



GUIDANCE ON DISTANCE LEARNING MODALITIES

TO REACH ALL CHILDREN AND YOUTH
DURING SCHOOL CLOSURES

*Focusing on low- and no-tech modalities to
reach the most marginalized*

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ABOUT THIS GUIDANCE

This guidance on continuity of learning during school closures draws on the key lessons learned from the COVID-19 education response around the world. It was developed for government policymakers and education staff of national and international organizations involved in the education response during school closures.

This is the first edition of the guidance.

1. DISTANCE LEARNING IN THE CONTEXT OF SCHOOL CLOSURES DUE TO COVID-19

The COVID-19 pandemic has exposed large inequalities in access to technology, such as between rich and poor, rural and urban, girls and boys, across and within countries. Online platforms have often been the first to be rolled out to enable children to continue learning from home; indeed, they are generally the most effective learning modality in getting some form of learning up and running. However, they have the lowest reach.

In some countries, online platforms reach less than 10 per cent of the population. This is because they require electricity, reliable Internet connectivity, as well as sufficient devices for children in the household: particularly, devices with good functionality and capabilities, and large enough screen sizes. Moreover, another element of the digital divide concerns the digital literacy gap, a barrier that can be even harder to address. There is also a significant gender digital divide, with girls far less likely to own or have access to digital devices, and fewer opportunities to gain digital literacy skills.

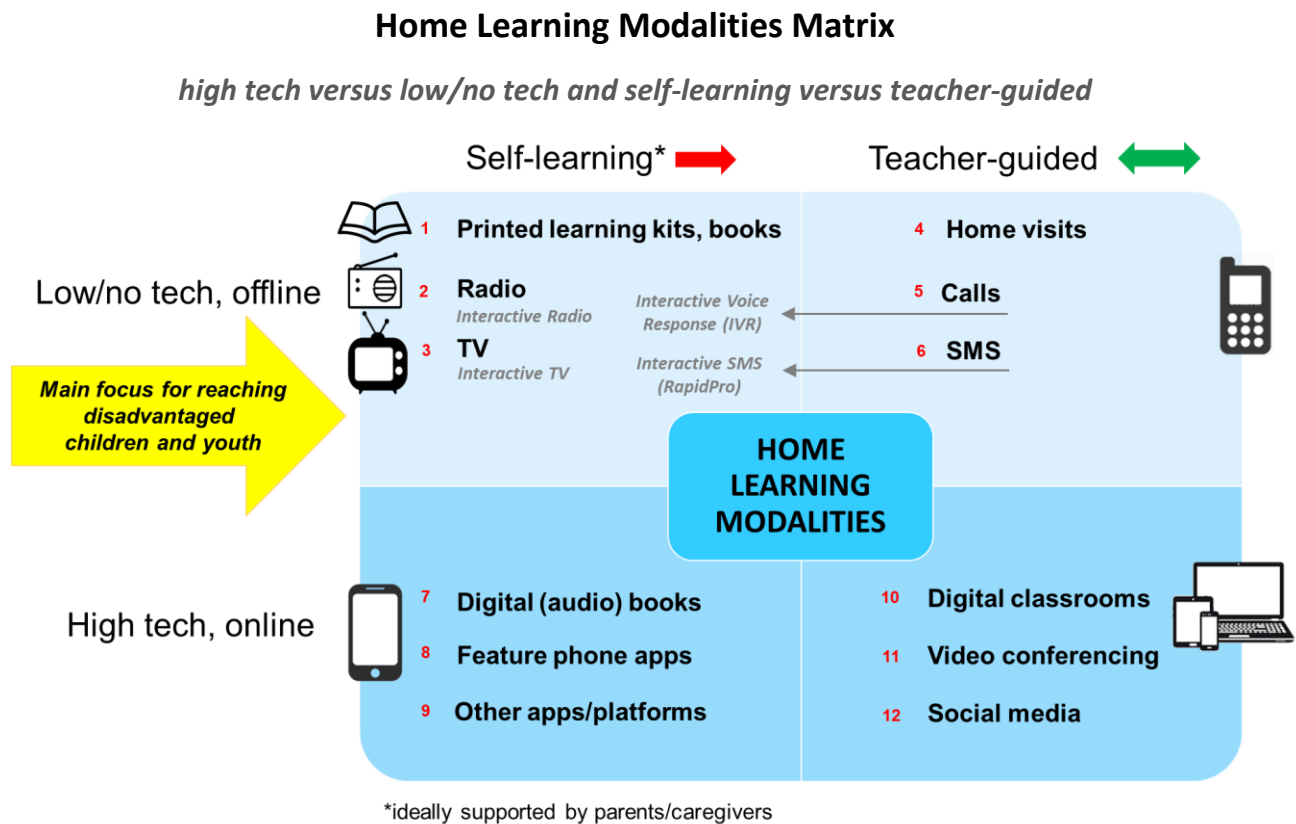
Many governments have therefore rolled out multiple learning modalities, including those which require no technology or technologies that are more commonly available. When planning such initiatives, it is helpful to distinguish between **high-tech modalities** (like online platforms and apps) and **low- or no-tech modalities** (like TV, radio, SMS and printed learning materials), which have the potential for much higher reach.

