girls[35] and teenage pregnancies can rise significantly, as was the case after the Ebola outbreak in West Africa.[36] Girls in Sierra Leone were 16 per cent less likely to return to school than their male counterparts after Ebola-related school closures. [37]

In the MENA region, even prior to COVID-19, conflicts and crises had made out-of-school children an issue of grave concern.[38] In this region, nearly 15 million children between the ages of five and fourteen were out of school, and another 10 million children were considered to be at risk of dropping out prior to the current crisis.[39] In conflict-affected countries, the COVID-19 pandemic, combined with poverty and inadequate social protection or basic services, has exacerbated the risk of dropout amongst vulnerable children, and is likely to result in an increase in child marriage and child labour.

Increased risk of teacher attrition and threats to education quality

Increased financial pressures during the pandemic may force teachers to switch jobs.[40] It is also possible that governments or other education providers might be unable to pay teachers. The loss of experienced teachers poses the immediate risk of students being insufficiently supported in their remote learning. The longer-term effect of teacher attrition is that education quality could drop once schools reopen.[41]

The International Task Force on Teachers for Education of the United Nations Educational, Scientific and Cultural Organization (UNESCO) has raised concerns over the level of support that teachers will need to ensure remote learning and educational continuity during COVID-19. They suggest that teacher salaries and financial resources for teacher development should be included in government budgets and in aid applications.

Since 2019 in Yemen, UNICEF has operated the project Cash Incentives to Support Teachers and School-based Staff for the educators that have served the education needs of approximately 2.89 million students during the civil war. The project continues through the current pandemic, albeit under special safety measures.

Potential reduction of education financing

The financial downturn caused by the COVID-19 pandemic is likely to result in an overall decrease in public spending.[43] According to predictions by the International Monetary Fund (IMF), the global economy will shrink by 4.9 per cent in 2020.[44] The World Bank suggests that the economic aftermath of COVID-19 "will reduce both the demand for schooling and the supply of quality schooling, during the closures and after schools have reopened."[45] With national economies contracting to a larger extent than occurred during the financial crisis of 2008 and 2009, the current crisis is likely to significantly curtail household incomes. It is also possible that governments, or international donors, might reallocate resources from the education sector to public health.[46] Such a reallocation of resources was observed during and after the Ebola crisis.[47]

National education systems face new and additional costs, such as for education technology, for health and hygiene measures when schools reopen, and for education recovery programmes. Reopening education systems and seeking to mitigate learning loss will incur significant additional costs.[48]

Supporting students during COVID-19 through remote learning

The majority of impacted countries have sought to provide educational continuity amid COVID-19 school closures. Approximately two thirds of affected countries have implemented some form of remote learning, although only 30 per cent of low- and middle-income countries (LMICs) have done so.[49] Evidence from global responses to the COVID-19 pandemic includes examples of the use of a range of different technologies, including online and digital platforms, broadcast TV and radio, mobile devices (including smartphones) and print-based media.[50] There is a clear worldwide emphasis on prioritizing high-tech approaches to remote learning for children out of school. This is apparent not just in higher-income or higher-resourced settings, but also low-income and low-resource settings. For example, in sub-Saharan Africa, Kenya, Rwanda, Ghana and Uganda, an internet-based approach to home learning has been widely implemented, at least in part,[51] despite significant challenges in terms of equity of access. However, 82 per cent of countries that participated in a UNESCO survey on remote learning provision during COVID-19 indicated that, in addition to the internet, they are also currently using other non-digital media for learning purposes. This practice is more common among education systems in LMICs, where technologies like radio or TV are often used in combination with the internet.[52]

3.1 Using technology for remote learning

Table 1 provides an overview of the four commonly used technologies (also called modalities) employed in remote learning. The table includes information about the strengths and challenges associated with each modality, as well as evidence of their impact on learning. This overview is based on evidence gathered prior to the COVID-19 pandemic but which is relevant in light of current patterns of media use for remote education.

Overall, the evidence presented in Table 1 suggests that in order to contribute to effective student learning, technology has to be combined with appropriate pedagogical approaches, such as scaffolding and building on prior knowledge. Technology is most effective when used to support, rather than replace, conventional teaching. Evidence suggests that there is little difference between the effectiveness of synchronous remote learning, where there is real-time interaction between teacher and learner, and asynchronous remote learning, where students complete activities in their own time. Most important is the quality of teaching during remote learning.[53] Interactive technologies like online platforms or smartphone communication are most suitable to promote a sense of teacher presence, which in turn improves student engagement and motivation during remote learning.[54] The effectiveness of remote learning technologies differs across countries and contexts, depending on the approaches used and the technological literacy of teachers and students.

Table 1: Overview of technologies used in remote learning

	Online and/or internet-based learning	TV broadcast	Radio broadcast and Interactive Radio Instruction	Mobile technology (incl. but not limited to smartphones)
BACKGROUND AND EXAMPLES	• Online learning management platform systems (e.g., Blackboard, Moodle, Google Classroom and K–12 platforms including See Saw and Edmodo); • Open online courses (e.g., Massive Open Online Courses (MOOCs)); • Synchronous tools (e.g., including virtual classrooms, video conferencing, and screen casting); • Asynchronous audio/video streaming (e.g., UNRWA TV on YouTube); and • Open access resources (e.g., digital textbooks and teaching materials).	Combines educational content with: • Entertaining stories; • Games; • Music; and • Images. TV broadcasts are increasingly accessed through other devices, including tablets and smartphones.[55]	An instructional approach that uses one-way radio to reach students, parents and teachers via pre-recorded, interactive lessons; Requires verbal and physical reactions to questions posed by radio characters;Suggested activities include group work and experiments.[56]	• Voice, text (SMS) and web-based distribution of content, including audio, video and text-based media; • Maintains contact between educators and learners; • Can provide distance tutoring and coaching; • Facilitates teaching and learning groups through SMS and/or social media; or can be used in combination with radio or TV broadcasts or printed materials;[57] and • Can support structured learning through educational applications on smartphones (e.g., EduApps4Syria winners Feed the Monster and Antura and the Letters).[58]
STRENGTHS	• Allows educators and learners to connect with each other via video link during school disruptions;[59] • Monitoring of learning can be integrated into online programmes; • Learning can be relatively easily differentiated and personalised according to pupil need; and • Opportunities for peer-to-peer engagement and feedback.	• In some contexts, TV broadcasts are more accessible than high-tech interventions involving online learning and mobile technology;[60] and • Is commonly used around the world, especially in countries with well-developed broadcast and satellite infrastructure.[61]	• Accessible technology with %75 of households having access to a radio;[62] • Has created access to non-formal education content and curricula to reach learners that are not in school; • Offers complementary programmes to formal education; • Can be used to deliver teacher professional development; and • Can be mobilized quickly in response to crises.[63]	• Access to mobile technology is increasing;[64] • Often closely aligned with online and internet-based learning (e.g., using the same learning management systems, resource content and virtual teaching tools);[65] and • Monitoring of learning and teacher engagement can be integrated into applications.

Online and/or internet-based learning	TV broadcast	Radio broadcast and Interactive Radio Instruction	Mobile technology (incl. but not limited to smartphones)
• Inequality of access, especially for low-income families and girls (due to socioeconomic status, location and technological literacy);[66] • There is a strong need to embed training on online safety; • Requires access to Wi-Fi and/or internet; • Programmes may not be suitable for learners with disabilities unless the appropriate technology (e.g., read-aloud functions) and pedagogical concepts are used; and • A degree of digital literacy is required to begin accessing learning materials.	• Can be used only in a supplementary way with other forms of learning (e.g., online print materials);[67] • Inequality of access, especially for households in low- and middle-income countries; and • TV broadcasts might not be suitable for learners with a visual impairment.	• Traditional models of radio instruction require the mediation of learning by a teacher or guardian; • Usually requires provision of accompanying print materials;[68] • Requires affordable and allocated time on radio stations, which are often privately owned; • Radio broadcasts might not be suitable for learners with a hearing disability; and • Perception that radio technology is outdated.[69]	• Inequality of access (often due to socioeconomic status); girls' ownership of phones is significantly lower than that of boys across low- and middle-income countries; • Requires access to Wi-Fi and/or internet; • Effective implementation is reliant on high-quality content; it can support learning "if the software is carefully designed to engage the child in the learning process and the content is grounded in a solid well-constructed curriculum appropriate for the child's developmental stage."[70] • Programmes require special adaptation for learners with disabilities (through, e.g., read-aloud functions and appropriate pedagogical concepts); • High costs associated with data usage; and • Requires some technological literacy.

Online and/or internet-based learning	TV broadcast	Radio broadcast and Interactive Radio Instruction	Mobile technology (incl. but not limited to smartphones)
• Online education needs substantial pedagogical and monitoring support;[71] • Using online education to supplement rather than replace teaching can have the most positive impact.[72] When online technology is used to replace teachers, learning outcomes tend to diminish;[73] • Where educators had received appropriate training, enquiry-based and student-centred education with laptops has been found to be effective in low- and middle-income countries;[74] • The quality of remote teaching – clear scaffolding and building on prior knowledge – has more impact on outcomes than whether learning is delivered synchronously or asynchronously;[75] • Peer-to-peer engagement has shown positive results in non-remote settings;[76] and • MOOCs have a low completion rate.[77]	• TV broadcasts can be helpful in the development of basic literacy;[78] • Children who watch certain TV programming have significantly higher scores in counting, number recognition, shape knowledge, letter identification, colour identification, body part recognition, health knowledge, vocabulary;[79] and • TV broadcast is largely supplementary to learning and is primarily effective only when used with online courses, print materials or other options.[80]	• Reviews find evidence for gains in learning outcomes after the use of radio instruction in urban and rural areas;[81] • A number of radio-based programmes were found to produce gains in mathematics and language literacy;[82] • Where all students have the support of high-quality teachers and local authorities, children in low-resource isolated areas, benefit as much as children in urban areas;[83] and • Most effective programmes are those that combined print materials with interactive radio instruction (IRI).[84]	• When used to maintain two-way communication with students and/or families during school closures, mobile technology increased the likelihood of students returning to schools;[85] • There is a growing body of evidence to suggest that tablet technology can have a positive impact on learning outcomes,[86] but that the integration of appropriate content and effective pedagogical approaches is needed;[87] • In low-income countries, game-based mobile applications were found to support the development of literacy and numeracy;[88] and • In high-income countries, mobile applications have shown to increase academic self-efficacy and confidence.[89]

Source: Adapted from: USAID, 'Delivering Distance Learning in Emergencies: A Review of Evidence and Best Practice', Washington, D.C., April 2020

Equity gaps in access to media for remote learning

Remote learning opportunities may not be accessible to the most vulnerable in society, including learners with disabilities, struggling learners, minorities, street children, children in institutions, children on the move (migrant, refugee and internally displaced children), children in the most rural hard-to-reach and poorest communities, and girls tasked with caring for family members who are ill.[90] Learners in such adverse circumstances are not only less able to engage with the remote learning because of a lack of resources; they may also be less likely to benefit because the remote learning programmes available may not consider their specific pedagogical requirements, or their parents may be unable to support. Disadvantaged learners may also face competing obligations, such as having to contribute to the family income.

The digital gaps in learning emerge in different forms. To enhance equity in access to online remote learning, it is important to be mindful of the following potential challenges:[91]

- **Digital access gap:** The access gap is derived not only from affordability and connectivity barriers, but is also associated with challenges of: i) inclusiveness, ii) literacy, and iii) discrimination.[92] Inclusiveness challenges can arise from IT design, which may make technology difficult to access by virtue of language, capacity or disability. Limited literacy in reading and digital skills can make it hard to fully engage in online learning. Discrimination based on age, gender or other factors may also make it harder for some children to access technology.

©UNICEF Jordan

- **Digital user gap:** Lack of instructions and poor socio-economic backgrounds for children and caregivers may mean that their engagement with online education at home is less sophisticated and less learning-oriented.

- **School digital gap:** There is disparity in the capacity of schools and non-formal education providers to deliver distance learning that maximizes learning outcomes. This calls for equitable and sequenced learning processes for students. It also requires teachers to monitor engagement and provide feedback.

Internet-based learning, in particular, presents potentially significant challenges to equity of access, based on socio-economic status, location and technological literacy. While computer and internet access is increasing globally, many LMICs are still working to improve connections, especially in rural areas. Across many countries, large gaps remain in terms of regular

computer and internet access, particularly for low-income families and individuals.[93] While the issue is less pronounced in the use of broadcast technologies such as TV, similar issues remain with equity of access in LMICs. For example, only 33 per cent of the people in South Asia have access to the internet and only 43.9 per cent of households in rural Bangladesh have a TV.[94] Even in households that do have access to technology, girls are less likely than boys to be able to use it for their education. Research from India in response to COVID-19 found that girls were far less likely to have used the internet than boys. The gap between girls' and boys' use of the internet was 19 per cent in rural areas, and was even higher at 24 per cent in urban contexts.[95]

The proposed solutions to the digital gaps can differ depending on the context: one school may suggest that students watch televised lessons or provide non-interactive or differentiated worksheets; another school may continue classes virtually or use digital applications for collaborative learning and individualized student support.

Provision of printed material to reach those without access to technology

High-tech solutions are being prioritized in the current crisis, with low-tech solutions or those not based on technology given little attention within national planning documentation.[96] However, print and other solutions not based on technology form an important component in the provision of remote learning when COVID-19 school closures are likely to affect particularly disadvantaged children in low-income countries with a potentially lasting increase in inequality. . Firstly, print-based media is of greatest value to learners in households where there is little or no communications infrastructure. Mixing print and technology for remote learning can support children with lower technological literacy and provides a way to get wider community involvement in efforts for educational continuity, for example, by having newspapers publish educational segments.[97] Secondly, it is widely recommended that multi-media programming across all technologies be supplemented by print-based materials including workbooks, activity guides and written coursework, to cater to different learning styles and contexts.[98]

This is recognized, for instance in New Zealand,[99] where a new online learning space and special TV programmes are accompanied by hard-copy learning packs offered to all learners.[100] In Pakistan, a key non-state provider of education, Aga Khan Education Services, acknowledge that remote learning is a significant challenge in locations with poor internet connectivity and mobile phone coverage. In these contexts, it is reported that school staff are providing carefully designated pick-up and drop-off points for print-based assignments.[101] In Afghanistan, in recognition of the diverse regional contexts and the extent to which that impacts on access to learning, the government has adopted a multi-platform approach to the continuation of schooling, through a multi-media approach that includes the printing and distribution of self-learning textbooks and teaching materials.[102] Similarly, in Nepal, sector planning recommends that remote and online learning, TV and radio-based learning will be supported by print-based learning resources, including library books.[103] In Bangladesh, at the Rohingya refugee camps at Cox's Bazar, UNICEF is supporting the provision of print-based materials for parent-led teaching.[104] In Argentina, those without access to technology have been provided with specifically designed 'notebooks,' which provide educational materials and resources in print.[105] In Colombia, the government has designed a home-learning kit, which is organized by

grade and incorporates a range of resources, including games, family activities and art.[106]

While the provision of print materials might be able to increase the reach of remote learning, reaching the most vulnerable children remains especially challenging. Many of these children may have already been out of school and engaged in child labour before the onset of COVID-19.[107] The pandemic will require additional efforts to re-integrate such children into education and to support them adequately through recovery programmes.

