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Digital

Resource Pack
to Support Remote Learning

Acknowledgements

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About the Remote Learning Resource Packs

In response to the challenge to education systems presented by the global COVID-19 pandemic, UNICEF and the World Bank have created a set of seven Resource Packs about remote learning. The packs are designed to support government officials and staff in national and international agencies tasked with designing and implementing effective remote learning opportunities for children in development and humanitarian contexts.

Remote learning is the process of teaching and learning performed at a distance. Rather than having learners meet their teachers in person, learners are distanced from their teacher and possibly their peers as well.

One of the consequences of COVID-19 is that almost every country has had to put in place remote learning programmes. The packs are therefore designed primarily to help you to enhance and improve the effectiveness of existing remote learning programmes.

PACK 1
Introduction

This introductory Resource Pack considers the key elements of a 'pedagogy-first' approach to remote learning, starting with the learner and learning, then considering technology options and your programmes' broader approach to supporting learning. It discusses some of the most common considerations that remote programmes often overlook but which, if carefully considered, can lead to improved learning for more children.

PACK 2
Radio

Radio has a long-established position among remote learning modalities, reflecting in part its wide accessibility in many parts of the world including in some of the hardest to reach areas. This pack is designed to support you if you are involved in remote learning using radio and help you to strengthen and improve systems and approaches so that learning outcomes can be improved for all children and young people.

PACK 3
Print

Despite advances in technology, print remains a crucial medium for many learners around the world. This pack discusses some of the major strengths and limitations of print as a medium for delivery of remote learning and identifies some of the approaches that can be taken when planning for the use of print within remote learning.

PACK 4
TV

A recent UNICEF survey of 127 countries using technology for remote learning identified that 75% are using edTV. This pack is designed to support you if you are involved in remote learning through edTV. It can help you to strengthen and improve your systems and approaches so that learning outcomes can be improved for all children and young people.

PACK 5
Digital
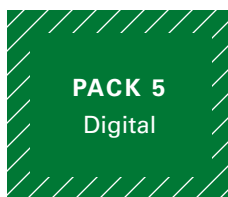
This Resource Pack is intended to help you design new digital remote learning programmes or strengthen existing programmes. This pack will help evaluate your digital learning options by placing your learning purpose and the context of your learners at the heart of your decision making.

PACK 6
Mobile

There are over 5 billion mobile users in the world today. Unsurprisingly, many countries are turning to mobile technology for remote learning. This pack is about creating and strengthening effective remote learning programmes using mobile technology. It overlaps with the Resource Pack about digital learning.

PACK 7
Formative Assessment
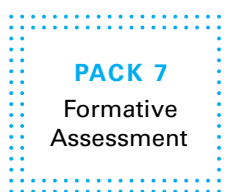
Children and young people cannot be expected to learn and progress through a remote learning programme with few or no interactions with teachers. This Resource Pack is about creating opportunities for formative assessment in remote learning programmes i.e. opportunities for checking understanding, giving feedback and collecting information to decide what to do next.

1.1

Purpose of the digital remote learning pack

This Resource Pack is intended to help you design new digital remote learning programmes or strengthen existing programmes. It is divided into three sections:

- **Learning purpose:** this section of the pack will help you develop or clarify the learning purpose of your programme. Who are the learners and what do you want them to learn? Being clear and realistic about your learning purpose, taking into account where learners start from and considering the barriers they may face along the way are likely to lead to more successful outcomes.

- **Technology options:** your technology options are shaped by the technologies and networks available to learners. Few learners from lower-income households have access to broadband data and large-screen computers. Case studies using video conferencing and virtual learning environments are rare; smartphones and digital content repositories for self-directed online learning are more common. Where learners have limited access to smartphones or data, programmes have often turned to social media, usually WhatsApp, and teacher-guided learning.

  Identifying the technology options most readily available to learners is critical. This pack will help evaluate your technology options, placing the learning purpose at the heart of your decision making.

- **Developing an effective programme:** issues of access to learning, quality of learning and assessment for learning are vital: all have important implications for developing your digital content, your pedagogy and your mechanisms for learning support.

School-aged children from lower-income households are likely to access digital resources through mobile phones. Some overlap between the digital remote learning and mobile remote learning packs is therefore inevitable. This resource pack focuses on the curation and use of digital resources to support remote learning.

Resource Pack 6 in this series also considers how mobile technologies have enabled access and use of such resources and examines how programmes have used sophisticated learning platforms or apps, basic voice calls and SMS messages to support learning.

Reflection Tasks

Throughout the pack, you will find Reflection Tasks. Reflection Tasks are an invitation to reflect on and consider action in relation to your own context and digital remote learning.

Case studies included in this pack

NEPAL
E-Paath

LEARNER PROFILE
students in grades 1-8

LEARNING OBJECTIVE
curriculum based e-learning content Nepali, English, science and mathematics for students in grade 1 to grade 8

PAKISTAN
Deaf Reach

LEARNER PROFILE
deaf children and young people

LEARNING OBJECTIVE
taking school to deaf children and young people

BHUTAN
Remote Learning (Self Instructional Materials)

LEARNER PROFILE
School-age children

LEARNING OBJECTIVE
curriculum based content focused on prioritised learning outcomes

GHANA
iCampusgh, Ghana

LEARNER PROFILE
students in higher secondary grades

LEARNING OBJECTIVE
STEM subjects

NIGERIA
EdoBEST@Home

LEARNER PROFILE
school age children

LEARNING OBJECTIVE
for every child in Edo State to ensure they can continue learning while schools are closed

KENYA
eLimu

LEARNER PROFILE
Somali child refugees

LEARNING OBJECTIVE
Somali-language stories and writing activities

INDIA
#Ab Padhai Nahi Rukegi Digital Learning Enhancement Programme (DigiLEP)

LEARNER PROFILE
students in grades 1-12

LEARNING OBJECTIVE
school curriculum subjects

INDIA
Pratham Digital

LEARNER PROFILE
children and young people age 3-18

LEARNING OBJECTIVE
arts plus basic education

2

Why use digital technology for remote learning?

2.1

What is remote learning using digital technology?