Another useful distinction is between **one-way modalities**, requiring children to study independently – though possibly supported by parents/caregivers¹ or even older siblings – and those which are **teacher-guided**. During school closures, it is important that teachers continue to engage and interact with their students, provide assignments and, importantly, provide timely feedback. This can be done, for example, through calls and SMS, or social media for those with connected devices.

¹ Noting that vulnerable and disadvantaged children and youth are more likely to be ‘first-generation learners’, and thus are less likely to have parental education support during school closures.

Different learning modalities – a total of 12 – are summarized in the Home Learning Modalities Matrix, across the four learning classifications (the four corners in the matrix):²

1. Low/no tech – self-learning
2. Low/no tech – teacher-guided learning
3. High tech – self-learning
4. High tech – teacher-guided learning



The following sections cover some of the key learning modalities and how they can be used for self-learning or teacher-guided learning during school closures, with a focus on low- and no-tech modalities to reach the most disadvantaged and marginalized children.

² See also the [UNICEF Remote Learning COVID-19 Response Decision Tree](#)

2. ENSURING CONTINUITY OF LEARNING DURING SCHOOL CLOSURES

This section summarizes key considerations and recommendations for ensuring continuity of learning during school closures.

2.1. Use a combination of learning modalities

To address differential access to technology, multiple learning modalities are required, particularly those that are low tech or no tech – the top half of the Learning Modalities Matrix. For planning and prioritization, it is important to understand the extent of technology reach, including at subnational levels, by rural/urban, by gender and, if possible, by wealth quintile.³ Such an evidence-based analysis is an important component of a national plan or strategy for the education response and continuity of learning during school closures. For example in Bangladesh, for school-age children in the poorest wealth quintile, less than 6 per cent have a television but over 92 per cent have a mobile phone in their household.⁴ Across countries, the penetration rate of mobile phones is consistently high, even in the poorest wealth quintile and in rural areas. Section 4 of the guidance focuses specifically on learning through basic mobile phones.

Self-learning modalities on their own (e.g., radio, TV, paper-based learning kits and even online platforms and mobile apps) are unlikely to be very effective in ensuring learning continuity if they are not complemented by teacher-guided modalities. Teachers should continue to be involved to guide their students as well as support parents/caregivers during school closures (see section 2.4). A combination of self-learning and teacher-guided modalities is therefore required (see section 3). When there are multiple learning modalities being rolled out (and ideally there are), it is important to integrate them within an overarching education strategy, anchored to the curriculum.

2.2. Establish a one-stop portal with key resources and guidance

It is useful to have a single, regularly updated, national (government) portal or website that provides comprehensive one-stop guidance and information on the COVID-19 education response, as well as subnational websites if relevant. It may include guidance and information regarding the different

³ UNICEF has analysed [technology reach for 127 countries](#) based mainly on household survey data; another source for Internet/social media reach is <https://datareportal.com/reports>

⁴ Bangladesh MICS6, 2019

learning modalities being rolled out and how to access them (e.g., TV and radio schedules by grade), general guidance and advice for parents/caregivers,⁵ guidance and advice specific to different age ranges – including young children and adolescents, training resources (such as online digital literacy training), links to key online resources, platforms and apps, and policies and guidance on school reopening.

Rather than providing a large repository of resources, which can be confusing and overwhelming, provide a curated and organized list of resources in relevant languages, ideally aligned to the curriculum and grade-wise educational objectives. It should include educational websites and resources, which can run on low cost mobile phones, and any new resources being developed should take the limitations of such phones into consideration (see section 4).