3.2 Key enablers for the successful use of media in remote learning

Supply-side factors: access and infrastructure

For the delivery and dissemination of remote learning content, evidence from global responses to the COVID-19 pandemic clearly highlights the importance of taking an approach which combines several technologies in order to maximize reach, access and utilization.[108]

In Rwanda, for example, the Ministry of Education and Rwandan Education Board (REB) have partnered with telecommunications platforms and UNICEF (amongst other development partners) to ensure learners have free access to online educational materials. They are also expanding and developing radio and TV-based lessons for those without access to ICT.[109] Similarly, in Kenya, the Ministry of Education (MOE) and the Kenya Institute of Curriculum Development (KICD) have partnered with telecommunications companies to offer three different platforms to deliver the curriculum to affected 'basic education' learners: firstly, internet-based learning mate-

rials and content are offered on YouTube and the Kenya Education Cloud; secondly, radio lessons are broadcast in partnership with the Kenyan Broadcasting Corporation; and thirdly, TV lessons for all primary and secondary learners are broadcast on a free KICD-owned channel. The MOE and KICD believe the variety in delivery modes will support equity and overcome issues related to technology and internet access.[110]

In the delivery of online and internet learning in particular, evidence suggests that strategic interventions to ensure successful delivery involve a multifaceted approach through the provision of seven inter-related elements. These range from access to pedagogy, as follows:

1. a reliable technological infrastructure;
2. coordinated access to suitable digital learning resources;
3. user-friendly digital learning tools;
4. pedagogic and instructional design, based on effective learning methods;
5. an appropriate blend of instructional methods or approaches;
6. provision of effective support services for teachers and learners;
7. close cooperation between governments, enterprises and schools.[111]

Evidence suggests that the effective roll-out of learning technology involves systemic interventions to enhance infrastructural capacity for enabling access to content.[112] One of the key enablers in remote online schooling is a reliable information and communications technology (ICT) infrastructure.[113] The South Korean government has sought to address issues of digital access among individuals by providing targeted technology-specific support to low-income families so that their children still have the opportunity to learn while at home.[114] As part of its emerging policy and planning for nationwide online education,

the government has conducted a national 'roll call' of technology available in the home.[115] In Argentina and Jamaica, access to the official education portals have been 'zero-rated,' which means that accessing and browsing the sites is free of charge and will not consume data. In Croatia and Egypt, students from low-income households have been given free SIM cards by telecommunications companies.[116]

Any initiative that aims to provide remote learning swiftly and successfully through digital technology should also consider hardware already available and technological literacy.[117] In Bhutan, where the majority of internet access is through mobile phones, the government has been working with telecoms providers to reduce data charges and provide additional data to students. Those in quarantine are also being provided with free data.[118]

Demand-side factors: learning environment and adequate support

While equitable access to technology can be considered an impediment to the successful implementation of remote learning, the provision of technology alone does not guarantee that all students are engaged and that learning takes place during school closures. Students in disadvantaged families, or in unstable settings like refugee camps, are less likely to find themselves in environments conducive to learning. In addition to limited regular access to online devices or TV channels, children in such environments might have little space and time for remote learning.[119] Children living in poverty, in crowded environments and without parents or guardians who can support their learning risk falling further behind in their education. In terms of reaching children with disabilities, there are a broad range of concerns regarding the appropriateness of certain media and technologies for children with disabilities.[120] Teachers should pay particular attention to the provision of structure and learning guidance for the most vulnerable students.[121]

Previous critiques of technology-driven responses to reaching vulnerable and disadvantaged students highlight the fact that learners do not benefit from new technologies without adequate pedagogical and socio-emotional support.[122] Substantial and ongoing pedagogical and monitoring guidance and an instructional design are needed to ensure that all learners have the support to continue receiving high-quality education.[123] In addition to rolling out a remote learning programme for Palestinian refugee children in Jordan, for example, UNRWA included psychosocial support and career guidance in their COVID-19 education response package. UNRWA also provided Agency teachers in Jordan with training to prepare them to support all students during remote learning.[124]

3.3 Pedagogic approaches and instructional design for remote learning

Effective remote teaching should draw on the same best practices as face-to-face teaching:

- planning and delivering well-designed lessons (structure);
- accommodating individual needs (adaptation); and
- accurate awareness of, and response to, pupil learning (assessment).[125]

To achieve this in a remote context requires the application of an additional set of skills and practices, as remote learning environments cannot perfectly replicate the physical classroom.

The following seven principles should be considered when designing and delivering remote learning:

1. PROMOTE SAFEGUARDING

Remote learning through online mechanisms presents a new set of risks for children. Online engagement can create an opportunity for various forms of abuse, and for some children an increased amount of time at home will increase their exposure to threats to their wellbeing.[126] As children spend more time online, their risk of online sexual harassment, cyberbullying or exposure to damaging content increases.[127] Girls are particularly at risk when engaging in remote learning online.[128] Risks can be mitigated through the appropriate settings in programmes through which content is shared. For example, by using the 'made for kids' setting when sharing a YouTube video to prevent mature content from being recommended to the viewer. Messages around online behaviour are also crucial to supporting pupil safety, particularly when they are engaging independently. More information on online safety can be found in the Annex.

2. ENGAGE WITH DISADVANTAGED PUPILS

Student motivation, engagement and self-regulation are harder to achieve without the presence of a teacher.[129] Disadvantage exacerbates this challenge,[130] making it crucial for teachers to use whatever means are available to maintain contact with high-risk students and to provide pastoral support, as well as monitoring and guiding learning. The means by which teachers can support students depends on public health guidelines and the available technology.

3. SUPPORT STUDENTS WITH DISABILITIES

The existing social and educational disadvantage faced by learners with disabilities has been compounded by the impact of COVID-19. Students with disabilities face a lack of access to health information, challenges in being able to implement basic hygiene and inaccessible health facilities.[131] Students with disabilities are the least likely to benefit from remote learning because of a lack of support, lack of access to the internet, and a lack of accessible software and learning materials. They are also more at risk of being out of school and are likely to face barriers when re-joining.[132] Girls with disabilities also face additional risks of domestic violence and abuse as a result of lockdown.[133]

4. PROMOTE 'TEACHING PRESENCE'

Pupils benefit when they feel they are able to interact with teachers.[134] This can be difficult to achieve when the means of instruction is lessons broadcast from a centralized radio or TV channel. Pupils could be enabled to contribute to discussions or answer questions via SMS, a selection of which might then be read out by the broadcaster to create a sense of community with their audience. Even when broadcast teaching is used, teachers should still maintain contact with their pupils to monitor their engagement with the materials. Priority should be given to the most vulnerable pupils.[135] Where online activities are possible, some level of synchronous teaching can be beneficial to maintaining a sense of teaching presence and class community.[136]

5. CREATE ACTIVITIES THAT ENCOURAGE COGNITIVE ENGAGEMENT AND LEARNING

Where educational content is delivered through broadcast media (e.g., TV and radio), the design of activities should promote the cognitive engagement of the learner and avoid passivity. This might include content which models the activity, while explaining the thought processes and application of the skills involved. Pupil learning may also be reinforced with low-stakes testing and through the promotion of metacognitive strategies to help pupils to independently assess their own learning and needs.[137] Metacognitive strategies, such as planning, monitoring and evaluating one's own work, enable learners to take responsibility for their learning, which in turn allows for the support from teachers to be as targeted and efficient as possible.[138] Remote learning requires students to do a significant amount of independent reading, since instructions are often given in writing. Care should be taken to ensure that the written material provided is of an appropriate level for the students, both in terms of their literacy and their cognitive skills. Rather than being a barrier to participation in remote learning, reading can have many benefits for children, such as improved language skills and increased attention spans.[139] These benefits can be harnessed by effectively incorporating reading into remote learning programmes.

6. RECOGNIZE THE LIMITATIONS OF SELF-PACED AND STUDENT-DIRECTED LEARNING

While it is helpful for students to develop an ability to work independently, they must receive adequate scaffolding and support relevant to their level of self-regulation capability. Project-based learning activities should be carefully designed to ensure that students can follow their own curiosity while learning, but still benefit from the structure, input and guidance provided by their teacher. Where possible, modes of communication and collaboration between pupils may also benefit through the establishment or maintenance of a learning community.[140] Project-based learning has been recommended as a strategy for educational recovery that is suitable for remote learning contexts because it allows students to work independently.[141]

7. PROVIDE SOCIO-EMOTIONAL SUPPORT

Considering the likely toll that the COVID-19 crisis will take on students' psychological wellbeing, some countries are offering socio-emotional support for students and parents. In Austria, school psychologists can be reached by students via telephone and email during evenings and weekends. In Jamaica, the National Parenting Support Commission has implemented a range of initiatives to support parents. Advice on creating structure and a safe and supportive learning environment has been issued to schools which can then share it with parents. Psychosocial support helplines have been set up to support parents, using free SIM cards that have been made available, with UNICEF paying for the calling credit and data. In addition, five videos were launched in April to support parents with home-schooling, to reduce the risks of abuse by parents becoming frustrated with trying to home-school their children. In North Macedonia, there is a pre-existing UNICEF and UK Government-funded TV-based programme to support socio-emotional learning in preschools, helping children to cope with trauma and stress, manage their emotions and develop skills such as empathy and resilience.[142]

CASE STUDIES OF THE USE OF TECHNOLOGY IN EDUCATION

The One Laptop per Child (OLPC) programme was introduced in 2015 to revolutionize education through the provision of low-cost laptops to children around the world. However, the excitement around OLPC soon turned into caution and eventually into disappointment as the programme failed to produce positive results. A study carried out in the US state of Alabama found that "the benefits achieved at the time of our data collection appear to be minimal, thus resulting in a high cost-benefit ratio."[143] The researchers lamented that the initial provision of laptops did not lead to an equitable access to technology in the long run, as poorer children were unable to pay for laptop maintenance and repairs. More importantly however, the study also found that teachers were unprepared to support the children in their learning as teachers themselves had insufficient technological and pedagogical skills to use the laptops effectively in class.[144] A large-scale, 15-month randomized control trial in Peru found no evidence that the OLPC programme had a positive effect on enrolment or test scores in mathematics and languages.[145]

The Norwegian development association Norad launched the competition EduApp4Syria in 2015 to fund smartphone-based applications to improve Syrian refugee children's literacy and psychosocial wellbeing. The two open source applications Feed the Monster and Antura and the Letters won the competition and were launched in 2017.[146] An evaluation of the two applications was carried out with 900 Syrian children in a refugee camp in Jordan. It found that there were small but statistically significant learning gains in literacy and psychosocial wellbeing. The applications had increased interactivity with an integrated feedback feature, which provided children with immediate feedback on how they were doing. The evaluation's results were used to further improve the applications by making them more suitable to children's needs, for example by introducing a tutorial function. The founders of EduApp4Syria were keen to emphasize that the games provide additional learning support but cannot replace formal education.[147]

National and local approaches to meeting the needs of schools and children

©UNICEF Jordan

Providing a summary overview of the range of national and local approaches that evidence suggests have contributed to the swift and effective delivery of remote learning in response to the closure of schools under COVID-19, this section highlights the ways in which national and local actors, as well as non-state actors, can work together to deliver remote learning.

4.1 National-level delivery of remote learning

Evidence from country-level responses to the delivery of remote learning suggests that more centralized national systems have been able to mobilize their responses extremely quickly and have the ability to rapidly enact substantial policy changes at short notice.[148]

At a national level, the legislative framework for governance may impact the speed and effectiveness of developing and implementing educational continuity plans. Those with strong centralized legislative bodies or decision-making committees (e.g., China, France, Bangladesh, Uganda) quickly developed and enacted strategies and implementation plans, arguably as a result of swiftly moving bureaucratic powers and substantial institutional capacity.

Those with federal, provincial or decentralized legislative models (e.g., Japan, Nepal, Pakistan) developed policies and strategies more slowly, with less evidence of effective delivery of remote learning.[149] Japan, for example, has been subject to criticism for a slow response to COVID-19.[150] The government's policy response is partially hindered by Japanese law, which prohibits central government from enacting nation-wide lockdown measures and requires that any central government policy announcements are primarily offered as guidance to

individual prefectures.[151]

The delivery of remote learning is a necessary but not sufficient condition to ensure that students actually learn during school closures. Four national-level strategies that contribute to an effective roll-out and delivery of remote learning have been identified as follows:

Support teachers with centrally curated educational content, digital resources and guidance

A key factor in the swift roll-out of remote learning as part of national responses under COVID-19 has been the centralized curation of educational content, digital resources and media products. This frequently takes the form of digital platforms through which educators, teachers and parents can access curriculum content, lesson plans, guidebooks, workbooks, and audio-visual resources. In their early response to school closures, the Chinese MOE focused on establishing the delivery of remote learning via online mechanisms,[152] through an approach based on three integrated priorities: i) ensuring the right teaching and learning content was available; ii) ensuring that this content could be accessed by users for free; and iii) ensuring sufficient delivery infrastructure and bandwidth were in place to guarantee large numbers of students could access this content.[153]

In South Korea, the MOE published guidance on how teachers should set home-schooling assignments and provide feedback on learners' work. The MOE has established the Teacher On initiative, a remote community of practice for teachers to share examples of good practice in online teaching and learning, led by volunteers with existing experience of remote learning, as well as the 10,000 Communities online platform, for teachers to share

good practice. In Brazil the government of the Amazon region has set out the core responsibilities of teachers during school closures. These include: i) keeping regular contact with students and parents; ii) encouraging engagement in remote learning broadcasts; iii) following up broadcasts with distance communication; iv) identifying and sharing educational resources; and v) carrying out assessment activities.[154]

In many countries, teachers are supported with resources and materials for remote learning but there is an evident need for more specialized professional development on remote pedagogy.[155] The UNESCO's Teacher Task Force has provided a list of requirements for how teachers can best be supported during and beyond the COVID-19 pandemic:[156]

• Protect labour rights and the wages of teachers;
• Protect the physical and mental health of teachers and students, including through providing psychosocial support for teachers;
• Include teachers at all steps of education policymaking and planning of the COVID-19 response;
• Provide adequate professional support and training so that teachers can effectively teach remotely;
• Support the teachers who work with disadvantaged and marginalized communities;
• Include teacher wages, and resources for professional development, in aid programmes.