For the purpose of this Resource Pack, we define digital remote learning as:

using digital technology to facilitate learning for school-age students, from a distance.[1]

For learners in low-income households, digital learning overlaps heavily with learning through mobiles – few will access digital learning resources other than through mobile phones. This digital resource pack focusses upon the curation and use of digital content for remote learning. The mobile resource pack also covers the use of mobile apps and the use of voice and SMS services to support remote learning.

2.2

Potential benefits of remote learning programmes using digital technology

Digital solutions for remote learning have the potential to provide rich opportunities for learning, using a variety of media and interactive learning activities. The most fully featured platforms or tools might also offer interaction with educators and peers, file sharing, and tools for individualized learning and collaborative work.

This resource pack focusses upon digital resources curated to support remote learning by children of school age. This has often meant establishing online repositories of digital resources, sometimes developed for particular countries, curricula or contexts, other times drawing together existing resources where they can be found. These digital repositories may be seen as a way to create more flexible opportunities for the distribution and use of remote learning content broadcast on radio or TV. They may also be used to offer supplementary resources, such as study guides, timetables, and guidance for parents on how to support their children's learning.

2.3

Models of remote learning through digital technology

You may find this diagram from UNICEF a helpful way of thinking about different models of digital learning, as covered in this pack.[2]

Self-learning

Ideally supported by parents/caregivers

Teacher-guided
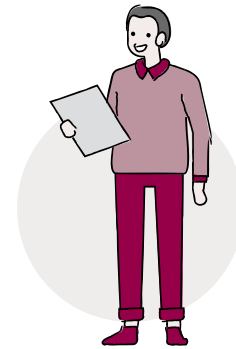
	Self-learning	Teacher-guided

Low/no tech, offline	• Printed materials
	• Radio
	  Interactive radio
	• TV
	  Interactive TV
		• Home visits
		• Calls
		  Interactive Voice Response (IVR)
		• SMS
		  Interactive SMS (RapidPro)

High tech, online	• Digital (audio) books • Feature phone apps • Other apps/platforms	• Digital classrooms • Video conferencing • Social media

Most of the case studies in this digital pack could be thought of as 'high tech, online/self-learning' – the bottom left of the diagram. Examples include:

- Pratham, India

- OLE E-Paath, Nepal

- iCampus, Ghana

This model assumes learners have relatively unrestricted access to the internet, usually through smartphones. Learners access content online, through bespoke learning Apps, YouTube, or a web browser. Learners are self-directed and find relevant content themselves.

Most other case studies in this pack are teacher-guided, using social media – particularly WhatsApp – to facilitate learning; for example: #Ab Padhai Nahi Rukegi (#Learning Will Not Stop, India) and EdoBEST@Home WhatsApp groups, Nigeria and Pratham's Karona, Thodi Masti, Thodi Padhai (Do It: A little fun, a little study) programme. These case studies use WhatsApp because the target learners have lower levels of access to smartphones and the internet, which could be limited to WhatsApp alone, and therefore cannot learn 'online'. In some ways, this is a 'medium tech, partially online' option similar to sending learning activities on SMS.

Finally, most digital learning programmes in lower- and middle-income countries recognized that learners from lower-income households do not have sufficient access to broadband internet or large-screen digital devices to make high-tech online teacher-guided approaches such as digital classrooms or video conferencing viable at this time.

The following programmes highlight key features of these digital learning models:

Model	Pratham Digital, India[3]	E-Paath, Nepal[4]	#Ab Padhai Nahi Rukegi (DigiLEP) India[5]	iCampus, Ghana[6]
What's the context?	Pratham's Digital content includes videos, games, stories and learning applications. In response to COVID-19, Pratham launched a daily engagement activity: Karona, Thodi Masti, Thodi Padhai (Do it: a little, a little study).	Open Learning Exchange (OLE) distributes computers and interactive learning software to schools. In response to COVID-19, OLE partnered with the MoEST to make their content available with free and open access via an MoEST portal.[7]	Response to COVID-19 school closures by the Government of Madhya Pradesh and its partners to reduce learning losses. Curated/re-purposed existing digital content available from partners in the programme.	iCampus is an online portal created by the MoE in Ghana. Was initially designed to run on dedicated 'iBox' servers installed in 148 low-performing schools. The servers provide wireless access of up to 100m range.
Who are the learners?	Children in 20 states in India age aged 3 to 18+	Content is based on Nepal's national curriculum for grades 1-8	Students in grade 1-12 in Madhya Pradesh	Senior high school learners (16+)
What are they learning?	Content in a wide range of regional languages providing 'a little fun' through activities in art, music and theatre, and 'a little study' through activities in language, math, science and English.[8]	Nepali, English, science and mathematics available in both Nepali and English – supplemented by OLE's E-Pustakalaya digital library of books and other educational resources.	Videos (3-4 minutes videos prepared by teachers) covering science, mathematics, English, language and social studies.	Digital content (videos, simulations and course assignments) focused on STEM subjects (science, technology, engineering and mathematics) at higher secondary level.
How are they learning?	Pratham shares text/video/audio content focused on hands-on learning activities via SMS or WhatsApp messages to parents. Pratham also works with State governments to reach children via radio and TV.[9]	Children access grade and subject specific content via the MoEST portal or directly from OER2go.org OLE resources were usalso made available via TV, radio and print (via COVID safe distribution points).	Programme set up WhatsApp groups with parents and teachers. Videos, lesson guides and worksheets are delivered to students via these WhatsApp groups.\nTeachers follow up with telephone support, calling five students per day.	One-hour lessons organized around a video and quiz. Lessons were designed to be teacher-facilitated at school. Now they are used directly by students via individual logins at home and at school (as schools re-open).
How is learning assessed?	Parents are encouraged to do activities with their children and to give feedback. No other assessment mechanisms are in place.	Learning outcomes are described for each activity. An interactive assessment task is provided for each activity.	Students are required to complete worksheets and send them back to teachers for feedback.	Assessment is by multiple choice questions, with students receiving automatic feedback on each response.

2.4
Potential limitations of remote learning through digital technology

The biggest limitation of digital technologies and resources is that two-thirds of the world's children – 1.3 billion children aged 3 to 17 years – do not have an internet connection in their homes. UNICEF and the International Telecommunication Union estimate that less than one in twenty school-age children from low-income countries have internet connection at home, compared to nine out of ten children from high-income countries.[10]

Opportunities for 'learning online' are likely to be limited. Learners from lower-income households will mostly access digital repositories, if they can access them at all, on mobile phones. Several adults and children in a household may compete for opportunities to use a single smartphone. Additionally, strategies should be put in place to increase adoption of digital learning programmes and incentivise students and teachers to actively engage.