Consider also establishing a virtual support helpdesk (call centre) to complement the portal where users (students/teachers/caregivers) can troubleshoot any difficulties in accessing or using these materials. In addition, collaboration and partnerships with key stakeholders (such as NGOs, EdTech companies/start-ups and ICT ministries) are important for the rapid development and scale up of remote learning modalities.⁶

2.3. Encourage school leaders to take an active role

School leaders are a vital ingredient in terms of teachers' continued engagement with their students (see section 2.4).⁷ School leaders need to be encouraged to take an active role in determining and supporting teachers' new ways of working with distance learning modalities, and helping build their capacity to do so (see section 2.6). School leaders play a key role in quality assurance of distance learning modalities and in monitoring their effectiveness, as well as student well-being (see section 2.9).

It is also important for school leaders to monitor teacher mental health and well-being – and providing support and changing strategies when needed. They are also responsible for contingency planning when strategies do not work. Furthermore, school leaders need to be aware of the additional risks faced by girls, and the gender digital divide, so that they can effectively address this. Strategies to address such

⁵ See for example [UNICEF's COVID-19 information centre](#)

⁶ [World Bank Guidance Note: Remote Learning & COVID-19](#)

⁷ [UNESCO, TTF and ILO - Supporting teachers in back-to-school efforts. A toolkit for school leaders](#)

issues include awareness raising with teachers and parents/caregivers, open discussions, conducting trainings, and establishing referral mechanisms (see also section 2.7).

2.4. Ensure teachers' continued engagement with their students

Children and youth need continued interaction with their teachers, including guidance and feedback on their work. Continued teacher involvement is important for learning continuity, for students to feel supported during school closures, and to help establish a sense of routine and normality for students as well as for parents/caregivers.

For teachers, continued interaction with their students is equally important. Connecting with students regularly provides a sense of routine and purpose and helps them maintain their professional identities amidst uncertainty. These connections will help both students and teachers to re-establish relationships, once schools reopen, and will also provide teachers a better sense of how much their students have learnt while being away from school. It is also important to have teachers' involvement in adapting and delivering the curriculum and lessons for home/distance learning, and in supporting student and parent uptake of these modalities.

Various methods for teachers to continue to teach, guide and interact with their students during school closures are further described in the following sections. It is also important to build teachers' capacity on technology supported learning modalities, whether schools are closed or open (see sections 2.6 and 2.10).

2.5. Engage parents and caregivers

The importance of continuity of learning needs to be communicated to parents and caregivers, along with guidance on home learning modalities. Firstly, it is important to raise awareness of the learning programmes being rolled out and how to access them (e.g., which TV channels, for which grades, and at what time), for example, through a combination of multiple strategies, such as phone calls by teachers, newspapers, TV and radio broadcasts, social media campaigns, the above-mentioned 'one-stop website', or even as part of monitoring surveys (see section 2.9).

Secondly, for parental buy-in it is important to communicate that these learning modalities are legitimate, free of charge and endorsed by the government.

Thirdly, messaging can reinforce parents'/caregivers' role in supporting their children, including allowing girls and female learners to access any/all forms of technology available at home, and provide practical guidance on how to do so (see UNICEF's parenting tips).⁸ For example, suggest that parents/caregivers plan a routine for their children; encourage children to ask questions and express their feelings; if they have access to Internet, establish rules and be aware of risks to children's safety, protection and privacy; and stay connected with their children's school and teachers.

It should be taken into consideration that many children are first generation learners, whose parents did not complete their own education and may be illiterate. Written guidance may therefore not always be helpful. Many families will also have minimal resources to work with. When resources are required for learning activities, they should focus on those that are widely available – like stones, sticks, common cooking ingredients (e.g., rice) – or are non-specific (e.g., “find triangle-shaped objects”).

2.6. Build the capacity of teachers, parents/caregivers and children

Distance learning modalities are new and often unfamiliar approaches for students, parents/caregivers and teachers, so they need to be supported. Teachers require training aligned with the learning modalities they are engaged in. Even the use of familiar technology – mobile phones and SMS – requires training: not necessarily in the use of the technology, but in the pedagogy of teaching through these methods. Teachers trained in these new learning modalities can better support parents/caregivers and children in how to effectively learn and engage through such modalities. Teacher training can be done remotely through video conferencing or through an online platform, provided teachers have a suitable mobile and are provided with Internet connectivity.