Clear, consistent coordination and communication strategies

In delivering the roll-out of remote learning, evidence suggests that clear coordination and communication is key to facilitating swift and effective implementation. Primarily, this applies in the context of delivery, when working with partners across multiple sectors, where government structures bring additional complexity. In China, for example, large-scale teleconferences were organized to communicate the roll-out of online-based remote learning through standardized messaging. Initial policy planning was followed by a series of teleconferences to filter down plans for implementation to the local level, including communications to schools and teachers.[157]

The use of clear communications also applies in the more public context of ensuring awareness and uptake of remote learning options among schools, parents and learners. Research has shown that public awareness of remote learning can increase support and engagement.[158] In Bangladesh, the government's ICT programme a2i is leading state-sector planning for an education communication strategy to ensure parents and caregivers are aware of scheduled learning processes and can engage children in these processes.[159]

Enhanced infrastructural capacity and access to educational resources

Evidence suggests that the effective roll-out of remote learning, particularly through digital media, involves systemic interventions to enhance infrastructural capacity for more access to content. One of the key enablers in remote online schooling is a reliable ICT-based communications infrastructure.[160] In Peru, for example, the MOE announced that 800,000 tablets would be provided to disadvantaged children. To address the lack of electricity in some rural areas, the tablets can be charged using solar chargers. The MOE is also planning to distribute 97,000 tablets to teachers,

with a total estimated cost of tablets of more than 600 million Peruvian Sols (US$177 million) for both students and teachers.[161] Research on the effectiveness of interventions that focus primarily on the provision of technological devices produced mixed results. Combining the distribution of devices with appropriate technological support and teacher professional development was found to be more effective.[162]

Guidelines and support for parents and caregivers

Encouraging parents, caregivers and the wider community to support home-based education is critical for success, as is recognizing the differing family circumstances in which children live.[163] Parents and family members can influence the activities of their children, determine the use of devices and establish norms and priorities – such interventions are particularly useful in relation to girls' education.[164]

Communication with parents has, therefore, been a key aspect of strategic planning, firstly, in facilitating engagement with home schooling, and secondly, providing children with academic support. The Japanese government's initial response included measures to ensure that parents were able to take time off work in order to look after the children affected by school closures. Specifically, the government ensured that funds were available to compensate these parents for any unpaid leave taken, thus supporting parents on lower incomes.[165] Countries like Jamaica and France have run phone helplines to support parents of children with special educational needs.[166] A number of countries have set up call centres to support students and parents with online learning. In El-Salvador, for example, a 24-hour call centre was set up with five staff and six subject-area specialists to respond to queries. In Peru,

a WhatsApp account has been created to field enquiries about the Learn at Home initiative.[167]

4.2 Multi-partner approaches to planning and delivering remote learning

Multi-partner approaches involving both state and non-state agents appear to be key to a successful, rapid roll-out of remote learning, particularly where solutions are designed with a focus on the use of media and/or digital technologies.

Firstly, many state-led responses have engaged directly with the private sector – non-state broadcasters and satellite TV channels, internet and digital service providers, and mobile telephone networks – and the aims of these partnerships include: developing and broadcasting educational content and communications; improving communications infrastructure; providing or subsidizing internet access or mobile data; developing new educational platforms (such as mobile apps); making existing content freely available; and providing schools and learners with access to necessary technologies such as tablets and smartphones. In Rwanda, the central government has partnered with telecommunications platforms and development partners like UNICEF to ensure that learners at all levels have free access to online educational materials.[168] The Canadian province of Quebec has announced that students who do not have access to technological tools will be provided with tablets and internet access. This initiative was undertaken in partnership with TELUS and Apple. The tablets will also have full access to the state's online education platform.[169]

Secondly, in LMICs, development partners have played an influential role in the

planning and delivery of remote learning.[170] Donor coordination groups have actively supported the design of government strategies for educational continuity.

4.3 Local-level strategies to support the success of remote learning

Implementing government policies

To ensure educational continuity, central governments must provide a clear policy direction and the resources for the implementation of remote learning. However, due to their context-specific knowledge and networks, local-level actors are often best placed to implement these policies and guidelines. For successful remote learning, it is important to have a balance between central direction and action combined with locally delivered support at the level of the municipality, school district or school.[171] UNESCO has pointed out that "there has been remarkable innovation in the responses of educators to the COVID-19 crisis," and that "We must encourage conditions that give frontline educators autonomy and flexibility to act collaboratively." Teachers, when given the opportunity, were found to be able to use their professional experience and networks to effectively tailor their COVID-19 context responses to their students' needs.[172]

Some governments have already acknowledged the need to give local actors professional autonomy. The California Department of Education, for example, provides local actors with a list of resources, materials and guidelines on pedagogy and practices in remote learning, believing that in order to achieve the objective of supporting "high-quality instruction for all students," the information and resources provided by the government ought to be adapted to local

needs.[173] Recognizing the importance of local relationships, the central government in Uganda instructed all town clerks to engage with parents to ensure their cooperation in remote learning.[174]

Ensuring access to remote learning and assuring quality

Local-level actors are crucial in ensuring that all children are able to participate in remote learning. The Organisation for Economic Cooperation and Development (OECD) recommends that schools should arrange for a daily check-in with teachers, who should, in turn, be in regular contact with students.[175] Schools have also been important in managing the provision of hardware and access to software that students may need for remote learning. Teachers in Germany, for example, have helped students to register for financial or material support with remote learning, giving students from less affluent families access to technology.[176]

Collecting and managing data

The collection of current, detailed data on all participants in the education system is a critical component for ensuring that children have access to technology and are making progress during school closures. Education Management Information Systems (EMIS) are seen as a fundamental building block for education systems both during and after crises.[177]

Prior to COVID-19, many countries around the world were already using EMIS to monitor and evaluate the performance of their education systems. The Vietnamese approach to data management, for example, requires school leaders to report to district officials on a regular basis. This information is then used by government on the national and regional level to monitor systems performance and to allocate resources.[178] Research has reaffirmed that

the analysis drawing on EMIS and other available data sources is useful for the identification and support of at-risk and out-of-school children.[179]

In the context of the COVID-19 pandemic, data should be gathered on student participation in remote learning, as well as their retention, levels of engagement and learning outcomes. Firstly, such detailed data allow for a responsive remote learning system that can be improved and refined in the light of information gathered. Secondly, gathering data on student participation and learning outcomes can facilitate education system recovery once schools begin to reopen. Student-level data about the learning that took place during the period of school closures will be vital in assessing learning loss and in planning recovery programmes.[180]

©UNICEF Jordan

Recovery programmes and ensuring educational continuity

Recovery programmes will be needed to remedy loss of learning due to school closures.[181] This section looks at strategies to accelerate the recovery of lost learning, particularly for the most vulnerable, after a crisis. It also includes information about preventing students from dropping out of school and looks at teacher development as a way to achieve educational continuity.

5.1 Catch up programmes, accelerated learning programmes and project-based learning

An unprecedented number of students are currently out of school. Evidence suggests that the extent to which they can engage with remote learning, and the level of learning that takes place remotely, is highly dependent on a broad range of contextual factors. Education systems will need to make up for the learning that students have missed in the spring and summer of 2020. UNESCO recommends the following four strategies, which, depending on the context, can be deployed to mitigate learning loss:

- Adjusting the curriculum and delivery modalities to enable the meeting of key learning objectives for the school year;
- Promoting the use of more practical approaches to learning, such as project-based learning;
- Implementing accelerated learning programmes, remedial and catch-up programmes, delivering a compressed or lighter curriculum; and
- Introducing supplementary teaching, tutoring, and extra-curricular non-formal learning activities.[182]

As part of COVID-19 response planning, some countries have already announced that they will change their academic calendar to enable remedial education to take place. China, for example, has postponed its secondary school examination, Gaukao, by a month to allow students to catch up on missed schooling.[183] Some countries have made public financing available to ensure that catch up programmes reach the most disadvantaged children.

Prior to the current pandemic, catch-up programmes have been widely used in conflict-affected settings to allow students who have spent a limited amount of time out of school to make up for lost learning and to return to formal schooling. UNESCO, for example, has offered the Second Chance Programme to Syrian refugees: 80 per cent of students, who completed the eight-week summer course were able to proceed to the next grade level.[184] The World Bank has also financed catch-up programmes in conflict-affected countries like South Sudan.[185]

Evidence suggests that accelerated education programmes "promote access to certified education for children and adolescents who have missed out on substantial amounts of schooling".[186] The DfID-funded Complementary Basic Education for Ghana programme has been successful in bringing out-of-school children back into formal education. This programme uses community volunteers to deliver nine months of intensive classes, after which 90 per cent of participants have been reported to return to regular education.[187] Accelerated learning programmes often rely on the support of volunteers and the wider community, as they are conducted alongside formal education.[188] The Accelerated Education Working Group, a cooperation of various international organizations (IOs) and non-government organizations (NGOs), has published ten principles for effective practice.[189] They highlight the need for programmes to be responsive and flexible as well as for teachers to be

Evidence suggests that accelerated education programmes "promote access to certified education for children and adolescents who have missed out on substantial amounts of schooling".

trained and supervised.

Project-based learning is an approach particularly suitable to the COVID-19 context, as it usually requires learners to work independently over a period of time. A practice- and outcome-oriented, inquiry-based process, project-based learning focuses on real-world applications.[190] Research on the effectiveness of project-based learning has produced mixed results but teachers and learners consider it a worthwhile activity.[191] Four criteria for the successful implementation of project-based learning have been identified as follows: i) defining the assignment's content; ii) identifying the learners' context; iii) considering and planning for possible problems that learners may encounter; and iv) identifying the best possible outcomes of the project.[192] In remote learning contexts, where independent study is commonplace, project-based learning can be a fruitful way to develop students' problem-solving skills.[193]

5.2 Preventing dropout

A recent meta-analysis of research on school dropouts has found that reasons for discontinuing school attendance can be located at the levels of the individual student, family or school.[194] Children who lack parental supervision and support or who are required to contribute to the household income through work are more likely to drop out of school. Research on the aftermath of past education and economic crises has also shown that it can be difficult to re-enrol students in school after periods of school closure. Increases in school dropouts were linked to rises in child labour and early marriage.[195] With more than 70 per cent of Syrian refugees in Lebanon living under the poverty line prior to COVID-19, it is, for example, likely that school dropouts will increase as families lose their incomes, and are unable to afford to pay for books, transport and

uniforms. Many of these families may rely on their children to supplement the family income.[196] It was also found that children in South Africa who lost their parents to the HIV crisis, were less likely to return to school, due to increased financial and family pressures and emotional trauma.[197] As COVID-19 continues to claim many lives, the impact on children who lose close relatives should not be underestimated.

Evidence clearly shows that the support of the wider community is crucial in ensuring the return of all students to schools. Targeted back-to-school campaigns, in countries like Côte d'Ivoire, Somalia and Afghanistan, have combined radio and TV messaging with community outreach campaigns.[198] In Somalia, back-to-school campaigns have focused successfully on hard-to-reach groups like teenage mothers and nomadic populations.[199]

Social protection programmes or economic incentives, combined with community outreach, can support children to re-enrol or stay in school. This can include cash transfers, waiving school fees, or providing free school meals.[200] To prevent drop-out after the Ebola outbreak, the government of Sierra Leone waived school fees for two years, and development partners, civil society organizations and NGOs provided school supplies and materials to offset the other costs borne by families. A back-to-school campaign in Lebanon for Syrian refugee children, combined financial support for education-related expenses to families with infrastructure and teacher development projects in schools.[201]

As is known from the context of out-of-school children, current and fine-grained data on school enrolment and attendance is very scarce. In order to prevent school dropouts, the collection and management of data on all children needs to be improved, including those children who

were not enrolled in schools prior to COVID-19.[202] The collection and curation of information are crucial to ensure that: i) children who are in school stay in school, even as the economic situation becomes more dire; ii) struggling children receive the appropriate support; and iii) children who are not currently participating in education can be re-enrolled.

5.3 The role of teachers after COVID-19

Changed realities after COVID-19
Teachers are facing a uniquely challenging situation in which they are required to facilitate remote learning while also meeting the challenges of working from home, potentially with their own personal childcare responsibilities to fulfil. International organizations have highlighted the need to support teachers during the period of remote learning and beyond.[203]

After schools reopen, the professional reality of teachers will have drastically changed. Most countries are reopening schools with new social distancing and hygiene measures and are only allowing some students to return. Teachers will be required to carry out assessments of learning loss, to support children through recovery programmes and to provide mental health and psychosocial support.[204] Governments might decide to condense the curriculum or to alter examination and progression procedures,[205] subsequently impacting on how teachers cover the required curriculum. Significant changes to timetables may be necessary in order to catch up on lost learning. In order to recover lost class time for students, schools in South Africa – in consultation with District offices – can increase the daily teaching time by between 30 minutes and two hours, depending on the age of the students.[206] In Italy, schools will offer summer courses to support students, who were unable to fully engage in remote learning.[207]

As schools begin to gradually reopen with reduced class sizes, remote learning might transition into blended learning, where technology-based education is combined with face-to-face education.[208] This might happen where, in order to maintain small class sizes and social distancing, students receive part of their education in person and learn remotely on other days.[209] Blended learning has only rarely been empirically evaluated; the scarce evidence that exists highlights the same challenges that are commonly associated with purely technology-based education: issues of access and equity, technological literacy and teachers' ability to use technology effectively.[210]

Teachers' professional development
The Inter-Agency Network for Education in Emergencies (INEE) lists support and training for teachers as a key element of how national education sectors should respond to crisis. INEE argues that teachers have a profound impact not only on student learning but also on their wellbeing.[211] Particularly in the context of teacher development in crisis, INEE highlights the need for high-quality teacher trainers, institutionalized and ongoing support, and a professional community for teachers.[212]

The World Bank identified the following areas in which teachers would need professional development to ensure educational continuity:

- Remote learning pedagogy and technological skills;
- Assessment of learning lags that are likely to have developed during remote learning;

- "To teach to the right (post-COVID) level," based on the potentially vastly different learning that took place during remote learning;
- Guidance on curriculum prioritization, which will depend on new priorities that the government might set if they opt for a reduced curriculum;
- Identify and support at-risk students, both in terms of their learning and in terms of physical and mental health.[213]

Research found that teacher development is most effective in supporting student learning when: i) teachers support each other; ii) professional development is aligned with teachers' needs; and iii) teachers receive support from head teachers.[214] Teacher development programmes that are context-specific and targeted[215] as well as of a sustained duration and embedded in the classroom[216] are more effective in improving student outcomes. The United Arab Emirates has already begun a COVID–19 specific teacher development programme focusing on online learning.

A survey of Chinese teachers about their experiences of remote learning during COVID-19 highlight that there are multiple challenges associated with technology-enabled education. Firstly, teachers require support in setting up the structure and content of new learning provisions. Secondly, teachers need support to be able to harness the potential of technology and to teach effectively through new media.[217]

UNESCO has highlighted the need for psychosocial-support training to better address the emotional and mental challenges that students are likely to face as a consequence of the isolation that they experienced during extended school closures. UNICEF has made mental health and well-being a central priority of their response to COVID-19 and has helped to provide positive parenting resources to support over 38 million families in more than 90 languages.[218] In response to COVID-19, the International Federation of Red Cross and Red Crescent Societies is offering free online training for psychosocial first aid in various languages. This training package is designed to support those working with individuals in situations of heightened stress and anxiety and has specific modules for working with young people.[219]

©UNICEF Jordan

This section provides insights into how the education sector in the MENA region have responded to COVID-19. Some international initiatives have been running in the region, such as an online archive of educational resources in Arabic, which is curated by the Arab League Educational, Cultural and Scientific Organization (ALECSO).[220] This section presents lessons learned on the use of technology for remote learning within the context of MENA as a region, where challenges include significant socio-economic inequalities across and within countries, a significant population of displaced people, and ongoing conflicts that have impacted on the educational infrastructures and systemic technical capacity. One in five children in the region is not in school, wars and conflict have destroyed more than 8,850 education facilities and, according to the Arab Youth Survey 2017, two-thirds of students in the Levant do not think that their education prepares them for their future.[221] Additionally, the region houses 15.9 million refugees, asylum seekers and internally displaced people, 46 per cent of whom are children.[222] These factors make the task of responding to COVID-19 considerably more difficult for education systems in the region. At the same time, however, the heightened awareness and momentum generated by COVID-19 present an opportunity to integrate children that did not previously attend school back into the education system and to make the education sector more resilient to the ongoing crisis and future crises.