The cost of mobile data can be prohibitive. Learners may need to download digital resources and use these offline, rather than working online. It can be cheaper to buy data tied to a social media platform such as WhatsApp – but then users cannot access the internet beyond this platform. One reason so many programmes have turned to WhatsApp as a delivery channel is because, for many people, it is the only online platform they can access. Even when programmes make digital content available through WhatsApp, the cost of daily downloading of large PDF, audio or video files may be a barrier.

Learners from low-income households may have had few opportunities to develop digital literacy. Good practice includes making it easy for learners to find resources in their language and appropriate for their age and stage of learning.

Good practice would see all digital resources being designed for 'mobile first' and working equally well on any device. This is not always the case. For example, PDF files are commonly used to share 'worksheets' on digital repositories or WhatsApp groups; such worksheets are typically designed for the printed page – yet few learners, if any, will be able to print them. Such PDF worksheets can be difficult to open, view or navigate on small-screen phones.

There were few examples of digital learning programmes aimed at learners in early childhood education. Most digital content for early years learners arose from broadcast TV programmes such as Sesame Street and Ubongo. See **Resource Pack 3** in this series on remote learning for more information about educational television.

For more guidance on challenges and opportunities for hybrid education solutions, the World Bank's Mobile Distance & Hybrid Education Solutions Knowledge Pack (see Key Resources at the end of this pack) gives further information.

FURTHER DEVELOPMENT

See Remote Learning Resource Pack 3: Television in this series on remote learning for more information about educational television.

3

Preparing digital learning programmes

3.1

Knowing the learners and their context

You will need to gather information and test your assumptions about learners you aim to reach and their context, such as:

> Which digital technologies do learners and their caregivers use?

> What do they use these technologies for, and how do they use them?

> Do parents and caregivers have digital literacy skills that could help learners?

Finding the answers to questions like this can help you get a clearer picture of which digital technologies and skills are available to support learning in the home and community. For example, supposing learners and caregivers are familiar with using social media apps or YouTube but not browsing the internet, it may be better to use these platforms rather than building a project website.

You will also want to know what other media learners or their caregivers have access to – for example, do they regularly listen to the radio, watch TV, or read newspapers? How could digital and other channels work together for learners?

You can gather information in lots of different ways. You might consult government databases or project reports, as well as newspapers or blogs.

You could also interview learners, teachers and community members directly – especially if they have already been trying to learn through your programme. Were learners able to access and use the digital resources as expected, or did they encounter problems you had not thought about? Did they find ways of working you had not imagined?

Reflection task

Learning is active and must start with where the learner is.

The **Learner Profile Tool** helps you identify the important characteristics of the learners you are trying to reach (your target audience) so that you can think about how they might affect their engagement with digital remote learning. Knowing more about your target audience will help you design an accessible programme that addresses their needs and interests.

To complete the tool, imagine a typical learner in your target audience. Then, ask yourself questions about the learner. Make a note of the characteristics you think of and then think about the implications of these characteristics on the programme you are designing. For example, what do the characteristics tell you about when they will have time for learning, who is at home or in the community who could help them if they get stuck, or what kind of content will interest them?

Who are they?

– How many learners with this profile are you likely to have on your programme?
– What are their age(s)?
– Are they female and/or male?
– What is their first language(s)?
– Do they have families around them?
– Where are they (e.g. rural homestead, urban shanty)?

What motivates their learning?

– Why are they learning?
– What do they want from the programme?
– What challenges do they face in trying to learn?
– What interests and experiences do they bring that are relevant?

What do we know about their learning?

– What learning skills do they have (e.g., reading ability)?
– What experience do they have of self-study?
– Are their parents willing and able to help them learn?
– Is there anyone else who can help them to learn?
– Will they be able to interact with other learners?

What do learners see as their needs?

– What is important to the learners, their contexts and their goals?
  (List 3 - 5)

What do we know that is surprising?

– What have you learned from speaking to learners and those who support them?
  (List 3 - 5)

What are the implications for learning design?

– What is the learning purpose that meets these learners' needs?
– What style of learning will be most appropriate for these learners?
– What size, nature and content of learning materials will be relevant and feasible for study?
– Who will provide them with support? What type of support and how much support will be possible?
– How will materials and support reach these learners in ways that are timely, feasible and affordable?
– How will their progress be assessed?

What resources do they have to help them?

– How much time will they have available for study?
– Where, when and how will they be learning?
– What learning resources and media can they access?
– Will they have access to local facilities, e.g. study groups, libraries?
– Who will pay any expenses or fees?

What technology do they have access to?

– Can they access a radio/ TV/mobile phone/internet within the home?
– Do they need consent of others to use them?
– For how long and how often can they use them?
– If not, is there community-shared access?

Learner Profile Tool

Brief description of targeted learner:

Who are they?

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What motivates their learning?

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What do we know about their learning?

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What resources do they have to help them?

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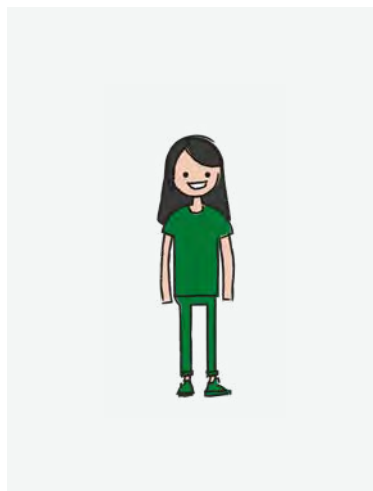
What do learners see as their needs?

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What technology do they have access to?

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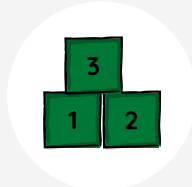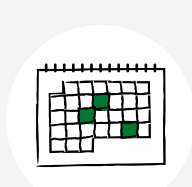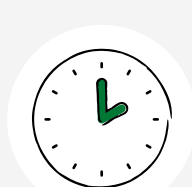
What do we know that is surprising?

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What are the implications for learning design?