During times when schools are open, teachers can prepare their students for potential future closures through practical sessions involving various distance learning modalities. For example, for a radio programme, teachers could explain how to tune into the right radio station, provide a radio schedule of educational programmes, and provide exercises linked to the radio programming to be completed at home. Note that children are often more tech savvy than their parents (and adults in general, including their teachers!), so parents may learn from their children and vice versa.

⁸ See [5 tips to keep children learning during COVID-19](#) and [Coronavirus \(COVID-19\) parenting tips](#)

One of the greatest supports that can be given to parents/caregivers is to prepare both teachers and their students to work with distance learning modalities. This includes providing a strong structure and routine, as well as designing and organizing activities and interactions to support students to work with relative independence as is appropriate for their age. Facilitating home schooling for parents and caregivers will help them manage all their other commitments, such as household and work.

2.7. Develop and implement strategies to reach the most vulnerable children in times of school closures

The most marginalized children – including those with disabilities, struggling learners, poor children, children from ethnic minorities, 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 significant household responsibilities (such as caring for siblings or ill family members) – are least likely to be able to access and benefit from distance learning opportunities.⁹

Approaches to reach the most marginalized children include rolling out low- and no-tech learning modalities, translating and adapting materials to a diverse set of mother tongues, closed captions and live signing interpretation in video/television lessons for children with hearing impairments, and ensuring materials are culturally appropriate and do not reinforce negative gender stereotypes. Communication, sensitization and media campaigns on the value of girls' education can be effective to encourage communities and families to support girls' participation, and for this, it is important to work with women's organizations and community leaders.¹⁰

The economic impact of COVID-19 has hit the poorer families harder, putting vulnerable women and girls at greater risk of child marriage, sexual exploitation and abuse, and pregnancy. Being confined at home also has psychosocial impacts and can increase the risk of violence including gender-based violence, which disproportionately affected women and girls during the Ebola epidemic. Many households are also confined to a small space, which not only makes it difficult to learn (due to lack of space and a quiet space to study), but also compounds stress and anxiety and the risk of domestic

⁹ See [All Means All – How to support learning for the most vulnerable children in areas of school closures](#)

¹⁰ See also [Brookings & UNICEF – 5 actions to help bring the most marginalized girls back to school after COVID-19](#)

violence. During lockdowns and school closures, efforts should therefore be made to establish referral mechanisms as well as psychosocial support services, for example through helplines. In addition, distance learning should include social and emotional learning activities.

Teachers can also play an important role, if they are trained in child abuse identification and intervention. The continued engagement of teachers with their students (see section 2.4) is especially important for the most marginalized girls and boys, as they can play an important supporting role in times of need; moreover, they can also encourage and help ensure children's return to school once schools reopen.

2.8. Explore ways to provide free Internet access

Consider working with Mobile Network Operators for free online access to key educational websites, platforms and applications, including the [Internet of Good Things website](#), which provides educational and lifesaving information across a range of topics.

Another option is to establish free Wi-Fi hotspots, for example in urban slums and refugee camps, as well as boosting and providing free access to existing Wi-Fi hotspots in schools to cover surrounding areas.¹¹ Wi-Fi hotspots should consider the limitation of signal radius as well as maximum number of users that can connect before network performance degrades. Restricting Internet access to key websites/resources can prevent overstressing of network capacity as well as help ensure children's online safety and ensure they are not accessing age-inappropriate content.¹²

2.9. Monitor reach and effectiveness of distance learning modalities and learning progress

Monitoring is important to determine and improve the reach and effectiveness of distance learning modalities. Prolonged school closures have long-term implications and affect some population groups more than others, especially those without access to technology. Monitoring is required to determine

¹¹ [UNHCR - Considerations and options for connected education: COVID-19 response](#); see also [Giga](#), launched by UNICEF and ITU (International Telecommunication Union) in September 2019 with the aim of connecting every school to the Internet.

¹² See also [UNICEF - 5 ways you can help keep your children safe online](#)

which population groups and areas of the country learning modalities are not reaching. This information can be used to develop plans and strategies to improve reach.

The quality and effectiveness of distance learning modalities can also be improved based on feedback from the key stakeholders: learners, parents/caregivers and teachers. Surveys may inquire about their perceptions, preferences and level of engagement with different learning modalities. During the COVID-19 pandemic, typical survey methods that avoid face-to-face contact are phone surveys, IVR (Interactive Voice Response) surveys, and SMS-based surveys.¹³ Online surveys, while inexpensive, can only reach the online population and are hence not generally recommended except when complemented by other survey methods with better reach among the less advantaged, offline population.