Remote learning through TV broadcasts

With COVID-19 lockdown measures implemented in the MENA region, a variety of remote learning solutions are being introduced to support student learning during school closure. In delivering remote learning, 28 per cent[223] of the region's countries relied only on TV broadcast. In Palestine, for example, the UNRWA TV[224] broadcast

Arabic, English, mathematics and science lessons for 4th to 9th grade students. In Kuwait, the MOE launched a TV channel[225] featuring video lessons and teacher conferences.

Remote learning through online platforms and mixed technologies

Almost 40 per cent of the region's countries offered only online education using specialized platforms, and 22 per cent used a combination of online platforms and broadcast options.[226]

- In **Syria**, the MOE launched a number of online platforms like the Damascus Educational Platform[227] and the Syrian Educational Platform.[228]

- In **Iraq**, a combination of online platforms and broadcast options through an Educational channel[229] was offered in addition to the specialized online education platforms Newton[230] and e-parwarda.[231] These platforms allow teachers and students to view lessons, interact and download electronic copies of school textbooks.

- **Morocco** launched the specialized portal TelmidTICE[232] for all levels, and the National TV channel 4 – Athaqafia – broadcasting educational lessons that are also available online according to the regular school curriculum on the Athaqafia website.[233]

- In **Egypt**, the Ministry of Education and Technical Education (MOATE) offered Edu Stream[234] to facilitate communication between teachers and students and for the organization of lectures and meetings. The Ministry also broadcast videos on the MOATE Channel,[235] and extended access to the Egyptian Knowledge Bank[236] making it available to a total of 22 million students. The Egyptian Knowledge Bank provides content from kinder-

Almost **40 per cent** of the region's countries offered only online education using specialized platforms, and 22 per cent used a combination of online platforms and broadcast options.

garten through to secondary education by grade level and subject, in both Arabic and English. The Ministry also contracted Edmodo[237] to deliver remote instruction to K–12 students and made SIM cards freely available to students with a device. Across the region, evidence suggests that private, informal and non-formal institutions used other solutions such as Microsoft Teams, ZOOM, Webinars, and Webex.

- In **Jordan**, the online education platform Darsak[238] was launched to facilitate education through online lessons for pupils in Grades 1 to 12. The Noorspace[239] platform was established as a learning management system to provide teachers and schools with the tools to remotely track attendance, monitor engagement and set assessments. Teacher development was provided via Edraak,[240] a website created for teachers, on which they can obtain 90 hours professional development training, including courses on effective e-learning. Via the site, teachers can access training on remote learning tools, blended learning and education technology.[241]

Challenges with remote learning

Most countries in the MENA region have been implementing remote learning on a national scale for the first time. This has put a burden on parents for several reasons: they may have limited awareness of different applications, platforms, devices, digital literacy and a limited ability to facilitate remote learning. Existing inequalities are likely to be exacerbated when well-educated parents are able to support their children during remote learning, while other parents might not have the knowledge, skills or time to provide such support. The influence of the home environment on student's ability to participate and benefit from remote learning should not be underestimated.

Teachers' readiness to engage with remote teaching was another challenge, as most teachers were not adequately supported or trained, nor were they included in developing the COVID-19 education responses.[242]

Another major challenge to the successful delivery of remote learning in the region is the limited access to online or digital resources based on internet connectivity. In Jordan, 23 per cent of students have no internet access at home, and 46 per cent of families reported that their children were not accessing Darsak. There are also concerns about the engagement and satisfaction with remote learning provisions among learners. According to polls conducted by the Centre for Strategic Studies at the University of Jordan, only about 55 per cent of students surveyed have used the Darsak platform. 51 per cent continued their education via TV channels. The poll also found that 80 per cent of the students believed that the platforms were not as good as normal school education.[243]

Education for all children

The provision of remote learning been particularly challenging for marginalised and vulnerable students, like children who require special assistance because of a disability, or children living in unstable situations like refugee camps.

There is some evidence that a number of countries in the MENA region have made provisions for children with disabilities, although practical examples of such provisions are difficult to find. In Qatar, the

THE UNITED ARAB EMIRATES' EDUCATION RESPONSE TO COVID-19

Within a week of school closures on 3 March 2020, the MOE of the United Arab Emirates (UAE) launched a comprehensive remote learning programme with channels, platforms and resources for students of all ages. Further to this, the Ministry offered digital resources to support students' learning. These include the Diwan[252] digital reading platform which includes Nahla wa Nahil specialized in raising Arabic reading skills, and the Darifah[253] platform which allows teachers and students to electronically view and interact with the learning curriculum and download electronic copies of textbooks. The MOE has since announced a national framework to support distance learning for students with disabilities during the COVID-19 pandemic. The framework consists of four main pillars based on the levels and needs of 'Students of Determination'[254] and gives free access to specialist services, such as speech and language therapy.[255]

In building capacity for the implementation of remote learning, 25,000 MOE administrative and teaching staff attended a five-day remote specialized training workshop on 'the MoE's learning curve,'[256] introducing them to best practices in interactive virtual classrooms.[257] A free specialized online training programme entitled 'How to Become an Online Tutor in 24 Hours'[258] was also delivered by MOE in collaboration with Hamdan Bin Mohammed Smart University. It was attended by more than 81,000 educators in the UAE and around the world.[259]

Building on the provision of remote learning during school closures, the UAE government has also launched a Distance Learning Evaluation Programme. This programme aims to evaluate and enhance current provision of school-led remote learning through a standardized monitoring process, based on evaluation team visits alongside guidance and tools for school-led self-evaluation. The evaluation framework places a particular focus on the accountability of school leadership and governance for ensuring quality of remote learning, as well as the school's role in identifying and prioritizing areas for improvement. Importantly, there is an emphasis on encouraging interventions that move schools from the provision of remote learning as a temporary measure towards the establishment of sustainable and longer-term distance learning. Key areas for evaluation include: levels of student access to learning; levels of student participation in learning; provision of appropriate and regular feedback; student wellbeing; and the frequency of communications between teachers, student and parents.[260]

Finally, as part of the planning for reopening schools in September, schools are anticipating an approach for the balanced delivery of distance and in-school learning, primarily to minimize the numbers of students on school premises in order to maintain social distancing. Differentiated school planning approaches include resuming face-to-face classes on a rotation basis or retaining flexible timetables with online classes. Other schools are preparing for a partial return supported by distance learning, where students attend school three times a week and participate in online lessons for the rest of the week, thereby giving schools enough time to deep clean facilities.[261]

Meanwhile, many other leading school groups in the country are monitoring international research on planning for the return to schools and will be guided by advice from the Knowledge and Human Development Authority (KHDA).

Ministry of Education and Higher Education introduced a new educational channel called Qatar's Distance Learning.[244] The channel is branched into 19 sub-channels for all subjects and grade levels including students with disabilities. According to the Ministry's sixth report[245] on the distance learning system, 23,533 videos were produced, out of which 19,908 videos were used in special education and integration schools, 2,456 in public education schools, and 1,169 in specialized schools.[246] Two additional TV channels were launched, along with a mobile learning application called Mzeed, offering digital and interactive resources including books and textbooks in portable document format (PDF), videos, audio recordings and many digital learning materials. Qatar also planned to broadcast lessons in sign language.[247]

To ensure continuity of learning for children with disabilities during the COVID-19 lockdown, UNICEF in Jordan has provided disability-inclusive workbooks to students up to Grade 6, covering Arabic, mathematics, and sensory and perceptual skills. This provision is adapted to each student's individual education plan. Supporting videos have been circulated to parents in refugee camps and host communities to help undertake speech and occupational therapy during lockdown. Parents and caregivers were also supported by the MOE's inclusive shadow teachers through WhatsApp groups and home visits.

Another group of learners that requires special attention are children in unstable settlements and refugee camps. In Lebanon, 75 per cent of young Palestinian and Syrian refugees experienced difficulties with remote learning because of a lack of resources or support, challenging home environments, or competing priorities and responsibilities.[248] In Jordan 80 per cent of the students living in Informal Tented Settlements lacked access to remote

learning. Sixty-three per cent of Syrian refugee students and 65 per cent of refugees students from other countries (Iraq, Yemen, Sudan, Somalia, Pakistan) also lacked access to Jordan's remote learning provision.[249]

Psychosocial support

The unprecedented challenges of the pandemic, the associated school closures, social isolation and economic pressures, are negatively impacting the mental health of young people in the MENA region. A recent survey among young Palestinian and Syrian refugees in Lebanon found that 40 per cent experienced the current situation as very challenging and believed that it had negatively impacted their mental health.[250]

UNICEF supported children's wellbeing, resilience and self-efficacy by developing e-learning materials for teacher development focusing on mental health and psychosocial support alongside Child Protection. Instructional videos on providing psychosocial support were also developed and localized for children and parents. These addressed topics such as dealing with anxiety, stress, anger management, problem solving, hope, self-esteem, confidence, communication and acceptance.[251]

Conclusion

The review of available evidence leads to the following conclusions:

Risks related to school closures:

• There are five major risks associated with school closures: i) student loss of learning; ii) threats to physical and mental health; iii) increased rates of student drop-out; iv) increased risk of teacher attrition; and v) a decrease in educational financing. In the MENA region, these challenges are exacerbated by past and ongoing conflicts and the additional needs of large refugee populations.

A multi-media approach is needed:

• To maximize the reach of remote learning, a multi-platform approach is needed, combining internet, TV and/or radio, and supplemented with print materials. Once schools reopen, these media can be used in blended learning approaches, in which technology-based education is combined with face-to-face learning.

Equity and digital gaps:

• While unequal access to technology is an important aspect of the digital divide, other barriers also contribute to the risk that COVID-19 will exacerbate existing inequalities. These barriers can emerge as digital gaps in the following forms:[262]

  » Digital access gap: The access gap is derived not only from affordability and connectivity barriers. It is also associated with challenges of: i) inclusiveness in terms of language, capacity or disability; ii) children's and parental literacy in reading and digital skills; and iii) discrimination based on age, gender, disability or another factor.[263]

  » Digital user gap: Poor socio-economic backgrounds, lack of parental support and parental digital literacy may mean that children's engagement with online education at home is less sophisticated and less learning-oriented.

  » Schools digital gap: There is disparity in the capacity of schools and non-formal education providers to deliver distance learning that maximizes learning outcomes.

National and school led approaches are needed to deliver remote learning:

• National-level interventions for the delivery of remote learning should focus on: i) supporting teachers and parents with centrally curated learning materials, resources and guidelines; ii) clear, consistent coordination and communication strategies; iii) enhancement of infrastructural capacity and access to educational resources for vulnerable girls and boys, including those with disabilities; and iv) ensuring parental support for remote learning.

• School-led delivery is best placed to guarantee the implementation and monitoring of remote learning. The school-level approach should be accompanied by national-level quality assurance and the collection of data on remote learning provision, uptake and outcomes. The collection of student-level data will be important for the recovery of the education system. Local-level authorities and school leaders will need to support teachers, enabling

them to adapt to a changed professional reality and to increase and diversify the support they provide to students.

Crucial roles of teachers:

- Teachers require support in setting up the structure and content of new learning provisions. Teachers also need professional development to harness the potential of technology and to teach effectively through new media. COVID-19 highlighted both the crucial role of teachers and the fact that they are often poorly prepared to meet the current challenges.

- In order to contribute to effective student learning, technology has to be combined with appropriate pedagogical approaches, such as scaffolding and building on prior knowledge. Technology is most effective for remote learning when it is used to supplement or complement, rather than replace teachers.

Targeted learning recovery programmes to mitigate learning loss:

- Evidence shows that students from poorer socio-economic backgrounds are less able to benefit from remote learning, particularly during school closures. This is particularly the case for girls, refugees, and children with disabilities. Targeted learning recovery interventions, such as catch-up or accelerated learning programmes, can

help to mitigate increasing inequalities. Such efforts should be designed to make education systems more inclusive and resilient, with the intention to build back better during and after the current crisis.

- Parental support is crucial for both remote learning and learning recovery interventions. Where this is lacking, community volunteers may be needed to ensure that the most vulnerable children have the support they need to continue learning.

Mental health and psychosocial support for children:

- The COVID-19 pandemic has posed unprecedented challenges that may adversely affect the mental health of children and young people; these include lockdown, school closures, social isolation and economic pressures. These stresses may also exacerbate existing gender inequalities.

- Tachers and school counsellors have a crucial role to play in identifying at-risk children and providing psychosocial support during and after school closures.[264] Evidence shows that children's wellbeing, resilience and self-esteem can be supported through the development of e-learning materials, videos and online training for teachers and caregivers focusing on mental health and psychosocial support.

Annex

©UNICEF/Photographer Name/Year

Online safety resources

Broadband Commission for Sustainable Development, 'Child Online Safety: Minimizing the Risk of Violence, Abuse and Exploitation Online,' Geneva, 2019, <https://broadbandcommission.org/Documents/working-groups/ChildOnlineSafety_Report.pdf>

End Violence against Children, Protecting Children During the COVID-19 Outbreak, End Violence against Children, New York, 2020, <www.end-violence.org/protecting-children-during-covid-19-outbreak>

United Nations Children's Fund, Online Safety, UNICEF, New York, NY, 2020, <www.unicef.org/online-safety/>

United Nations Children's Fund, et al., 'COVID-19 and its implications for protecting children online,' April 2020, <www.unicef.org/media/67396/file/COVID-19%20and%20Its%20Implications%20for%20Protecting%20Children%20Online.pdf>

Endnotes

Chapter 1: Executive summary

1.   Moreno, Juan Manuel and Lucas Gortazar, 'Schools' readiness for digital learning in the eyes of principals. An analysis from PISA 2018 and its implications for the COVID19 (Coronavirus) crisis response,' World Bank Blogs, April 2020, <https://blogs.worldbank.org/education/schools-readiness-digital-learning-eyes-principals-analysis-pisa-2018-and-its> accessed 28 July 2020.

2.   United Nations Children's Fund, 'Discussion Paper Series: Children's Rights and Business in a Digital World – Access to the internet and digital literacy,' <www.unicef.org/csr/css/UNICEF_CRB_Digital_World_Series_ACCESS.pdf>, accessed 28 July 2020.

3.   USAID, 'Delivering Distance Learning in Emergencies: A Review of Evidence and Best Practice', Washington, D.C., April 2020, <www.edu-links.org/sites/default/files/media/file/DELIVERING%20DISTANCE%20LEARNING%20IN%20EMERGENCIES.pdf>, accessed 12 June 2020.

4.   Naylor, Ruth and Kristine Gorgen, 'What are the lessons learned from supporting education for marginalised girls that could be relevant for EdTech responses to COVID-19 in lower- and middle-income countries?' EdtechHub, London, May 2020, <https://edtechhub.org/wp-content/uploads/2020/05/marginalised-girls.pdf>, accessed 24 June 2020.

Chapter 2: The impact of school closures

5.   United Nations Educational, Scientific and Cultural Organization, 'Education: From disruption to recovery,' UNESCO, Paris, 2020, <https://en.unesco.org/covid19/educationresponse>, accessed 19 June 2020.