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3.2

Defining the learning purpose

What do you want learners to know, understand or be able to do? Being clear and realistic about what you want learners to learn, taking into account where they start from and the barriers they may face along the way, is likely to lead to more successful outcomes.

Below are some questions you can ask to help define your learning purpose.

What age, grade or group of learners are you targeting?	**What relevant knowledge and skills do these learners already have?**	**What skills do you want these learners to practise and / or advance?**
What are your expected learning outcomes?	**Why is it important that these learners gain these skills now and for their futures?**	**What is the timescale available for learning?**

Understanding children's current learning is crucial for setting realistic learning goals for your digital programme, as well as for curating resources and activities to cover essential skills at the right level. As set out in Resource Pack 1, the World Bank[11] estimates that many children are well below expected levels of reading or numeracy for their age. Low levels of literacy can make it difficult for children to navigate websites and find the right digital materials, particularly if the web pages are full of text. Keeping navigation clean and simple can help learners find their way. Understanding learners' current literacy and numeracy skills will also help you think about how to use different kinds of digital media, including text, audio, images, and video, to support children's learning.

Reflection Point

Consider the digital remote learning programme you are familiar with. Is it clear what new knowledge, skills and/or dispositions you want learners to develop? List them below.

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3.3

Finding and adapting learning activities and resources

3.3.1

Introduction to Open Educational Resources

Don't reinvent the wheel unless you have to! Many high-quality digital Open Educational Resources (OERs) are now freely available.

> *"Open Educational Resources (OER) are teaching, learning and research materials in any medium – digital or otherwise – that reside in the public domain or have been released under an open license that permits no-cost access, use, adaptation and redistribution by others with no or limited restrictions."* [12]

UNESCO and the Commonwealth of Learning have produced a Basic Guide to Open Educational Resources which you may find helpful.

The Commonwealth of Learning, in partnership with UNESCO and the World Bank, has formed the #OER4Covid support group to help educators worldwide to find and use OERs during the pandemic. The group supports those switching to online or offline digital learning as an emergency response. The use of OERs may also help children back to school and could become an aspect of more resilient mainstream education in the future.

OERs are shared under Creative Commons Licences (CCLs).[13] These allow you to use the resources free of charge. Licences can restrict certain types of use or set out particular requirements. Depending upon the licence, you may be required to say where the resource originally came from (Attribution), or, if you adapt the resource, you may be required to share it back under the same licence (ShareAlike). Some licences allow you to use the resource but do not allow you to adapt it (NoDerivs), while others may prevent using resources for profit (NonCommercial).

It is important to understand and comply with the legal requirements of the licences for any OERs you use in your programme.

The next section considers examples of OER sites. Content from these sites has been curated and used in several digital learning programmes worldwide.

On these sites, you will find a range of resources including storybooks, audio lessons, animations, videos, simulations and games, as well as print resources and assessment activities. Some of these may need to be used online, but many can also be shared and used offline.

For any repository, first consider the overall quality of the resources:

A guide to OERs from UNESCO and Commonwealth of Learning

- Who created them and are other programmes using them?

- Are there any reviews or information from educators who have used them?

- What kind of learning activities do they promote?

- How well do they represent girls, ethnic minorities and children with special needs?

Also take time to understand the licence. What does the licence allow you to do with the resource? Do you need to say where the resource originally came from, or share back any new versions you make – such as those in a different language?

3.3.2

Digital learning and innovating pedagogy

Rather than use digital technologies to replicate ineffective classroom practices – for example, giving 'chalk and talk' lessons via video and having students merely watch and listen – it is much more effective, both in class and through digital resources, to encourage learners' active participation.

Activities for audio or video resources – before, during and after listening

If your digital resources include lots of audio or video, such as from an educational TV or radio programme, you can easily add activities to make students engage with the material before, during and after watching or listening to the resource.

For example:

before listening – you could ask learners to write down three or more things that they already know about the topic covered in the audio or video, or you could ask them to think of one thing they would like to know more about on this topic. This activates children's current knowledge about the topic and makes it easier to add new information or to think about new ideas.

during listening – you can direct learners to try and find the answers to some set questions, or to make bullet-point notes about a particular issue, or to write down new words. Activities like this give learners a purpose for listening and mean they have to listen carefully and think about what they are seeing or hearing.

after listening – you want to encourage learners to *recall* what they have seen or heard, *reflect* upon what they learned from this, and *record* or *apply* this. You could use individual writing tasks, or ask learners tell a sibling, friend or caregiver about what they have seen and learned. Ideally, you would want learners to be able to work together with other learners, to pool their ideas and understanding – perhaps through a shared document or WhatsApp discussion.

Learners can gain a lot from using digital resources, but, as the bullets above show, not all of that learning has to take place while they are online or on screen. You will often get more out of using digital resources if you build in activities for learners to do offline with pen and paper or by talking to others. In section 4.2.1, there are examples of how digital video has been used to encourage learners to make art, music or models 'offline and off-device'.

Digital technology can provide new tools for alternative ways of teaching and learning for children, including flipped, team, problem-based and spaced learning.

Flipped learning

Flipped learning reverses the traditional classroom approach to teaching and learning. Students watch videos, listen to audio recordings and read books or worksheets in preparation for a supported session with teachers and classmates. These resources allow them to work at their own pace, pausing to make notes where necessary. Some students, though not all, will be able to access help and support from family members. Learners' independent study means that teacher-supported sessions (such as video calls, voice calls, or discussion groups on platforms like as WhatsApp) do not have to focus on 'transmitting information'. Because learners already have the information they need, teachers instead help learners to explore ideas and think critically about the subject, together with their classmates. This useful guide about Flipped Learning provides more information.

Flipped learning was the main teaching approach adopted by Remote learning circles, Telangana, India (see section 4.2.4).

Team learning

Team learning is a teacher-guided approach that promotes individual and collaborative learning. If students can communicate or collaborate remotely, for example, through a shared Google document or WhatsApp group, it is possible to use team or collaborative learning approaches. Team learning requires that all students know enough about the topic to contribute. Students have a shared goal, such as producing a group report or making a collective decision. Each person knows how and when to contribute, and everyone makes an appropriate contribution. Members of a group all have opportunities to reflect on progress and to discuss contributions.