In addition to national or subnational monitoring of the reach and effectiveness of continuity of learning modalities, there is also a need for *school and classroom-level* monitoring of student learning and well-being. It is the role of school leaders to monitor this at the school level, and for teachers to monitor their students.

In a classroom environment, teachers are normally expected to monitor children's learning progress, whether it is on track and to identify strengths and weaknesses. Teachers do so through a process called formative assessment, and its main purpose is to enable teachers to make informed decisions about how to best support their students' learning. It is also important for motivating students by providing feedback on their learning progress.

Formative assessment can take many forms – such as observations and questioning, in addition to more formal quizzes or assessments – but possibilities are more limited in an online learning environment, and extremely limited when the only option for interaction is through basic mobile phones (see section 4). At the same time, it is of critical importance *especially* during school closures to have a well-planned routine formative assessment or monitoring component, for teachers to continue to monitor and support their students during these difficult times.¹⁴ When schools reopen, it will be important for

¹³ See also [Using SMS- and IVR-based surveys during COVID-19](#)

¹⁴ See also [World Bank - Are students still learning during COVID-19? Formative assessment can provide the answer](#)

teachers to identify learning gaps and address them through accelerated learning and remedial education strategies, especially for vulnerable groups who are at higher risk of having fallen behind.¹⁵

2.10. Continue distance learning modalities when schools reopen

Distance learning modalities ideally continue to run even when schools reopen. This is important for four reasons: (i) to provide learning opportunities to children and youth who will remain out of school, even when schools have reopened, (ii) to complement teaching at school with support for learning at home (e.g., through radio, TV and mobile learning programmes), (iii) for planning and preparedness in the eventuality of future school closures, and (iv) to maintain and enhance digital literacy and blended learning skills for teachers and learners alike.

COVID-19 has led to a global widening of gaps between those with opportunities to learn, in particular those who could access online lessons and resources and had continued engagements with their teachers, and those with few or even no opportunities to learn during school closures. The unprecedented roll out of distance learning approaches combined with innovations in this space provide an opportunity for countries to transform how they reach out-of-school girls and boys,¹⁶ as well as for blended learning to improve the quality of education, especially for the most disadvantaged. Blended learning is an approach that combines face-to-face interactions between students and teachers at school, with technology-supported learning opportunities at home and/or at school.¹⁷

When opting for technology-supported learning solutions, consider in particular (i) equity issues, including potential barriers to uptake by disadvantaged children and youth and how to address them, (ii) cost-effective scale up and long-term sustainability, and (iii) value added over business-as-usual approaches, for example, how it can reduce learning gaps between less advantaged children and their more advantaged peers.

¹⁵ [UNESCO, TTF and ILO - Supporting teachers in back-to-school efforts. A toolkit for school leaders](#)

¹⁶ [Brookings & UNICEF – 5 actions to help bring the most marginalized girls back to school after COVID-19](#)

¹⁷ Blended learning typically refers to the use of traditional classroom learning combined with online learning; however, in the context of South Asia, where online learning is still out of reach for the majority of children and youth, it is referred to in this guidance note as face-to-face combined with technology-supported learning.

3. COMBINING SELF-LEARNING AND TEACHER-GUIDED MODALITIES

As described in section 2.1, both self-learning and teacher-guided modalities are important and can complement each other. During school closures, it is important for teachers to continue to guide their students, to monitor their learning and provide feedback, to encourage, and to inquire about their well-being and progress. They play an important role in supporting their students not just with their learning, but also emotionally during challenging times.

A key advantage of an online learning platform is that self-learning and teacher-guided modalities can be combined within the same platform:

- For self-learning (supported by parents/caregivers), the platform may provide various options and activities for learners to study, such as video and audio clips, reading materials, assignments, puzzles, educational games and quizzes.¹⁸ Explanatory video or audio clips can be linked to specific exercises (for example, a video on fractions followed by corresponding exercises), and especially for the early grades, should be quite short to hold learners' attention.
- Some platforms – in particular virtual classrooms – also support several types of two-way communication between teachers and students, for example, video conferencing, recorded audio and video, typed responses, and submitted photos of student work (e.g., drawings, writings and comic strips). Due to such flexibility and potential for a high level of interaction and teacher feedback, online platforms can be quite effective, with approaches to suit different student needs and preferences, according to different ages (e.g. voice recording for younger ages, typed responses for older ages), as well as possible adaptations and technologies for children with disabilities.