6.   United Nations Children's Fund. 'Middle East & North Africa Region COVID-19 Situation Report No. 5,' UNICEF, Amman, 2020, <www.unicef.org/mena/sites/unicef.org.mena/files/2020-06/UNICEF%20MENARO%20COVID-19%20Situation%20Report%20No.%205%20-%20for%2015-31%20May%202020.pdf>, accessed 19 June 2020.

7.   Gianna, Stefania, Robert Jenkins and Jaime Saavedra, 'Reopening schools: When, where and how?' UNESCO, Paris, 13 May 2020, <https://en.unesco.org/news/reopening-schools-when-where-and-how>, accessed 12 June 2020.

8.   Kim J. S. and D. M. Quinn, 'The effects of summer reading on low-income children's literacy achievement from kindergarten to grade 8 a meta-analysis of classroom and home interventions,' Review of Educational Research, vol. 83, no. 3, 2013, pp. 386–431.

9.   Slade, T. S. et al., 'Is 'summer' reading loss universal? Using ongoing literacy assessment in Malawi to estimate the loss from grade-transition breaks,' Research in Comparative and International Education, vol. 12, no. 4, 2017, pp. 461–485.

10.   Borman, G. D., J. Benson and L. T. Overman, 'Families, schools, and summer learning,' The Elementary School Journal, vol. 106, no. 2, 2005, pp. 131–150.

11.   Downey, Douglas, Paul T. von Hippel and Beckett A. Broh, 'Are Schools the Great Equalizer? Cognitive Inequality during the Summer Months and the School Year,' American Sociological Review, vol. 69, no. 5, 2004, pp. 613–635.

12.   Cooper, H. et al., 'The effects of summer vacation on achievement test scores: A narrative and meta-analytic review,' Review of Educational Research, vol. 66, no. 3, 1996, pp. 227–268.

13.   Ricardo, Emma Carter, Estimating learning loss by looking at time away from school during grade transition in Ghana, UKFEIT, 27 May 2020, <www.ukfiet.org/2020/estimating-learning-loss-by-looking-at-time-away-from-school-during-grade-transition-in-ghana/>, accessed 2 July 2020.

14.   Quinn, David M. and Morgan Polikoff, 'Summer learning loss: What is it, and what can we do about it?' Brookings Institute, Washington, D.C., 14 September 2017, <www.brookings.edu/research/summer-learning-loss-what-is-it-and-what-can-we-do-about-it/>, accessed 7 July 2020.

15.   USAID, 'Delivering Distance Learning in Emergencies,' <www.edu-links.org/sites/default/files/media/file/DELIVERING%20DISTANCE%20LEARNING%20IN%20EMERGENCIES.pdf>

16.   World Bank, 'The COVID-19 Pandemic: Shocks to Education and Policy Responses,' Washington, D.C., May 2020, <https://openknowledge.worldbank.org/handle/10986/33696>, accessed 11 June 2020.

17.   Ibid.

18.   Gianna, Jenkins and Saavedra, 'Reopening schools,' <https://en.unesco.org/news/reopening-schools-when-where-and-how>.

19.   USAID, 'Delivering Distance Learning in Emergencies,' <www.edu-links.org/sites/default/files/media/file/DELIVERING%20DISTANCE%20LEARNING%20IN%20EMERGENCIES.pdf>.

20.   Ibid.

21.   United Nations Population Fund, 'Impact of the COVID-19 Pandemic on Family Planning and Ending Gender-based Violence, Female Genital Mutilation and Child Marriage', UNFPA, New York, 27 April 2020, <www.unfpa.org/sites/default/files/resource-pdf/COVID-19_impact_brief_for_UNFPA_24_April_2020_1.pdf>, accessed 25 July 2020.

22.   Azevedo, Joao P. et al., 'Simulating the potential impacts of COVID-19 school closures on schooling and learning outcomes: A set of global estimates,' World Bank, Washington, D.C., June 2020, <http://pubdocs.worldbank.org/en/798061592482682799/covid-and-education-June17-r6.pdf>, accessed 25 June 2020.

23.   United Nations Children's Fund Middle East and North Africa, 'Education – Working to ensure that all children in the region have equitable opportunities and quality and relevant education,' UNICEF Regional Office, Amman, 2020, <www.unicef.org/mena/education>, accessed 19 June 2020.

24.   United Nations Development Programme Sierra Leone & Irish Aid. 'Assessing Sexual and Gender Based Violence during the Ebola Crisis in Sierra Leone,' UNDP Sierra Leone Freetown, Sierra Leone, 26 October 2015, <www.sl.undp.org/content/sierraleone/en/home/library/crisis_prevention_and_recovery/assessing-sexual-and-gender-based-violence-during-the-ebola-cris.html>, accessed 12 June 2020; Akmal, M., S. Hares and M. O'Donnell, 'Gendered Impacts of COVID-19 School Closures: Insights from Frontline Organizations,' Centre for Global Development, Washington, D.C., 27 May 2020, <www.cgdev.org/sites/default/files/gendered-impacts-covid-19-school-closures-insights-frontline-organizations.pdf>, accessed 12 June 2020.

25.   United Nations High Commissioner for Refugees Middle East and North Africa Bureau, 'Protection of Refugee Children in the Middle East and North Africa,' UNHCR Middle East and North Africa Bureau, Amman, Jordan, 2014, <www.refworld.org/pdfid/54589a6a4.pdf>, accessed 13 June 2020.

26.   Gianna, Jenkins and Saavedra, 'Reopening schools,' <https://en.unesco.org/news/reopening-schools-when-where-and-how>.

27.   United Nations Relief and Works Agency for Palestine Refugees in the Near East, Jordan Field Office, 'Rapid COVID-19 Socio-economic Impact Survey,' UNRWA, 12 June 2020, <https://data2.unhcr.org/en/working-group/45>, accessed 7 July 2020.

28.   World Food Programme, 'Global Monitoring of School Meals During COVID-19 School Closures,' Rome, 2020, <https://cdn.wfp.org/2020/school-feeding-map/?_ga=2.96101275.664989139.1587115625-1835378179.1587115625>, accessed 19 June 2020.

29.   World Food Programme, 'Middle East and North Africa Initiative for School Meals and Social Protection: A partnership for enhanced nutrition, education and resilience,' United Nations World Food Programme Regional Bureau, Cairo, February 2017, <https://documents.wfp.

org/stellent/groups/public/documents/communications/
wfp291107.pdf?_ga=2.137004915.230764441.1592495268-
1327874741.1591881164>, p. 10.

30.   World Bank, 'COVID-19 Pandemic: Shocks to Education,'
<https://openknowledge.worldbank.org/handle/10986/33696>,
p. 30.

31.   Azevedo et al., 'Simulating the potential impacts of
COVID-19 school closures,' <http://pubdocs.worldbank.org/
en/798061592482682799/covid-and-education-June17-r6.pdf>.

32.   World Bank, 'COVID-19 Pandemic: Shocks to Education,'
<https://openknowledge.worldbank.org/handle/10986/33696>.

33.   International Labour Organization and United Nations
Children's Fund, 'COVID-19 and Child Labour: A time of crisis,
a time to act,' ILO and UNICEF, New York, 2020, <www.ilo.
org/wcmsp5/groups/public/-–ed_norm/-–ipec/documents/
publication/wcms_747421.pdf>, p. 8.

34.   Ibid., p. 12.

35.   United Nations Educational, Scientific and Cultural
Organization, 'Preparing the reopening of schools – Resource
Paper,' UNESCO, Paris, 5 May 2020, <https://unesdoc.unesco.
org/ark:/48223/pf0000373401>, accessed 16 June 2020.

36.   United Nations Development Programme Sierra Leone
& Irish Aid. 'Assessing Sexual and Gender Based Violence,'
<www.sl.undp.org/content/sierraleone/en/home/library/crisis_
prevention_and_recovery/assessing-sexual-and-gender-based-
violence-during-the-ebola-cris.html>.

37.   World Bank, 'Response to COVID-19: Preparing for School
Re-Opening – The Case of China East Asia and Pacific,' World
Bank, Washington, D.C., 24 April 2020, <http://documents.
worldbank.org/curated/en/743891587996521873/pdf/
Response-to-COVID-19-Preparing-for-School-Re-Opening-The-
Case-of-China.pdf> accessed 22 June 2020.

38.   United Nations Children's Fund, 'Formative Evaluation of
the Out-of-school Children Initiative,' UNICEF, New York,
February 2018, <www.unicef.org/evaldatabase/files/Formative_
Evaluation_of_the_Out-of-School_Children_Initiative_OOSCI.
pdf>, accessed 19 June 2020.

39.   United Nations Children's Fund Middle East and North Africa,
'Out-of-school children – Reaching children and youth out of
school and out of learning,' UNICEF Regional Office, Amman,
<www.unicef.org/mena/out-school-children>, accessed 19

June 2020.

40.   World Bank, 'Response to COVID-19: Preparing for School
Re-Opening,' <http://documents.worldbank.org/curated/
en/743891587996521873/pdf/Response-to-COVID-19-
Preparing-for-School-Re-Opening-The-Case-of-China.pdf>.

41.   World Bank, 'COVID-19 Pandemic: Shocks to Education,'
<https://openknowledge.worldbank.org/handle/10986/33696>,
p. 22.

42.   International Task Force on Teachers for Education 2030,
'Response to the COVID-19 Outbreak – Call for Action on
Teachers,' UNESCO International Task Force on Teachers
for Education 2030, Paris, 27 March 2020, <https://
teachertaskforce.org/sites/default/files/migrate_default_
content_files/ttf_covid19_call%20to%20action_27mar2020_1.
pdf>, accessed 19 June 2020.

43.   World Bank, 'COVID-19 Pandemic: Shocks to Education,'
<https://openknowledge.worldbank.org/handle/10986/33696>.

44.   International Monetary Fund, 'World Economic Outlook
Update, June 2020,' International Monetary Fund, Washington,
D.C, June 2020, <www.imf.org/en/Publications/WEO/
Issues/2020/06/24/WEOUpdateJune2020>, accessed 19 June
2020.

45.   World Bank, 'COVID-19 Pandemic: Shocks to Education,'
<https://openknowledge.worldbank.org/handle/10986/33696>,
p. 14.

46.   Carvalho, Shelby, et al., 'Planning for School Reopening and
Recovery After COVID-19,' Centre for Global Development,
Washington, D.C., 29 May 2020, <www.cgdev.org/sites/
default/files/planning-school-reopening-and-recovery-after-
covid-19.pdf>, accessed 16 June 2020.

47.   Hallgarten, Joe, 'Evidence on efforts to mitigate the negative
educational impact of past disease out breaks,' K4D, Helpdesk
Report 793, Education Development Trust, Reading, UK,
April 2020, <https://opendocs.ids.ac.uk/opendocs/bitstream/
handle/20.500.12413/15202/793_mitigating_education_effects_
of_disease_outbreaks.pdf?sequence=6&isAllowed=y>,
accessed 16 June 2020.

48.   Evans, David, Susannah Hares, Justin Sandefur and Liesbet
Steer, 'How Much Will COVID Cut Education Budgets?' Centre
for Global Development, Washington, D.C., 8 May 2020,
<www.cgdev.org/blog/how-much-will-covid-cut-education-
budgets>, accessed 26 June 2020.

Chapter 3: Supporting students during COVID-19 through remote learning

49.   United Nations, 'Policy Brief: The Impact of COVID-19 on children,' New York, 15 April 2020, <https://unsdg.un.org/sites/default/files/2020-04/160420_Covid_Children_Policy_Brief.pdf>, accessed 09 June 2020.

50.   United Nations Educational, Scientific and Cultural Organization, 'National Learning Platforms and Tools,' UNESCO, Paris, 2020, <https://en.unesco.org/covid19/educationresponse/nationalresponses>, accessed 12 June 2020.

51.   Joynes, Chris, Emma Gibbs and Kate Sims, 'Country-level practice responses to providing educational continuity under COVID-19: What's working? What isn't?' EdTechHub, April 2020, <https://edtechhub.org/wp-content/uploads/2020/05/whats-working-whats-not.pdf>, accessed 9 June 2020.

52.   United Nations Educational, Scientific and Cultural Organization, 'National education responses to COVID-19: summary report of UNESCO's online survey,' UNESCO, Paris, April 2020, <https://unesdoc.unesco.org/ark:/48223/pf0000373322>, accessed 16 June 2020, p. 5.

53.   Education Endowment Foundation, 'Best evidence on supporting students to learn remotely,' London, April 2020, <https://educationendowmentfoundation.org.uk/covid-19-resources/best-evidence-on-supporting-students-to-learn-remotely/>, accessed 24 June 2020.

54.   McAleavy, Tony and Kristine Gorgen, 'Overview of emerging country-level response to providing educational continuity under COVID-19 – Best practice in pedagogy for remote teaching,' EdTechHub, London, April 2020, <https://edtechhub.org/wp-content/uploads/2020/04/summary-research-best-practice-pedagogy-remote-teaching.pdf>, accessed 9 June 2020.

55.   USAID, 'Delivering Distance Learning in Emergencies,' <www.edu-links.org/sites/default/files/media/file/DELIVERING%20DISTANCE%20LEARNING%20IN%20EMERGENCIES.pdf>, p. 21.

56.   Trucano, Michael, 'Interactive Radio Instruction: A Successful Permanent Pilot Project?' World Bank Blogs, 11 May 2010, <https://blogs.worldbank.org/edutech/iri>, accessed 9 June 2020.

57.   USAID, 'Delivering Distance Learning in Emergencies,' <www.edu-links.org/sites/default/files/media/file/DELIVERING%20DISTANCE%20LEARNING%20IN%20EMERGENCIES.pdf>.

58.   Norad, EduApp4Syria, Oslo, 2020, <https://norad.no/en/front/thematic-areas/education/innovation/eduapp4syria/>, accessed 23 June 2020.

59.   USAID, 'Delivering Distance Learning in Emergencies,' <www.edu-links.org/sites/default/files/media/file/DELIVERING%20DISTANCE%20LEARNING%20IN%20EMERGENCIES.pdf>, pp. 38–39.

60.   Ibid., p. 23.

61.   Burns, Mary, 'Distance Education for Teacher Training: Modes, Models and Methods,' Washington Education Development Center, Washington, D.C., 2011, <http://idd.edc.org/resources/publications/modes-models-and-methods>, accessed 9 June 2020.

62.   USAID, 'Delivering Distance Learning in Emergencies,' <www.edu-links.org/sites/default/files/media/file/DELIVERING%20DISTANCE%20LEARNING%20IN%20EMERGENCIES.pdf>, pp. 12–13.

63.   Ibid.

64.   Burns, Mary, 'School, interrupted: 4 options for distance education to continue teaching during COVID-19,' Global Partnership for Education (blog post), 1 April 2020, <www.globalpartnership.org/blog/school-interrupted-4-options-distance-education-continue-teaching-during-covid-19>, accessed 9 June 2020.

65.   USAID, 'Delivering Distance Learning in Emergencies,' <www.edu-links.org/sites/default/files/media/file/DELIVERING%20DISTANCE%20LEARNING%20IN%20EMERGENCIES.pdf>, pp. 28–29.