Problem-based learning

Problem-based learning is a team-learning approach where learners tackle real-life challenges in small teams of eight to ten learners. Problem-based learning encourages an active learning process that enhances knowledge retention, activates and motivates learners, and develops essential skills and competencies. Problem-based approaches are:

- **Contextual** – using everyday problems from real life;

- **Constructive** – learners construct knowledge, aided by the teacher as *a guide at the side*;

- **Collaborative** – learners have to share and develop their ideas together; and

- **Self-directed** – learners decide how they will plan, manage information, share resources and present their learning.
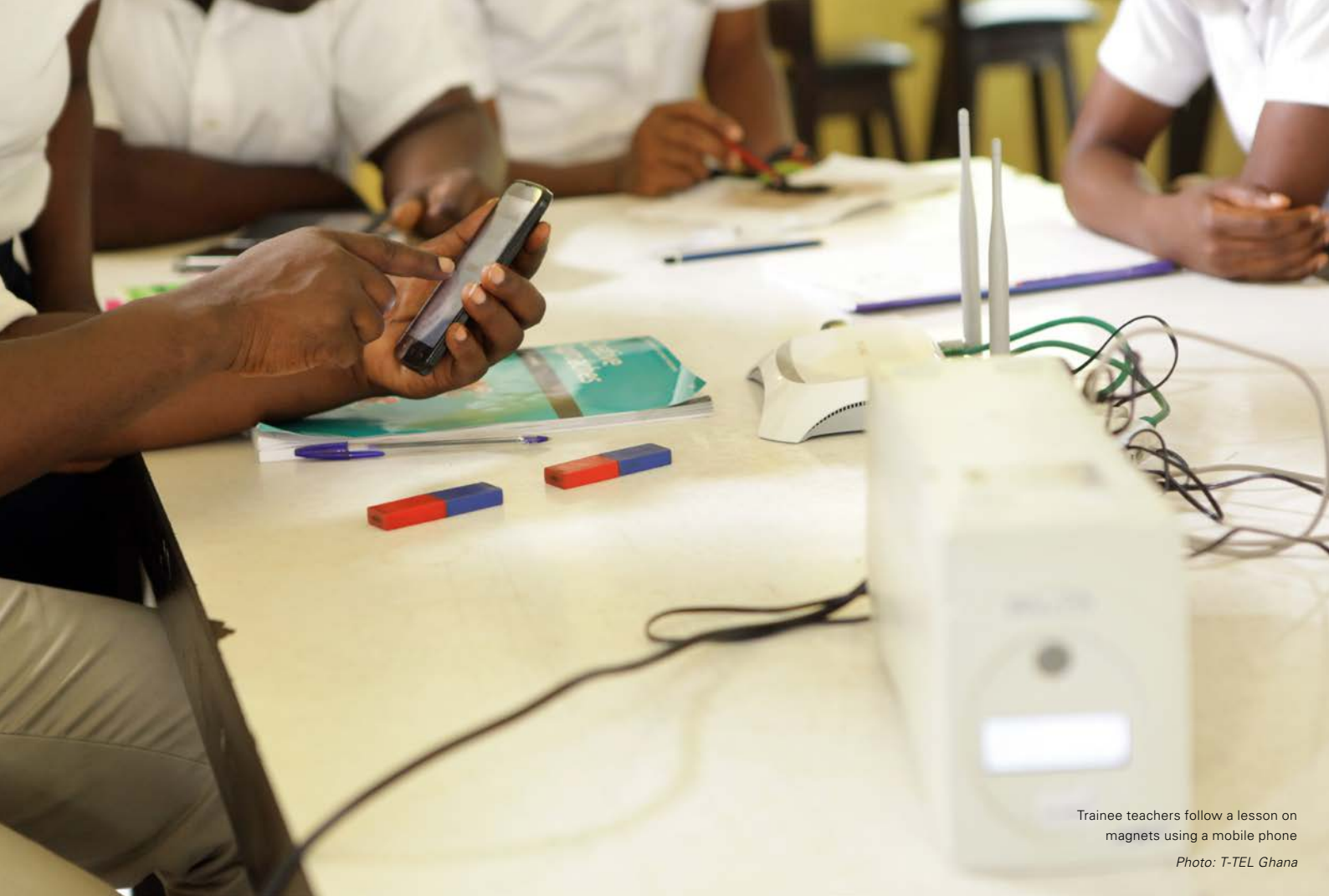
Trainee teachers follow a lesson on magnets using a mobile phone

Photo: T-TEL Ghana

Spaced learning

Spaced learning is an approach for building long-term memory in minutes. Studies of human memory have shown that we remember more when learning is spaced over time rather than crammed together in a single session or lesson. Researchers found that "90 minutes of spaced learning could have the same outcomes as months of study" when learners had three, twenty-minute learning sessions, with an active rest in between each session. In the study, sessions included twenty minutes of rapid presentation, twenty minutes of active recall, and twenty minutes of knowledge application. Structuring digital learning so that after watching a brief presentation, children have active breaks before doing recall and application activities could dramatically improve long-term memory. This may be particularly helpful as learners return to school and attempt to catch up on lost learning.

You can find many other examples of innovating pedagogy from researchers at the Open University here: http://www.open.ac.uk/blogs/innovating/.

3.3.3

Examples of digital repositories

You have probably heard about some of the well-known digital repositories listed below. If you have not, and would like to find out more, there is a brief description of each one below.

Most of these repositories existed before the global push for digital learning during the COVID-19 pandemic. The repositories are not generally aligned with any particular national programme or implementing partner, but are openly available and used in a range of different contexts and settings by different organizations and individuals.

Khan Academy

Salman Khan founded the Khan Academy in 2006 as a set of online learning resources. Khan Academy learning materials are short videos hosted on YouTube, with supplementary student exercises and teacher materials. All of the resources are freely available. Many of the videos include an electronic whiteboard on which a narrator draws notes and diagrams while describing what they are drawing. Videos include subtitles and translations into English, Bangla, Chinese, French, German, Spanish and many other languages.