What are the possibilities for effective learning with *low* or *no-tech* modalities, and combining self-learning with teacher-guided approaches? Unfortunately, while there are creative solutions, there is no doubt a large gap in what low- and no-tech modalities can offer compared to high-tech and online

¹⁸ See also [The Learning Passport](#): a self-learning platform that can run offline and on mobile phones, which is a collaboration between UNICEF, Microsoft and The University of Cambridge. UNICEF and Generation Unlimited are also planning an ambitious initiative – called Learning Unlimited – to connect learners globally to high quality online learning.

modalities. However, for self-learning, well-designed TV and radio programming can be quite effective.¹⁹ It is important that they cover not just traditional subjects but also, for example, guidance for parents, student mental health and well-being, arts and music.

TV and radio can also introduce an element of interactivity. When interactive, they are referred to as ‘interactive TV’ and ‘interactive radio’. Radio and TV can be made interactive by introducing pauses, and ideally, having a facilitator to elicit responses from listeners. In the context of school closures, parents and caregivers can be encouraged to watch the programmes as well, and potentially facilitate and make the activity interactive. This requires that the instructions for doing so are clear, simple and in a language they can understand. These kinds of learning modalities could continue to be run once schools reopen, for example outside of school hours, and at times convenient for children or youth who have dropped out from school and may work during the day.

Another way of adding interactivity to TV and radio is through use of mobile phones. An example is the ‘Shaale – Baharchi – Shaala’ initiative by the Maharashtra state government in India, which first introduced a topic through a radio programme, and followed-up with SMS/WhatsApp messages linked to the session to registered parents’ phones.²⁰

RapidPro and IVR are also ways of introducing interactivity through mobile phones. RapidPro²¹ – an open source messaging and communication system widely used by UNICEF – allows for the creation of SMS-based interactions, surveys or chatbots. It can provide multiple-choice options (pathways) to navigate through, for example, learning materials organized by grade and topic. Similarly, IVR can provide the same kinds of options or pathways, but using voice, through an automated telephone system.

Teacher-guided modalities are certainly challenging in the absence of high-tech solutions. Teaching and monitoring learning can be difficult when limited to phone calls and SMS – though some possibilities are explored in section 4. But the importance of emotional support and encouragement should not be

¹⁹ See the [Guidance on radio/TV programming during COVID-19](#); and coming soon, the UNICEF ROSA Guidance and Reviewing Matrix for Optimizing the Effectiveness of Video and TV lessons

²⁰ [India Development Review \(IDR\) - Connecting the disconnected](#)

²¹ See <https://rapidpro.global>

discounted. Teachers may feel that their role and influence in these areas is more achievable when the only means of communication with their students is through such low-tech modalities.

4. LEVERAGING LEARNING OPPORTUNITIES THROUGH BASIC MOBILE PHONES

A basic mobile phone (or feature phone) is by far the most common technology a household has access to. For example, in Afghanistan, a country with one of the lowest Internet penetration rates globally, 94 per cent of households in urban areas and 85 per cent in rural areas own a mobile phone.²²

These sections cover the key challenges to consider for learning through mobile phones, followed by potential solutions to leverage its high level of reach vis-à-vis other technologies.

4.1. Challenges and constraints when learning through basic mobile phones

There are a number of key challenges and constraints, which need to be considered for any strategy around the use of mobile phones for learning.

- Girls, especially adolescent girls, are much less likely to have access to a mobile.²³ This is an important issue to address in communication, sensitization and media campaigns reaching parents/caregivers and other key stakeholders (see also section 2.7).
- Low-cost mobile phones have very small, low-resolution, non-touch screens, which make it much more difficult to engage and interact with educational content, if not impossible (see box *Key Features and Constraints of Inexpensive Feature Phones*). This is an important design consideration for websites/apps/learning platforms. For example, if there is a government information portal, how readable and accessible is the website on a mobile with a 1.8-inch screen? Website accessibility for children with disabilities is another important consideration, and there are special apps and educational games designed for children with disabilities (see section 4.2); however, these apps and games will generally not run on basic feature phones.
- For basic phones with small screens and no Internet connectivity, what can be communicated via SMS is extremely limited. However, there are innovative ways to work within such constraints, as detailed in section 4.2.

²² Based on data from the Afghanistan Demographic and Health Survey (DHS) 2015; the actual rate may now be higher.