66.   Ibid., p. 39.

67.   Cobo, Cristobal, Robert Hawkins and Helena Rovner, 'How countries across Latin America use technology during COVID19-driven school closures,' World Bank Blogs, 31 March 2020, <https://blogs.worldbank.org/education/how-countries-across-latin-america-use-technology-during-covid19-driven-school-closures>, accessed 9 June 2020.

68.   Richmond, Simon, 'Repurposing established radio and audio series to address the COVID-19 educational crises,' UKFIET (blog post), 23 April 2020, <www.ukfiet.org/2020/repurposing-established-radio-and-audio-series-to-address-the-covid-19-educational-crises/>, accessed 8 June 2020.

69.   Bosch, A., T. Hartenbergerger and A. Alhamzy, 'In a World of Exploding Possibilities in Distance Learning, Don't Forget About the Light Bulb,' Quarterly Review of Distance Education, vol. 16, no. 2, 2015.

70.   Pitchford, Nicola J., 'Development of early mathematical skills with a tablet intervention: A randomized control trial in Malawi,' Frontiers in Psychology, vol. 6, April 2015, p. 485.

71.   Instruction Partners, 'COVID-19 School Closures: Practical Actions to Prepare for Continued Student Learning' (blog post), 10 March 2020, <https://instructionpartners.org/resources/coronavirus-planning-2>, accessed 9 June 2020.

72.   Stinger, Eleanor, Cathy Lewin and Andrew Smith, 'Using Digital Technology to Improve Learning: Guidance Report,' Education Endowment Foundation, London, December 2019, <https://educationendowmentfoundation.org.uk/public/files/Publications/digitalTech/EEF_Digital_Technology_Guidance_Report.pdf>, accessed 10 June 2020.

73.   Tauson, Michelle and Luke Stannard, 'EdTech for Learning in Emergencies and Displaced Settings – A Rigorous Review and Narrative Synthesis,' Save the Children UK, London, 2018, <https://resourcecentre.savethechildren.net/node/13238/pdf/edtech-learning.pdf>, accessed 10 June 2020.

74.   Sung, Y., K. Chang and T. Liu, 'The effects of integrating mobile devices with teaching and learning on students' learning performance: A meta-analysis and research synthesis,' Computers and Education, Vol. 94, 2016, pp. 252–275.

75.   Education Endowment Foundation, 'Best evidence on supporting students to learn remotely,' <https://educationendowmentfoundation.org.uk/covid-19-resources/best-evidence-on-supporting-students-to-learn-remotely/>.

76.   Education Endowment Foundation, 'Peer tutoring,' London, 2020, https://educationendowmentfoundation.org.uk/evidence-summaries/teaching-learning-toolkit/peer-tutoring/, accessed 24 June 2020.

77.   Liyanagunawardena, Tharindu, Shirley Williams and Andrew Adams, 'The impact and reach of MOOCs: a developing countries' perspective,' eLearning Papers, vol. 33, 2013, <http://centaur.reading.ac.uk/32452/1/In-depth_33_1.pdf>, accessed 24 June 2020, p. 2.

78.   School-to-School International (STS), 'Engaging Families and Communities to Support Student Reading Skills Development,' All Children Reading: A Grand Challenge for Development, Washington, D.C., 2017, <https://allchildrenreading.org/wp-content/uploads/2019/07/Summmative-Family-Community-Engagement-Web-2.pdf> , accessed 24 June 2020.

79.   Borzekowski, D. L. G., A. Lando, S. H. Olsen and L. Giffen, 'The Impact of an Educational Media Intervention to Support Children's Early Learning in Rwanda,' International Journal of Early Childhood, vol. 51, 2019, pp. 109–126.

80.   Cobo, Hawkins and Rovner, 'How countries across Latin America use technology during COVID19-driven school closures, <https://blogs.worldbank.org/education/how-countries-across-latin-america-use-technology-during-covid19-driven-school-closures>.

81.   USAID, 'Delivering Distance Learning in Emergencies,' <www.edu-links.org/sites/default/files/media/file/DELIVERING%20DISTANCE%20LEARNING%20IN%20EMERGENCIES.pdf>, p. 18.

82.   Ho, J. and H. Thukral, 'Tuned in to Student Success: Assessing the Impact of Interactive Radio Instruction for the Hardest to Reach,' Education Development Center, Washington, D.C., 2009.

83.   Ibid.

84.   USAID, 'Delivering Distance Learning in Emergencies,' <www.edu-links.org/sites/default/files/media/file/DELIVERING%20DISTANCE%20LEARNING%20IN%20EMERGENCIES.pdf>, p. 19.

85.   Al Hamaydah, Bilal, Jo Kelcey and Ferran. J. Lloveras, 'Palestine: Lessons from UNESCO's crisis-disaster risk reduction programme in Gaza,' UNESCO Country Note, UNESCO, IIEP, UNICEF, Education Above All (Qatar), 2015, <https://unesdoc.unesco.org/ark:/48223/pf0000234791>, accessed 12 June 2016.

86.   Haßler, Bjoern, L. Major and S. Hennessy, 'Tablet use in schools: A critical review of the evidence for learning outcomes,' Journal of Computer Assisted Learning, vol. 32, no. 2, 2016, pp. 139–156.

87.   Mishra, Punya and M. Koehler, 'Technological Pedagogical

Content Knowledge: A Framework for Teacher Knowledge,' Teachers College Record, vol. 108, no. 6, June 2006.

88. USAID, 'Delivering Distance Learning in Emergencies,' <www.edu-links.org/sites/default/files/media/file/ DELIVERING%20DISTANCE%20LEARNING%20IN%20 EMERGENCIES.pdf>, p. 36.

89. Lim, C.P. (ed.), 'Digital game-based learning for the global south,' Foundation for Information Technology Education and Development, Quezon City, Philippines, 2018, <http://dl4d. org/portfolio-items/digital-game-based-learning-for-the-global-south/>, accessed 10 June 2020.

90. USAID, 'Delivering Distance Learning in Emergencies,' <www.edu-links.org/sites/default/files/media/file/ DELIVERING%20DISTANCE%20LEARNING%20IN%20 EMERGENCIES.pdf>.

91. Moreno and Gortazar, 'Schools' readiness for digital learning in the eyes of principals,' <https://blogs.worldbank.org/education/ schools-readiness-digital-learning-eyes-principals-analysis-pisa-2018-and-its>.

92. United Nations Children's Fund, 'Discussion Paper Series: Children's Rights and Business in a Digital World,' <www. unicef.org/csr/css/UNICEF_CRB_Digital_World_Series_ ACCESS.pdf>.

93. USAID, 'Delivering Distance Learning in Emergencies,' <www.edu-links.org/sites/default/files/media/file/ DELIVERING%20DISTANCE%20LEARNING%20IN%20 EMERGENCIES.pdf>, p. 39.

94. United Nations Children's Fund Bangladesh, 'UNICEF: Urgent need to secure learning for children across South Asia,' Dhaka, 6 April 2020, <www.unicef.org/bangladesh/en/press-releases/ unicef-urgent-need-secure-learning-children-across-south-asia>, accessed 9 June 2020.

95. Moore, Rhiannon and Lydia Marshall, 'Access to digital learning during COVID-19 closures: compounding educational inequality?' Young Lives, New Delhi, 2 April 2020, <www. younglives.org.uk/content/access-digital-learning-during-covid-19-closures-compounding-educational-inequality>, accessed 25 July 2020.

96. Joynes, Gibbs and Sims, 'Country-level practice responses to providing educational continuity under COVID-19,' <https:// edtechhub.org/wp-content/uploads/2020/05/whats-working-whats-not.pdf>.

97. Richmond, 'Repurposing established radio and audio series to address the COVID-19 educational crises,' <www.ukfiet. org/2020/repurposing-established-radio-and-audio-series-to-address-the-covid-19-educational-crises/>.

98. World Bank, 'The World Bank Education Global Practice Rapid Response Guidance Note: Educational Television & COVID-19,' Washington, D.C., 17 April 2020, <http://documents.worldbank. org/curated/en/659411587145759242/pdf/Rapid-Response-Guidance-Note-Educational-Television-COVID-19.pdf>, accessed 10 June 2020.

99. Davis, Kelvin, 'Making learning from home accessible to M ori learners and wh nau,' Government of New Zealand, 8 April 2020, <www.beehive.govt.nz/release/making-learning-home-accessible-m%C4%81ori-learners-and-wh%C4%81nau>, accessed 20 June 2020.

100. Cerna, Lucie, 'Coronavirus school closures: What do they mean for student equity and inclusion?' OECD, Paris, 16 April 2020, <https://oecdedutoday.com/coronavirus-school-closures-student-equity-inclusion/>, accessed 28 April 2020.

101. Aga Khan Development Network, 'AKDN pulls together in response to the COVID-19 pandemic,' Aga Khan Foundation, Geneva, 2020, <www.akdn.org/project/akdn-pulls-together-response-covid-19-pandemic>, accessed 9 June 2020.

102. Ministry of Education, 'Alternate Education Service Delivery COVID-19 Emergency Response Plan Ministry of Education March 2020,' Government of Afghanistan, Kabul, 2020, <https://reliefweb.int/sites/reliefweb.int/files/resources/ moe_covid-19_alternative_learning_plan_-_english_9_april.pdf>, accessed 28 April 2020.

103. Nepal Education Cluster, 'Education Sector Response Plan Covid-19,' 2020, p. 4.

104. United Nations Children's Fund Bangladesh, 'COVID-19 Response Plan for Cox's Bazar April-Sept 2020,' UNICEF Bangladesh, Dhaka, 2020.

105. World Bank, 'How countries are using edtech (including online learning, radio, television, texting) to support access to remote learning during the COVID-19 pandemic,' Washington, D.C., 2020, <www.worldbank.org/en/topic/edutech/brief/how-countries-are-using-edtech-to-support-remote-learning-during-the-covid-19-pandemic>, accessed 10 June 2020.

106. Ibid.

107. Education Cannot Wait, 'COVID-19 and Education in Emergencies,' 2020, <www.educationcannotwait.org/covid-19/>, accessed 26 June 2020.

108. USAID, 'Delivering Distance Learning in Emergencies,' <www.edu-links.org/sites/default/files/media/file/DELIVERING%20DISTANCE%20LEARNING%20IN%20EMERGENCIES.pdf>.

109. Joynes, Gibbs and Sims, 'Country-level practice responses to providing educational continuity under COVID-19,' <https://edtechhub.org/wp-content/uploads/2020/05/whats-working-whats-not.pdf>.

110. Ibid.

111. Huang et al., 'Handbook on Facilitating Flexible Learning During Educational Disruption: The Chinese Experience in Maintaining Undisrupted Learning in COVID-19 Outbreak,' Beijing: Smart Learning Institute of Beijing Normal University, March 2020, <https://inee.org/system/files/resources/Handbook-on-Facilitating-Flexible-Learning-in-COVID-19-Outbreak_0.pdf>, accessed 10 June 2020, p. 13.

112. Nyagowa, H. O., D. Ocholla and S. Mutula, 'The influence of infrastructure, training, content and communication on the success of NEPAD'S pilot e-Schools in Kenya,' Information Development, vol. 30, no. 3, 2014, pp. 235–246.

113. Huang et al., 'Handbook on Facilitating Flexible Learning During Educational Disruption,' <https://inee.org/system/files/resources/Handbook-on-Facilitating-Flexible-Learning-in-COVID-19-Outbreak_0.pdf>.

114. Bicker, Laura, 'Coronavirus: How South Korea is teaching empty classrooms,' BBC News, 10 April 2020, <www.bbc.co.uk/news/world-asia-52230371>, accessed 10 June 2020.

115. Ibid.

116. World Bank, 'How countries are using edtech,' <www.worldbank.org/en/topic/edutech/brief/how-countries-are-using-edtech-to-support-remote-learning-during-the-covid-19-pandemic>.

117. United Nations Educational, Scientific and Cultural Organization, 'A Lifeline to learning: leveraging mobile technology to support education for refugees,' UNESCO, Paris, 2018, <https://unesdoc.unesco.org/ark:/48223/pf0000261278>, accessed 10 June 2020.

118. World Bank, 'How countries are using edtech,' <www.

worldbank.org/en/topic/edutech/brief/how-countries-are-using-edtech-to-support-remote-learning-during-the-covid-19-pandemic>.

119. McAleavy and Gorgen, 'Overview of emerging country-level response to providing educational continuity under COVID-19,' <https://edtechhub.org/wp-content/uploads/2020/04/summary-research-best-practice-pedagogy-remote-teaching.pdf>.

120. McAleavy, Tony, Chris Joynes, Emma Gibbs and Kate Sims, 'Overview of emerging country-level response to providing continuity under COVID-19. What steps are being taken to reach the most disadvantaged students during the period of Covid-19 school closure?' EdTechHub, London, May 2020, <https://edtechhub.org/wp-content/uploads/2020/05/disadvantaged-students.pdf>, accessed 9 June 2020.

121. World Bank, 'COVID-19 Pandemic: Shocks to Education,' <https://openknowledge.worldbank.org/handle/10986/33696>.

122. Sancho-Gil, J., P. Rivera-Vargas and R. Miño-Puigcercós, 'Moving beyond the predictable failure of Ed-Tech initiatives,' Learning, Media and Technology: Education and Technology into the 2020s: Speculative Futures, vol. 45, no. 1, 2020, pp. 61–75.

123. Instruction Partners, 'COVID-19 School Closures,' <https://instructionpartners.org/resources/coronavirus-planning-2>.

124. United Nations Relief and Works Agency for Palestine Refugees in the Near East, 'UNRWA in Jordan launch comprehensive "Education Cannot Wait" Distance Learning Programme,' UNRWA, Amman, Jordan, 1 May 2020, <www.unrwa.org/newsroom/press-releases/unrwa-jordan-launch-comprehensive-education-cannot-wait-distance-learning>, accessed 24 June 2020.

125. McAleavy and Gorgen, 'Overview of emerging country-level response to providing educational continuity under COVID-19,' <https://edtechhub.org/wp-content/uploads/2020/04/summary-research-best-practice-pedagogy-remote-teaching.pdf>.

126. Broadband Commission for Sustainable Development, 'Child Online Safety: Minimizing the Risk of Violence, Abuse and Exploitation Online,' Geneva, 2019, <https://broadbandcommission.org/Documents/working-groups/ChildOnlineSafety_Report.pdf>, access 10 June 2020.

127. United Nations Children's Fund, et al., 'COVID-19 and its implications for protecting children online,' April 2020, <www.unicef.org/media/67396/file/COVID-19%20and%20Its%20Implications%20for%20Protecting%20Children%20Online.

pdf>, accessed 10 June 2020.

128. Cornish-Spencer, Danielle, 'Girls' Education Challenge –
      Keeping in contact with girls COVID-19 Communication and
      Safeguarding Guidance,' Social Development Direct, on behalf
      of the Girls' Education Challenge, April 2020, <https://dfid-gec-
      api.s3.amazonaws.com/production/assets/36/GEC_Keeping_
      in_Contact_with_Girls_-_COVID-19_guidance.pdf>, access 10
      June 2020.

129. Huang et al., 'Handbook on Facilitating Flexible Learning
      During Educational Disruption,' <https://inee.org/system/files/
      resources/Handbook-on-Facilitating-Flexible-Learning-in-COVID-
      19-Outbreak_0.pdf>.