During the pandemic, Khan Academy also put together a daily schedule of lessons to help structure pupils' learning during school closures. Khan Academy also produced a Distance Learning Guide to help parents and carers support home-schooling.
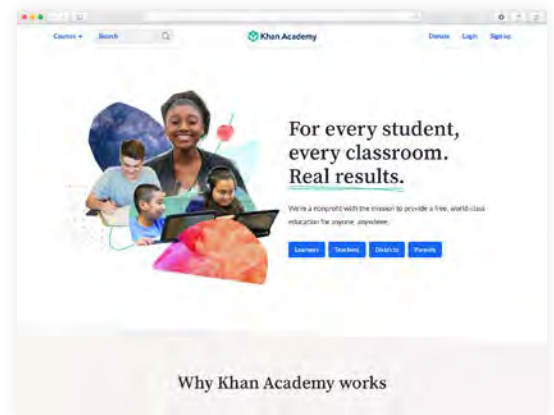
African Storybook

African Storybook has developed almost 1,800 digital picture-storybooks for learners in the first three grades of primary school. The storybooks represent over 200 African languages. The storybooks are simply that – online books that learners can read themselves or that caregivers or other family members can read with learners.

Learners can read books online. Anyone can freely download and save books to read on screen, as electronic books for e-readers or as printable files. Downloaded files can be copied, shared, saved and read offline.

Learners, educators and community members can also create, adapt or translate books and share them to build a learning network.
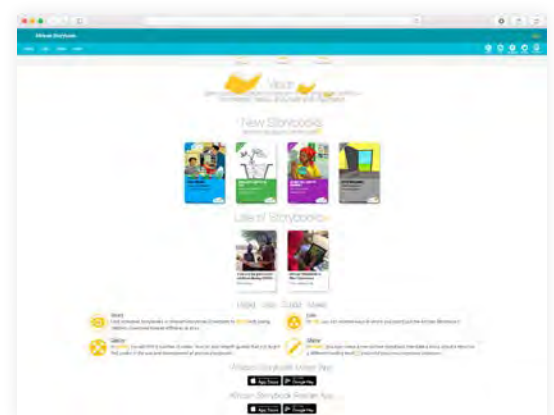
Storyweaver

Storyweaver, by Pratham Books, is in many ways the Indian equivalent of African Storybook . Users can freely read, create, translate and download tens of thousands of stories representing mother-tongue languages from India and hundreds of languages worldwide.

Storyweaver also includes picture-books for young learners and has stories with complex narratives for older learners, covering Grades 1 to 8. As well as stories, books also cover school subjects such as mathematics and science.

A CCL (CCBY4.0) covers all of the Storyweaver books. This licence lets you adapt, change and even sell the stories, as long as you appropriately credit Pratham Books and the funder, author, illustrator and translator of the original work.

Kolibri

More than just a digital repository, Kolibri is a platform for sharing OER content in offline communities, such as rural villages and urban slums, through a mobile app. The app allows peer-to-peer sharing of digital resources offline. The Kolibri app does this by 'seeding' devices with content, which can then be sent to other devices locally without using the internet.

The Kolibri content library includes OERs from all the repositories mentioned above and many more. Kolibri curates a range of publicly available 'channels', drawing in material from other repositories. It allows the provider to mix resources and activities from various sources and map these to a local curriculum.

You can explore the Kolibri content catalogue here, but you will need to install the Kolibri app to view or use the resources.

Reflection Point

Thinking about learning activities:

— What do you think effective learning activities look or sound like for the learners you aim to reach?

— Choose one or more learning activities or resources from the repositories above and ask yourself the following questions:

   — What would learners be *doing* when they used this resource (e.g. reading a story, listening to a teacher, playing a game, making a model...)?

   — Would learners enjoy doing this?

   — What do you think children would learn from doing this?

   — Are there any children who might be excluded (e.g. with sensory impairments) – if so, how could they be included?

   — How could educators, caregivers, or other children help learners get the most from this activity or resource?

— Would you want to use resources like this? Why?

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3.3.4

Adapting Open Educational Resources

Most CCLs allow you to adapt OERs for your own purpose and use (the exception being OERs that are licenced under NoDerivs).

Digital OERs usually have 'editable' file versions that allow you adapt the document. For example, you may want to change the text in a story to use local names, places or animals. You can also 'stitch' multiple files together to make a new document, or assemble resources and activities together to make a new course of study matched to your curriculum. You may find this short, practical guide to adapting OERs helpful: https://oerafrica.org/content/adapting-open-content.

If you are including or adapting OERs for your own learners and context, you might find it helpful to think about:

- using local language audio or animations to introduce your programme, so learners and caregivers understand what to expect and do;

- using local language audio or text to introduce digital resources, or guide 'offline' tasks after using a digital resource;

- translating resources into different languages used by learners;

- contextualizing resources with local names, places, events, toys, animals, etc.;

- adding stories that speak to the lives of the learners;

- using scripts of existing audio lessons and re-recording them using local speakers to aid understanding, relevance and context; and

- making videos or animations to show how key learning activities or games work. This is most useful if you have particular activities or games, such as Bingo, that are used repeatedly in different ways.
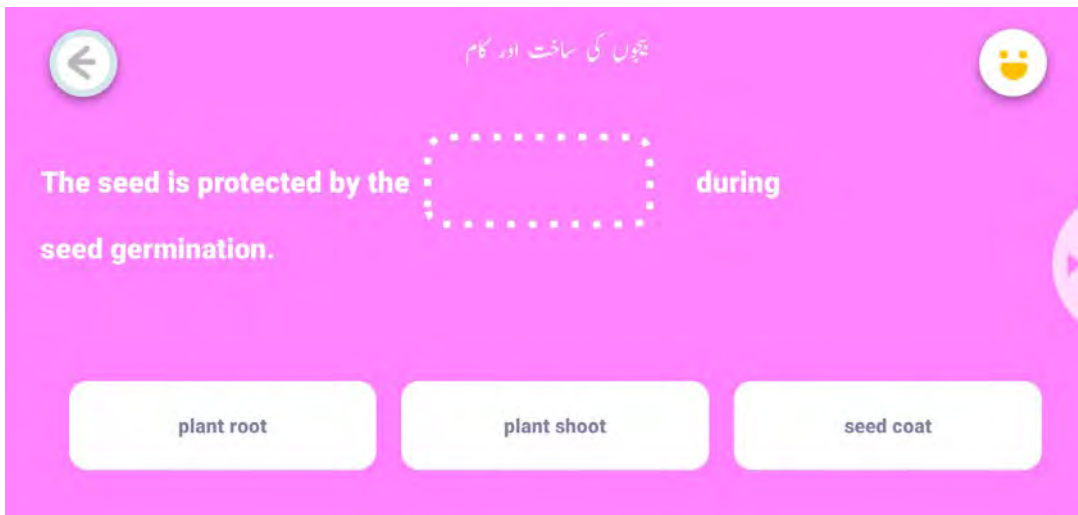
Screenshot of interactive digital content in the SABAQ Muse Learning App

Credit: SABAQ Muse

3.4
Testing your digital learning design

It is helpful to know how well your design works before rolling it out on a larger scale. This is about testing your assumptions and checking things really work. Sometimes things will not work at all; other times, things might work but not how you thought. The sooner you find out, the better! Iterative testing can rapidly improve your understanding, design and delivery.