²³ See [Societal prejudice restricts girls' access to mobile](#)

- Mobile phones often need to be shared between parents/guardians and multiple children. Therefore, when developing lesson plans/activities, ensure (most) activities can be done offline and offscreen. This minimizes screen time and facilitates sharing of one device across multiple family members. If there is Internet connectivity, completed assignments can also be shared with teachers as a photo.

Key Features and Constraints of Inexpensive Feature Phones

Common features of inexpensive mobile phones (basic feature phones):

- 1.8 to 2.8-inch screen size
- SMS & calling
- Camera (though usually no front facing camera)
- Video playback
- Audio for music/ audio course delivery
- FM radio connection
- Bluetooth
- Internet (2G, 3G or 4G) – usually no Wi-Fi connectivity
- Applications such as email, text editors, calculator

Features many inexpensive mobile phones **do not have** that are important for distance learning:

- Audio messaging (sending voice notes, audio playback)
- Video calling
- Language translation
- Support for installing apps/educational games (most apps will not function on basic feature phones, only those specifically designed to run on such phones)
- Touch screen (especially useful for younger learners, children/youth with disabilities)
- Storage space (which is generally extremely limited on basic feature phones)
- Voice commands and other usability features useful for children/youth with disabilities

Note: The common features of low-cost phones are based on a review of US\$10–20 phones in India and Nepal. In some countries, the cost will be higher, depending on the availability of low-cost models and due to variations in pricing. Not all phones in the US\$10–20 price range could go online. The minimum cost of mobile phones that have the second list of features (such as the ability to install apps, touch screen, larger screen size and more storage space) starts at around US\$40.

4.2. Opportunities for learning through basic mobile phones

In spite of all the constraints and challenges outlined in section 4.1, basic mobile phones do have great potential for learning. In general, the potential of mobile phones has been underexplored and

underutilized during the COVID-19 crisis (with some notable exceptions), given the fact that they have by far the highest reach and are often the only way of reaching disadvantaged children and youth without access to Internet, television or radio.

Radio lessons

In some countries such as Bangladesh, radio penetration rates are quite low (less than 10 per cent of households), having been overtaken in popularity by television and of course mobile phones. In the absence of an actual radio, many basic mobile phones can be used to listen to FM radio. Communication campaigns could include awareness-raising of the use of mobile phones to tune into radio programming.

Teacher-student interactions

Teachers and students can interact through phone calls and SMS (see below). There are creative ways for teachers to provide assignments, for students to submit assignments, and for teachers to grade assignments and provide feedback through calls and SMS, while considering the constraints of what can be effectively communicated through these methods. Teachers can also use these options to provide guidance to students, inquire about and monitor their learning progress and well-being, and encourage and lend support during the challenging time of COVID-19.

SMS

SMS enables two-way communication between teachers and parents/caregivers/students. In addition, SMS allows for the sharing of guidance and learning activities from any source. A key constraint is the 160-character limit and the cost per SMS.

Pratham Education Foundation in India launched a daily engagement activity during COVID-19, which sends curated SMS for hands-on learning activities covering different subjects.²⁴ This initiative started before the COVID-19 lockdown, and took an innovative turn during the lockdown to reaching children through Pratham's existing networks of volunteers, community members and teachers. Pratham team members (known to children, families, and communities) kept regular two-way communications going throughout the lockdown period via phone calls, to follow-up to activities shared via SMS. It was this

²⁴ See [Pratham – connecting with children during COVID-19](#)

two-way communication that kept engagement high. Learning activities were shared via SMS from the central level to district or block leaders, who shared it with a wider network of Pratham field team members, and onwards to a large number of volunteers who then shared the activities with their contacts and directly with children. A database of learning activities was created working within the constraints of the SMS character limit, as shown in these examples (a word game and a mathematics game):

A word game sent via SMS

Group message
एक खेल खेलिए। यह खेल 30 मिनट का होगा।
घर के सब लोग खेल सकते हैं।
एक शब्द बनाइए जैसे कि घर। अब अगला शब्द र से शुरू होगा जैसे रेल।
अगला शब्द ल से होगा, खेलते रहिए।

Here is a 30 minute game. Everyone at home can play. Make a word – like home. Next word must start with “e”. Example elephant. Now make a word with “t” and so on.

Math SMS Activity

घर में कुल 5 लोग थे।
हर एक ने 3 पराठे खाए।
फिर 4 पराठे मौसी को भेज दिए।
अभी 6 पराठे बचे हैं।
बताएं, आज कुल कितने पराठे बनाए थे?