130. McAleavy, Joynes, Gibbs and Sims, 'Overview of emerging
      country-level response to providing continuity under COVID-19,'
      <https://edtechhub.org/wp-content/uploads/2020/05/
      disadvantaged-students.pdf>.

131. United Nations Educational, Scientific and Cultural
      Organization, 'Including learners with disabilities in COVID-19
      education responses,' UNESCO, Paris, 4 June 2020, <https://
      en.unesco.org/news/including-learners-disabilities-covid-19-
      education-responses>, accessed 09 June 2020.

132. United Nations, 'Policy Brief: A Disability-Inclusive Response
      to COVID-19,' New York, May 2020, <https://unsdg.un.org/
      sites/default/files/2020-05/Policy-Brief-A-Disability-Inclusive-
      Response-to-COVID-19.pdf>, accessed 09 June 2020.

133. Ibid.

134. California Department of Education, 'Lessons from the Field:
      Remote Learning Guidance,' Sacramento, CA, May 2020,
      <www.cde.ca.gov/ls/he/hn/appendix2.asp>, accessed 19 June
      2020.

135. United Nations Educational, Scientific and Cultural
      Organization 'Three ways to plan for equity during the
      coronavirus school closures,' UNESCO, Paris, 25 March 2020,
      <www.iiep.unesco.org/en/three-ways-plan-equity-during-
      coronavirus-school-closures-13365>, accessed 10 June 2020.

136. McAleavy, Joynes, Gibbs and Sims, 'Overview of emerging
      country-level response to providing continuity under COVID-19,'
      <https://edtechhub.org/wp-content/uploads/2020/05/
      disadvantaged-students.pdf>.

137. Hosler, K. and B. Arend, 'Strategies and Principles to Develop
      Cognitive Presence in Online Discussions,' in Z. Akyol and D. R.
      Garrison (eds.), Educational Communities of Inquiry: Theoretical
      Framework, Research and Practice, Information Science
      Reference: Hersey, PA, 2013, pp. 148–167.

138. Churches, Richard, Eleanor Dommett and Ian Devonshire,
      Neuroscience for Teachers: Applying Research Evidence from
      Brain Science, Crown House Publishing, Carmarthen, 2017.

139. Hargrave, A., and Monique Sénéchal, 'A book reading
      intervention with preschool children who have limited
      vocabularies: The benefits of regular reading and dialogic
      reading,' Early Childhood Research Quarterly, vol. 15, no. 1,
      2000, pp. 75–90.

140. Garrison, D. R., Thinking Collaboratively: Learning in a
      Community of Inquiry, Routledge, Abingdon, UK, 2015.

141. United Nations Educational, Scientific and Cultural
      Organization, 'School reopening: ensuring learning continuity,'
      Education Sector issue Notes, no 7.3, UNESCO, Paris,
      June 2020, <https://unesdoc.unesco.org/ark:/48223/
      pf0000373610>, accessed 23 June 2020, p. 7.

142. World Bank, 'How countries are using edtech,' <www.
      worldbank.org/en/topic/edutech/brief/how-countries-are-
      using-edtech-to-support-remote-learning-during-the-covid-19-
      pandemic>.

143. Warschauer, M., S. Cotton and M. Ames, 'One Laptop
      per Child Birmingham: Case study of a radical experiment,'
      International Journal of Learning and Media, vol. 3, no. 2, 2011,
      p. 72.

144. Warschauer, Cotton and Ames, 'One Laptop per Child
      Birmingham.'

145. Cristia, Julian, et al., 'Technology and Child Development:
      Evidence From the One Laptop per Child Program,' Inter-
      American Development Bank, Washington, D.C., January
      2012, <https://publications.iadb.org/en/technology-and-child-
      development-evidence-one-laptop-child-program>, accessed
      23 June 2020.

146. Norad, EduApp4Syria, <https://norad.no/en/front/thematic-
      areas/education/innovation/eduapp4syria/>.

147. Comings, J. 'Assessing the impact of literacy learning games
      for Syrian refugee children: An executive overview of Antura
      and the Letters and Feed the Monster impact evaluations,'
      World Vision and Foundation for Information Technology
      Education and Development, Washington, D.C., March 2018.

Chapter 4: National and local approaches to meeting the needs of schools and children

148. Joynes, Gibbs and Sims, 'Country-level practice responses to providing educational continuity under COVID-19,' <https://edtechhub.org/wp-content/uploads/2020/05/whats-working-whats-not.pdf>.

149. Ibid.

150. Pesek, W., 'Japan's coronavirus response is too little, too late,' Washington Post, Washington, D.C., 10 April 2020, <www.washingtonpost.com/opinions/2020/04/10/japans-coronavirus-response-is-too-little-too-late/>, accessed 10 June 2020.

151. McCurry, J., 'Japan declares state of emergency over coronavirus,' The Guardian, London, 7 April 2020. <www.theguardian.com/world/2020/apr/07/japan-shinzo-abe-declares-state-of-emergency-over-coronavirus>, accessed 10 June 2020.

152. Huang et al., 'Handbook on Facilitating Flexible Learning During Educational Disruption,' <https://inee.org/system/files/resources/Handbook-on-Facilitating-Flexible-Learning-in-COVID-19-Outbreak_0.pdf>.

153. Ibid.

154. Secretaria de Educacao e Desporto, Amaronaz Governo do Estado, 'Orientacoes para regime especial de aulas nao presencias – Professores,' 2020, <www.educacao.am.gov.br/wp-content/uploads/2020/03/manual-regime-especial-professor1.pdf> accessed 12 June 2020.

155. McAleavy and Gorgen, 'Overview of emerging country-level response to providing educational continuity under COVID-19,' <https://edtechhub.org/wp-content/uploads/2020/04/summary-research-best-practice-pedagogy-remote-teaching.pdf>.

156. UNESCO, 'Teacher Task Force calls to support 63 million teachers touched by the COVID-19 crisis,' 27 March 2020, <https://en.unesco.org/news/teacher-task-force-calls-support-63-million-teachers-touched-covid-19-crisis>, accessed 1 August 2020.

157. United Nations Educational, Scientific and Cultural Organization, 'How is China ensuring learning when classes are disrupted by coronavirus?' UNESCO, Paris, 19 February 2020, <https://en.unesco.org/news/how-china-ensuring-learning-when-classes-are-disrupted-coronavirus>, accessed 10 June 2020.

158. McAleavy, Joynes, Gibbs and Sims, 'Overview of emerging country-level response to providing continuity under COVID-19,' <https://edtechhub.org/wp-content/uploads/2020/05/disadvantaged-students.pdf>.

159. Golam Kibria, Education Adviser, DfID Bangladesh, personal communication.

160. Huang et al., 'Handbook on Facilitating Flexible Learning During Educational Disruption,' <https://inee.org/system/files/resources/Handbook-on-Facilitating-Flexible-Learning-in-COVID-19-Outbreak_0.pdf>.

161. World Bank, 'How countries are using edtech,' <www.worldbank.org/en/topic/edutech/brief/how-countries-are-using-edtech-to-support-remote-learning-during-the-covid-19-pandemic>.

162. Cristia et al., 'Technology and Child Development,' <https://publications.iadb.org/en/technology-and-child-development-evidence-one-laptop-child-program>.

163. USAID, 'Delivering Distance Learning in Emergencies,' <www.edu-links.org/sites/default/files/media/file/DELIVERING%20DISTANCE%20LEARNING%20IN%20EMERGENCIES.pdf>.

164. Naylor and Gorgen, 'What are the lessons learned from supporting education for marginalised girls?' <https://edtechhub.org/wp-content/uploads/2020/05/marginalised-girls.pdf>.

165. Chappell, Bill, 'Coronavirus Updates,' National Public Radio, Washington, D.C., 27 February 2020, <www.npr.org/sections/goatsandsoda/2020/02/27/809984502/coronavirus-update-japan-is-closing-all-its-schools-for-a-month?t=1586853616816&t=1586863350265&t=1587056787206>, accessed 9 June 2020.

166. McAleavy, Joynes, Gibbs and Sims, 'Overview of emerging country-level response to providing continuity under COVID-19,' <https://edtechhub.org/wp-content/uploads/2020/05/disadvantaged-students.pdf>.

167. World Bank, 'How countries are using edtech,' <www.worldbank.org/en/topic/edutech/brief/how-countries-are-using-edtech-to-support-remote-learning-during-the-covid-19-pandemic>.

168. Republic of Rwanda Ministry of Education, 'Students should embrace eLearning amidst schools' closure due to COVID 19,' Kigali, 25 March 2020, <https://mineduc.gov.rw>, accessed 10

June 2020

169. Government du Quebec, 'Preschools and elementary and secondary schools during the COVID-19 pandemic,' Montreal, June 2020, <www.quebec.ca/en/education/preschool-elementary-and-secondary-schools/etablissements-scolaires-prescolaires-primaires-et-secondaires-dans-le-contexte-de-la-covid-19/>, accessed 19 June 2020.

170. Joynes, Gibbs and Sims, 'Country-level practice responses to providing educational continuity under COVID-19,' <https://edtechhub.org/wp-content/uploads/2020/05/whats-working-whats-not.pdf>.

171. Ibid.

172. United Nations Educational, Scientific and Cultural Organization, 'Education in a post-COVID world: Nine ideas for public action,' UNESCO, Paris, 22 June 2020, <https://en.unesco.org/news/education-post-covid-world-nine-ideas-public-action>, accessed 25 July 2020.

173. California Department of Education 'Lessons from the Field,' <www.cde.ca.gov/ls/he/hn/appendix2.asp>.

174. Uganda Ministry of Education and Sports, 'Letter to town clerks,' Kigali, Uganda, 2020, <https://planipolis.iiep.unesco.org/en/2020/uganda-covid-19-education-sector-response-guidelines-6931>, accessed 6 May 2020.

175. Reimers, Fernando M. and Andreas Schleicher, 'A framework to guide an education response to the COVID-19 Pandemic of 2020,' Harvard Graduate School of Education, Cambridge, MA, OECD, Paris, 2020, <www.hm.ee/sites/default/files/framework_guide_v1_002_harward.pdf>, accessed 12 June 2020, p. 6.

176. Burchard, Amory, 'Digitales Lernen: Schulen können Laptop-Klassensätze kaufen – aber nicht für alle Schüler,' Tagesspeigel, 15 May 2020, <www.tagesspiegel.de/wissen/digitales-lernen-schulen-koennen-laptop-klassensaetze-kaufen-aber-nicht-fuer-alle-schueler/25833606.html>, accessed 23 June 2020.

177. Shah, Ritesh, Chris Henderson and Daniel Couch, 'Disaster Recovery Guidance Series – Education Sector Recovery,' World Bank & Global Facility on Disaster Reduction and Recovery (GFDRR), Washington, D.C., 2019, <www.gfdrr.org/sites/default/files/publication/EDUCATION_NOTE_01042019_web.pdf>, accessed 23 June 2020.

178. Attfield, I. and B.T. Vu, 'A rising tide of primary school standards – The role of data systems in improving equitable access for all to quality education in Vietnam,' International Journal of Educational Development, vol. 33, no. 1, 2013, pp. 74–87.

179. Shanker, Ashim, Diana Marian and Christopher Swimmer, 'Effective Interventions Aimed at Reaching Out-of-School Children A Literature Review,' UNICEF Regional Office for South Asia, Kathmandu, August 2015, <https://files.eric.ed.gov/fulltext/ED573790.pdf>, accessed 23 June 2020.

180. United Nations Educational, Scientific and Cultural Organization, 'COVID-19 Education Response Webinar – Back to School: Preparing and Planning for the reopening of schools,' UNESCO, Paris, 24 April 2020, <https://unesdoc.unesco.org/ark:/48223/pf0000373318>, accessed 23 June 2020.

Chapter 5: Recovery programmes and ensuring educational continuity

181. Education Endowment Foundation, 'School Closures Rapid Evidence Assessment,' London, 2020, <https://educationendowmentfoundation.org.uk/evidence-summaries/evidence-reviews/school-closures-rapid-evidence-assessment/>, accessed 10 June 2020.

182. United Nations Educational, Scientific and Cultural Organization, 'School reopening,' <https://unesdoc.unesco.org/ark:/48223/pf0000373610>, p. 7.

183. World Bank, 'Response to COVID-19: Preparing for School Re-Opening,' <http://documents.worldbank.org/curated/en/743891587996521873/pdf/Response-to-COVID-19-Preparing-for-School-Re-Opening-The-Case-of-China.pdf>.

184. United Nations Educational, Scientific and Cultural Organization, 'Young Syrians learn to convert fear into hope with education,' UNESCO, Paris, 9 July 2019, <https://en.unesco.org/news/young-syrians-learn-convert-fear-hope-education>, accessed 22 June 2020.

185. World Bank, 'Achieving Learning for All,' Washington D.C., April 2013, <www.worldbank.org/content/dam/Worldbank/Feature%20Story/Education/1317335_HDN_Education_Overview.pdf>, accessed 12 June 2020.

186. United Nations High Commissioner for Refugees,

'Accelerated Education,' UNHCR, Geneva, 2020, <www.unhcr.org/uk/accelerated-education-working-group.html>, accessed 19 June 2020.

187.   Crown Agents, 'Complementary Basic Education for Ghana,' London, 2020, <www.crownagents.com/project/complementary-basic-education-for-ghana/>, accessed 19 June 2020.

188.   Longden, Ken, 'Accelerated Learning Programmes: What Can We Learn from Them about Curriculum Reform?' UNESCO, Paris, April 2013, <https://unesdoc.unesco.org/ark:/48223/pf0000225950>, accessed 19 June 2020.

189.   Accelerated Education Working Group (AEWG), 'Accelerated Education 10 Principles for Effective Practice,' <https://s3.amazonaws.com/inee-assets/resources/AEWG_Accelerated_Education_10_Principles-screen.pdf>.

190.   International Bureau of Education, 'Project-based learning,' IBE, Geneva, 2020, <www.ibe.unesco.org/en/glossary-curriculum-terminology/p/project-based-learning>, accessed 20 June 2020.

191.   Education Endowment Trust, 'Project-Based Learning,' London, 2020, <https://educationendowmentfoundation.org.uk/projects-and-evaluation/projects/project-based-learning/>, accessed 26 June 2020.

192.   Vega, Vanessa, 'Project-Based Learning Research Review: Evidence- Based Components of Success,' George Lucas Education Foundation edutopia, San Rafael, CA, 1 December 2015, <www.edutopia.org/pbl-research-evidence-based-components>, accessed 26 June 2020.

193.   Bell, Stephanie, 'Project-based learning for the 21st century: Skills for the future,' The Clearing House, vol. 83, no. 2, pp. 39–43.

194.   De Witte, K., et al., 'A critical review of the literature on school dropout,' Educational Research Review, vol. 10, 2013, pp. 13–28.

195.   World Bank, 'COVID-19 Pandemic: Shocks to Education,' <https://openknowledge.worldbank.org/handle/10986/33696>, p. 15.

196.   Save the Children, 'Lebanon: Students miss half the school year due to double impact of economic and coronavirus crisis,' London, 29 May 2020, <www.savethechildren.net/news/lebanon-students-miss-half-school-year-due-double-impact-economic-and-coronavirus-crisis#>, accessed 22 June 2020.