One useful idea often used in software development is the 'minimum viable product'. In practice, this means thinking about *the smallest and easiest thing you could do, to get an idea of whether this will work*. Sometimes you don't even need any 'product' at all to test whether or not your approach is viable.

For example, if you were planning to use YouTube to deliver videos to learners, you might not need to have any of your own videos in order to test the viability of this approach. You could start by taking a small sample of learners or caregivers and finding out whether or not they can access YouTube on their household phone, or if there were technology of financial barriers to this. If most households can access and afford to watch YouTube videos, you might move on to the next step. If only very few can afford access, you might have to think about another approach or identify ways to reduce the barriers.

If you were planning to adapt an OER for the local context, before curating hundreds or thousands of digital resources you might make just a few and try these with a small group of learners to see how they respond. Were they able to find and use the resources? Did they understand them? Did they enjoy using them? What didn't they like and how could that be improved? Getting early feedback from testing just four or five resources might help you get a much better idea of what will work and how learners will use things, before investing lots of time, effort, and money in making or curating resources on a larger scale.

Testing a minimum viable product should not be a one-off event, but an iterative process where you keep coming back and testing improved versions of the resources or programme you are developing. This can help you rapidly improve your understanding of how your programme might work 'in the real world.'

Sandboxes are another approach to testing your design, commonly used in the software industry. A sandbox is a 'safe space' where you can test things on a small scale, without having to worry about causing problems outside of this space. For example, you might choose a small number of learners, teachers, or schools, to be part of your sandbox to try out different approaches. You might find it helpful to include stakeholders at community, school and system levels in your sandbox experiments. Sandboxes use rapid cycles of planning, action and reflection to allow promising approaches to be developed, whilst less promising ideas can be dropped. Sandboxes allow you to find out very quickly what works, without risking getting things wrong, publicly, on a large scale.

Reflection Point

Think about the following questions in relation to your digital remote learning programme – or a programme you know well.

– How, and how quickly, can you start to find out how well your digital learning programme works in the real world?

– What is the quickest and easiest thing you could do to start testing your ideas and improving your knowledge base?

– How could you make a 'safe space' to test out new ideas and practices – and which stakeholders would you need to include to obtain a rounded picture?

– How will you know if you are 'on the right track' with your idea? What will you see or hear?

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4

Developing effective digital learning programmes

4.1

Access and equity

4.1.1

Reaching children from low-income and rural households

Digital resources can be a crucial tool for maintaining learning during emergencies. Making learning resources available online is often the quickest way to get some form of alternative remote learning up and running, but many learners in lower-income households have limited access to digital devices, reliable internet connections or electricity. Children from lower-income households are less likely to have the digital literacy that would help them find and use digital learning resources effectively. How can remote learning programmes use digital resources and maintain equitable access to learning?

Work with telecom providers

The World Bank[14] suggest a range of ways that education ministries can work with telecoms providers at scale to provide better and more equitable access to digital learning. These include:

Zero-rating: negotiating zero-tariffs for educational content so that access to it does not count against data charges or contract limits.

Lifting data caps: if free access to data is not possible, then caps on data in existing contracts can be increased.

Bandwidth-shaping: providing greater bandwidth to educational service providers

Unbanning functionality: if services (e.g., social media, VOIP calling) are currently banned, they can be allowed.

Provide digital content designed for mobile phones and small screens

Children from lower-income households will mainly access digital learning repositories via mobile phones or perhaps, occasionally, low-cost tablet computers. Few will have access to large-screen computers or be able to afford printing. Digital content should be designed to work well on mobile devices or be 'device-agnostic' and work equally well on any device. Content designed for use on large-screen devices or for printing on paper will be problematic: for example, Bhutan promoted collaborative learning using Google Classroom and Google Docs, but most children found these "uncomfortable to use… [on the] phone due to small screen size."[15] Your digital content should be comfortable and easy for children to use on low-cost mobile phones. The technical term developers use for describing this is "responsive design", in which the content displayed to the user is always in the right format for the type of device and screen size. This is covered in more depth in section 4.2.

The repositories mentioned in section 3 are generally designed to provide resources for all platforms. From the YouTube videos of Khan Academy to the storybooks of African Storybook and Storyweaver, material can be accessed on any digital device other than simple (i.e. not smart-phone) mobile phones.

Use multiple learning modalities to maximize reach

A common response to the challenge of providing equitable opportunities for learning is to use multiple channels for supporting remote learning, often emphasizing the use of low-tech offline resources such as print, radio and TV for disadvantaged children and youth.[16]

Trainee teachers in Ghana using content on a tablet
Credit: Cambridge Education/T-TEL

Resources can be designed so that digital materials and exercises are complemented by broadcast and/or print materials. This can be seen in the Nepalese OLE service where leaners who cannot access the online activities in E-Paath have educational TV and radio programmes. Similarly, repositories such as Storyweaver allow for offline access or the printing of stories.

Share audio and video content across both digital and broadcast media

Sharing content between online repositories and broadcast media is also a common approach to increase equitable reach from audio or video lessons.

For example, before the pandemic, the Centre for National Distance Learning and Open Schooling (CENDLOS) in Ghana had developed a large number of video lessons for use by senior high school students. When schools closed during the pandemic, CENDLOS pivoted from providing access through school computer suites to providing online access through their iCampus.com repository. At the peak of use, 120,000 students accessed the online repository each week, representing around 10% of the 1.2 million senior high school students. To increase reach and equity, CENDLOS made the iCampus videos available via broadcast on a dedicated, 24-hour learning channel – Ghana Learning TV. CENDLOS also used the broadcast videos to raise awareness of the online portal among parents and learners.