There are 5 people at home. Each person eats 3 parathas. Then we sent 4 parathas to aunt. Now we have 6 parathas left. How many total parathas were made today?

IVR/toll-free audio lessons

Mobile phones can be used to dial a toll-free telephone number to access audio lessons. This could be done through an IVR system, which enables navigation through various lessons or guidance materials using voice, ideally in multiple languages if relevant to the country context.²⁵

RapidPro

As mentioned in section 3, RapidPro allows for the development of interactive SMS applications, providing multiple-choice options to navigate through SMS-based guidance or learning materials. It can also be used to create interactive quizzes and even chatbots, i.e. enabling a chat-like conversation through SMS, with the system capable of interpreting (simple) questions and providing relevant responses to those questions.

²⁵ See for example the discontinued [BBC Janala service](#), which unlocked access to English language learning for millions of people in Bangladesh

Educational apps and games for feature phones

Certain apps such as [Ustad Mobile](#) and [World Reader digital books](#) are specifically designed to run on low-cost feature phones. However, not all low-cost mobile phones support such apps. The cost of a mobile phone that can install and run a much broader range of apps keeps decreasing, which is an encouraging trend.

Multilingual educational apps and games

It is important for educational apps or games to be available in the relevant language(s). For example, [Google Read Along](#), which uses speech recognition technology to develop literacy skills, is available in nine languages including Bangla, Hindi, Marathi, Tamil, Telugu and Urdu, as of May 2020. The [Pratham Digital app](#) (PraDigi) has digital content in 11 regional languages: Assamese, Bangla, Gujarati, Hindi, Kannada, Marathi, Odiya, Punjabi, Tamil, Telugu and Urdu.²⁶

Some education apps and games are less dependent on literacy in a specific language because they have a highly visual interface with minimal (or even no) text.²⁷ However, such apps and games are generally limited to specific areas of learning, such as puzzles and maths exercises or games.

Apps and games for children with disabilities and special needs

There are many apps and games designed specifically for individuals with special needs and various impairments, such as for hearing, vision and speaking impairments, and for children on the autism spectrum.²⁸

²⁶ See also [Pratham Open School](#)

²⁷ [Investigating the effects of unsupervised computer use on educationally disadvantaged children's knowledge and understanding of computers](#)

²⁸ See also [UNICEF and WHO - Assistive Technology for Children with Disabilities: Creating Opportunities for Education, Inclusion and Participation](#)

5. PRINTED LEARNING KITS AND READING MATERIALS

Printed learning kits distributed during school closures may include books, worksheets, guidance notes (for parents/caregivers and learners), activity booklets, notebooks as well as stationery²⁹ (e.g., pens, colouring pencils, ruler).³⁰ They are especially important for reaching children and youth with no access to technology at all. Moreover, unlike technology-based learning solutions, well-designed paper-based materials are in a format most children will be familiar and comfortable with. For these reasons, many countries included paper-based approaches as part of their COVID-19 education response strategy (often supported by UNICEF), despite the challenge of rapidly designing and producing learning kits and delivering them during lockdowns.

Unfortunately, those same children who lack access to technology are also more likely to have illiterate parents, and they themselves are less likely to be literate, with a large proportion of disadvantaged children not attaining basic literacy even by the end of primary education. Paper-based learning kits therefore need to be carefully designed, age appropriate, and consider that many children who stand to benefit the most (with limited or no access to technology) may have little or no parental support. For non-readers or readers with low literacy levels, highly visual materials are important. For visually impaired children and youth, printed materials need to be in Braille.

Distribution during a lockdown is a challenge, but creative ways have been found to do so, such as:

- (i) Distribution through designated access points at schools, where parents/caregivers may be contacted in batches to pick them up at set times.
- (ii) Delivery of the learning materials to children's homes by community teachers.

As with other self-learning modalities, the use of printed learning materials needs to be part of a broader learning strategy that incorporates teacher-guided approaches, as well as guidance to parents/caregivers on how to effectively support children in using the materials.

²⁹ Stationery is especially important for the poorest families, but should also be a consideration for all families if shops are closed and supplies may be difficult to obtain.

³⁰ See also [Keeping children learning during the COVID-19 pandemic – PRINTED/PAPER-BASED MATERIALS](#) and the [Adolescent Kit](#) – a package of guidance, tools, activities and supplies to support adolescents aged 10–18

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