197.   Case, A. and C. Ardington, 'The Impact of Parental Death on School Outcomes: Longitudinal Evidence from South Africa,' Demography, vol. 43, no. 3, 2006, pp. 401–420.

198.   United Nations Children's Fund, 'Back to School Guide – Evidence-Based Strategies to Resume Education in Emergencies and Post-Crisis Transition,' UNICEF, New York, 2013, <https://reliefweb.int/sites/reliefweb.int/files/resources/UNICEF_Back_To_School_Guide_2013.pdf>, accessed 22 June 2020.

199.   Ibid.

200.   Carvalho et al., 'Planning for School Reopening and Recovery After COVID-19,' <www.cgdev.org/sites/default/files/planning-school-reopening-and-recovery-after-covid-19.pdf>.

201.   United Nations Children's Fund, 'Back to School Guide,' <https://reliefweb.int/sites/reliefweb.int/files/resources/UNICEF_Back_To_School_Guide_2013.pdf>.

202.   UNESCO Institute for Statistics and United Nations Children's Fund, 'Fixing the Broken Promise of Education for All: Findings from the Global Initiative on Out-of-School Children,' UIS, Montreal, 2015, <http://uis.unesco.org/sites/default/files/documents/fixing-broken-promise-efa-findings-global-initiative-oosc-education-2015-en_2.pdf>, accessed 22 June 2020.

203.   Reimers and Schleicher, 'A framework to guide an education response to the COVID-19 Pandemic of 2020,' <www.hm.ee/sites/default/files/framework_guide_v1_002_harward.pdf>.

204.   World Bank, 'COVID-19 Pandemic: Shocks to Education,' <https://openknowledge.worldbank.org/handle/10986/33696>, pp. 30–31.

205.   United Nations Educational, Scientific and Cultural Organization, 'Preparing the reopening of schools,' <https://unesdoc.unesco.org/ark:/48223/pf0000373401>, p. 11.

206.   Government of South Africa, Department of Basic Education, 'Coronavirus Orientation Guidelines for Schools, for Teachers, Non-Teaching Staff and Learners – On The Covid-19 Outbreak In South Africa,' 2020, <https://planipolis.iiep.unesco.org/sites/planipolis/files/ressources/south_africa_coronavirus-orientation-guidelines.pdf>, accessed 12 June 2020.

207.   United Nations Educational, Scientific and Cultural Organization 'Preparing the reopening of schools,' <https://unesdoc.unesco.org/ark:/48223/pf0000373401>.

208. International Bureau of Education, 'Blended learning,' IBE, Geneva, 2020, <www.ibe.unesco.org/en/glossary-curriculum-terminology/b/blended-learning>, accessed 26 June 2020.

209. Gianna, Jenkins and Saavedra, 'Reopening schools,' <https://en.unesco.org/news/reopening-schools-when-where-and-how>.

210. Education Endowment Foundation, 'Remote Learning: Rapid Evidence Assessment,' London, April 2020, <https://educationendowmentfoundation.org.uk/public/files/Publications/Covid-19_Resources/Remote_learning_evidence_review/Remote_Learning_Rapid_Evidence_Assessment.pdf>, accessed 26 June 2020.

211. Inter-agency Network for Education in Emergencies, 'Minimum Standards for Education: Preparedness, Response, Recovery,' INEE, New York, 2014, <https://inee.org/system/files/resources/INEE_Minimum_Standards_Handbook_2010%28HSP%29_EN.pdf>, accessed 12 June 2020.

212. Inter-agency Network for Education in Emergencies, 'Where It's Needed Most: Quality Professional Development for All Teachers,' INEE, New York, January 2015, <https://inee.org/resources/where-its-needed-most-quality-professional-development-all-teachers>, accessed 12 June 2020.

213. World Bank, 'COVID-19 Pandemic: Shocks to Education,' <https://openknowledge.worldbank.org/handle/10986/33696>.

214. Westbrook, Jo, et al., 'Pedagogy, Curriculum, Teaching Practices and Teacher Education in Developing Countries. Final Report. Education Rigorous Literature Review,' Department for International Development, London, December 2013, <https://eppi.ioe.ac.uk/cms/Portals/0/PDF%20reviews%20and%20summaries/Pedagogy%202013%20Westbrook%20report.pdf?ver=2014-04-24-121331-867>, accessed 25 June 2020.

215. Timperley, Helen, 'Teacher professional learning and development,' International Academy of Education, International Bureau of Education, Geneva, 2008, <https://inee.org/system/files/resources/NZ_Teacher_Professional_Learning_and_Development_2008_en_0.pdf> accessed 20 June 2020.

216. Save the Children, 'Review: Teacher support and development interventions,' London, 2012, <https://inee.org/system/files/resources/STC_Review_Teacher_Support_2012.pdf>, accessed 22 June 2020.

217. World Bank, 'Response to COVID-19: Preparing for School Re-Opening,' <http://documents.worldbank.org/curated/en/743891587996521873/pdf/Response-to-COVID-19-Preparing-for-School-Re-Opening-The-Case-of-China.pdf>.

218. United Nations Children's Fund, 'Pillar in Focus: Child Protection/GBV,' UNICEF Global COVID-19 Situation Report No. 6, 15–28 May 2020, <https://reliefweb.int/sites/reliefweb.int/files/resources/UNICEF%20Global%20COVID-19%20Situation%20Report%20No.%206%20-%20for%2015-28%20May%202020.pdf>, accessed 25 July 2020.

219. International Federation of Red Cross and Red Crescent Societies, Psychosocial Centre, 'Online PFA training for COVID-19,' Copenhagen, 2020, <https://pscentre.org/?resource=online-pfa-training-for-covid-19>, accessed 10 June 2020.

Chapter 6: Remote learning in the MENA region

220. World Bank, 'How countries are using edtech,' <www.worldbank.org/en/topic/edutech/brief/how-countries-are-using-edtech-to-support-remote-learning-during-the-covid-19-pandemic>.

221. United Nations Children's Fund Middle East and North Africa, 'Education – Working to ensure that all children in the region have equitable opportunities to quality and relevant education,' <www.unicef.org/mena/education>.

222. United Nations High Commissioner for Refugees, 'Global Report 2019,' Geneva, 2020, <http://reporting.unhcr.org/sites/default/files/gr2019/pdf/GR2019_English_Full_lowres.pdf#_ga=2.37829863.53403608.1592566372-1632852936.1591371729>, accessed 22 June 2020, p. 141.

223. Vegas, Emiliana, 'School closures, government responses, and learning inequality around the world during COVID-19,' Brookings, Washington, D.C., 14 April 2020, <www.brookings.edu/research/school-closures-government-responses-and-learning-inequality-around-the-world-during-covid-19/>, accessed 20 June 2020.

224. United Nations Relief and Works Agency for Palestinian Refugees in the Near East, UNRWATV, 2020, <www.youtube.com/user/unrwatv>, accessed 12 June 2020

225.　Ministry of Education, Kuwait, MOE channel Al Tarbawieh, <www.youtube.com/channel/ UCHoaEgy2FxODwhAv96GuMFA>, accessed 12 June 2020.

226.　Vegas, 'School closures, government responses, and learning inequality around the world during COVID-19,' <www.brookings.edu/research/school-closures-government-responses-and-learning-inequality-around-the-world-during-covid-19/>.

227.　Ministry of Education, Syria, Damascus Educational Platform, 2020, <http://dep.edu.sy/>, accessed 12 June 2020.

228.　Ministry of Education, Syria, Syrian Educational Platform, 2020, <www.sep.edu.sy/>, accessed 12 June 2020.

229.　Ministry of Education, Iraq, Iraqi Educational channel, Baghdad, 2020, <www.youtube.com/channel/UC_hXlmP8BLXHcO__66C_Aqg/featured>, accessed 12 June 2020.

230.　Ministry of Education, Iraq, Newton, Baghdad, 2020, <www.newtoniq.tech/school/login>, accessed 12 June 2020.

231.　Ministry of Education, Iraqi Kurdistan Region, Newton, Kurdistan Regional Government, Erbil, 2020, <www.e-parwarda.com/LoginEP?returnUrl=/>, accessed 12 June 2020.

232.　Ministry of National Education and Vocational Training, Morocco, TelmidTICE, Rabat, 2020, <https://soutiensco.men.gov.ma/>, accessed 12 June 2020.

233.　The Broadcasting and Television National Company, Morocco, Athaqafia, Rabat, 2020, <www.snrtlive.ma/athaqafia>, accessed 12 June 2020.

234.　Ministry of Education and Technological Education, Egypt, Live broadcasting platform, Cairo, 2020, <https://stream.moe.gov.eg/>, accessed 12 June 2020.

235.　Ministry of Education, Egypt, MoE Egypt Edu Stream, Cairo, 2020, <www.youtube.com/channel/UCGgeDgjlJ3GXZcLUnExAybw>, accessed 12 June 2020.

236.　Ministry of Education and Technological Education, Egypt, Egyptian Knowledge Bank, Cairo, 2020, <https://study.ekb.eg/>, accessed from Egypt 12 June 2020.

237.　Ministry of Education and Technological Education, Egypt, Edmodo, Cairo, 2020, <https://edmodo.org/>, accessed 12 June 2020.

238.　Ministry of Education, Jordan, Darsak, Amman, 2020, <https://darsak.gov.jo/> accessed 12 June 2020.

239.　Ministry of Education, Jordan, Noor Space, Amman, 2020, <https://noorspacejo.azurewebsites.net/> accessed 12 June 2020.

240.　Edraak, 'Towards an Effective and Engaging E-Learning,' Amman, 2020, <www.edraak.org/en/course/course-v1:Edraak+move_online101+T3_2020/>, accessed 12 June 2020.

241.　Audah, Mohammed, Maja Capek and Aushwarya Patil, 'COVID-19 and digital learning in Jordan,' World Bank Blogs, Washington, D.C., 21 May 2020, <https://blogs.worldbank.org/arabvoices/covid-19-and-digital-learning-preparedness-jordan>, accessed 22 June 2020.

242.　Ministry of Education, United Arab Emirates, Al Diwan, 2020, <https://elib.moe.gov.ae/App>, accessed 12 June 2020.

243.　Ministry of Education, United Arab Emirates, Darifah, Dubai, 2020, <http://darifah.com/>, accessed 12 June 2020.

244.　Ibrahim, Mohammad, '4 pillars of distance learning for "students of determination",' Al Khaleej, Dubai, 25 March 2020 <www.alkhaleej.ae/alkhaleej/page/31144135-bb93-4ad3-80de-fd13e5f857b2> accessed 12 June 2020.

245.　Government of Dubai, 'Frequently Asked Questions – Schools,' 2020, <www.khda.gov.ae/en/safetyatschools>, accessed 23 June 2020

246.　Ministry of Education, United Arab Emirates, 'The MoE's learning curve,' Dubai, 2020, <https://adfs.moe.gov.ae>, accessed 12 June 2020.

247.　Ministry of Education, United Arab Emirates, '25,000 education staff to start remote specialized training through advanced technological system,' , 2020, <www.moe.gov.ae/En/MediaCenter/News/Pages/specialized-training.aspx>, accessed 23 June 2020.

248.　Hamdan Bin Mohammed Smart University, 'UAE equips teachers from around the world with distance learning skills,' 25 March 2020, <www.hbmsu.ac.ae/news/uae-equips-teachers-around-world-distance-learning-skills>, accessed 23 June 2020.

249.　United Arab Emirates Government, 'Distance learning in times of COVID-19,' United Arab Emirates Government Portal, 2020, <https://u.ae/en/information-and-services/education/

distance-learning-in-times-of-covid-19>, accessed 23 June 2020.

250. Sircar, Nandini, 'Distance learning evaluation for all UAE schools from mid-May,' Khaleej Times, Dubai, 2 May 2020 <www.khaleejtimes.com/news/education/distance-learning-evaluation-for-all-uae-schools-from-mid-may>, accessed 26 June 2020.

251. Sircar, Nandini, 'Virtual or real learning? UAE schools prepare plans for post Covid-19 reopening,' Khaleej Times, Dubai, 16 May 2020<www.khaleejtimes.com/news/education/virtual-or-real-learning-uae-schools-prepare-plans-for-post-covid-19-reopening>, accessed 26 June 2020.

252. United Nations Educational, Scientific and Cultural Organization, 'Alternative Solutions to School Closure in Arab Countries, To Ensuring That Learning Never Stops, Covid-19 Education Response,' UNESCO, Beirut Office, 26 March 2020, <https://en.unesco.org/sites/default/files/alternative_solutions_to_school_closure_in_arab_countries_-_final.pdf>, accessed 26 June 2020.

253. Centre for Strategic Studies, 'The Pulse of the Jordanian Street,' Amman, 17 April 2020, <http://jcss.org/ShowNewsAr.aspx?NewsId=828>, accessed 12 June 2020.

254. Ministry of Education, Qatar, Distance learning channel, Doha, 2020, <www.youtube.com/channel/UClWOugQk77IcIdt-F87Xh1A/featured> accessed 12 June 2020.

255. Ministry of Education and Higher Education, Qatar, 'Press Release: The Ministry of Education and Higher Education issues the latest report on distance learning,' Doha, Qatar 4 May 2020, <www.edu.gov.qa/en/Documents/EDU%20 Remote%20Learning%20latest%20report%20English.pdf>, accessed 26 June 2020.

256. Ibid.

257. Carvalho, Shelby and Susannah Hares, 'More from Our Database on School Closures: New Education Policies May Be Increasing Educational Inequality,' Center for Global Development, Washington, D.C., 30 March 2020, <www.cgdev.org/blog/more-our-database-school-closures-new-education-policies-may-be-increasing-educational>, accessed 12 June 2020.

258. Save the Children, 'Lebanon: Students miss half the school year due to double impact of economic and coronavirus crisis,' <www.savethechildren.net/news/lebanon-students-miss-half-

school-year-due-double-impact-economic-and-coronavirus-crisis#>.

259. United Nations High Commissioner for Refugees, United Nations Children's Fund, World Food Programme, 'Multi-Sectoral Rapid Needs Assessment: COVID19 – Jordan' UNHCR, UNICEF, WFP, May 2020, <www.unicef.org/jordan/media/2441/file/RAN.pdf>, accessed 12 June 2020.

260. Save the Children, 'Lebanon: Students miss half the school year due to double impact of economic and coronavirus crisis,' <www.savethechildren.net/news/lebanon-students-miss-half-school-year-due-double-impact-economic-and-coronavirus-crisis#>.

261. United Nations Children's Fund Jordan, 'UNICEF and the COVID-19 Response for Education in Jordan: One Month On,' Amman, 2020, <https://reliefweb.int/sites/reliefweb.int/files/resources/76399.pdf>, accessed 12 June 2020.

Chapter 7: Conclusion

262. Moreno and Gortazar, 'Schools' readiness for digital learning in the eyes of principals,' <https://blogs.worldbank.org/education/schools-readiness-digital-learning-eyes-principals-analysis-pisa-2018-and-its>.

263. United Nations Children's Fund, 'Discussion Paper Series: Children's Rights and Business in a Digital World,' <www.unicef.org/csr/css/UNICEF_CRB_Digital_World_Series_ACCESS.pdf>.

264. World Bank, 'COVID-19 Pandemic: Shocks to Education,' <https://openknowledge.worldbank.org/handle/10986/33696>, p. 30.

unicef

for every child