Broadcasting digital audio and video content is not without problem. Learners have to know when content relevant to them will be broadcast, and they need to have use of the TV or radio at that time. Broadcast audio or video doesn't enable learners to rewind and repeat, for example if they didn't understand something the first time or they are trying to find particular information. Where possible, making digital audio or video available on both digital and broadcast media can increase reach and equity, but also allow for more flexible learning.

Use the technologies most commonly available to low-income households

The technology landscape is rapidly changing. It seems possible that even for low-income households, access to mobile phones and even smart phones may soon supplant radio or TV as the most accessible technology.

It may be most appropriate to have a mixed approach: for example, in Nepal, the response to using digital learning during the emergency was complemented by other modalities.

This highlights the importance of having useable data about the access your target learners and families have to various technology and media.

CASE STUDY

Nepal – OLE Nepal

OLE Nepal had established a repository of resources in the years prior to the Covid-19 pandemic. This was designed to provide additional access to curriculum materials and activities.

As part of the response to the emergency, the government, through local districts, identified groups of learners who had access to: online, TV, radio or none of these. Resources from OLE were targeted at these different groups through the online portal, through broadcast and through print. Closed schools were used as Covid-safe distribution points for printed materials.

Use social media to deliver digital content and support learning

In many cases, the use of social media platforms such as WhatsApp or Facebook is almost universal among low-income households with access to smartphones and data. Many low-income households can only afford to buy data in 'bundles' – users cannot access the internet beyond these platforms. As a response, several remote learning programmes harnessed the widespread access and use of WhatsApp to provide digital content and learner support to children from low-income households.

CASE STUDY
India – #Ab Padhai Nahi Rukegi

Although household ownership of TV (65%) was higher than smartphone ownership (40%), the programme chose not to use broadcast media for pedagogic reasons – they wanted children to be able to stop, pause and replay media to ensure understanding, and they wanted the possibility of two-way interaction between children and teachers to support learning. Survey data also showed that among smartphone owners in Madhya Pradesh, the use of WhatsApp was almost universal, so the programme developed a large-scale digital strategy combining curated video resources, WhatsApp groups for parents, and teachers providing learning content and support.

The programme curated thousands of video clips from Khan Academy, and Bodhaguru Learning, covering every level from Class 1 to Class 12. They established the TicTacLearn video library, and curated content was made available on YouTube [17] and on the national DIKSHA education platform app.[18]

The programme also established over 50,000 new WhatsApp groups for parents and teachers, covering every grade, for every school, cluster, and district. the programme ran online continuing professional development to help teachers support remote learning by sending curated content to learners and offering support through WhatsApp.

The programme anticipated reaching 0.6 to 1.1 million parents and their children – around 10% of the school enrolment. On any given day, the number of students accessing the shared videos is estimated to be in the range of 600,000 to 700,000 – an impressive number, yet still a small proportion of students for a state with a population of over 70 million.

Read more in this report on #Ab Padhai Nahi Rukegi.

Even with reaching out through WhatsApp, #Ab Padhai Nahi Rukegi found the number of parents with smartphones and sufficient data packages more limited than anticipated. They also found parents struggled to allocate time for learning with several children and just one phone, and many parents remained sceptical of the benefits of online learning.

Pratham adopted a different approach to WhatsApp, using networks of partners and volunteers to reach out to caregivers rather than establishing groups systematically around schools. Digital content emphasised engaging learners in *doing* practical hands-on activities, rather than *watching* videos of lessons (see 4.2).

Explore ways of making digital learning resources available for learners offline

Social media is commonly used, as above, to share digital learning resources online from one person to the next. Once a learner or household has received the digital media online, they can use the digital resources as often as required, with no further cost or connectivity. Going one step further, some programmes have explored offline approaches to sharing digital resources, particularly for low-income households and communities.

This may be achieved through preloading digital content onto devices and distributing those devices to learners in lower-income households. For example, the Educ.ar programme in Argentina provided tens of thousands of mobile netbooks, preloaded with curated content, to students in the most disadvantaged households. In Kenya, eLimu provided refugees with ruggedized tablets, preloaded with Somali-language stories and writing activities, to help young people who would not otherwise have access to digital learning materials. And in Pakistan, Deaf Reach provided desktop computers, preloaded with sign-language learning materials, to hearing-impaired children from disadvantaged homes when their schools were closed during the pandemic.

Rather than giving children preloaded digital devices, an innovative alternative is to find ways of sharing digital content offline, from household to household, using the devices they already have. Alongside their use of WhatsApp, Pratham and #Ab Padhai Nahi Rukegi have both explored ways of sharing digital content offline, though through quite different approaches. #Ad Padhai Nahi Rukegi, India took a very pragmatic approach, encouraging networks of volunteers to share videos with each other on USB drives. The volunteers then showed the offline videos to groups of learners wherever they could, using laptops, mobile phones or TVs. Pratham is exploring an alternative using an 'offline learning platform' to share digital content.

CASE STUDY

India – Pratham and Kolibri

In order to make its Open-School digital repository available to learners in low-resource communities, Pratham have made their digital content available through Kolibri.

Kolibri is an app designed for sharing open-access educational content in offline communities such as rural villages and urban slums.

Kolibri 'seeds' a mobile device with content when and where the internet is available, shares that content from device to device offline, and enables last-mile connectivity by *sneakernet* – someone physically carrying the content on foot between communities or households.

The Kolibri content library already includes OERs from Pratham, Khan Academy, African Storybook, Aflatoun and many others.

Reflection Point

Thinking about access and equity:

- Are there telecom operators in your context that you can collaborate with?

- Are there other ways in which you can remove or reduce data costs for learners' families?

- What kind of challenges might parents and caregivers face in supporting learners?

- What kind of challenges might teachers face in supporting learners?

- Are there other approaches that are already being used in your context that respond to these issues?

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4.1.2

Girls and digital technology

Gender refers to the socially constructed roles, responsibilities, and identities for girls, boys, women and men, and how these are valued in society. They are culture-specific and they change over time. Gender identities define how girls, boys, women and men are expected to think and act.

Help girls to access and use digital technologies, especially mobile
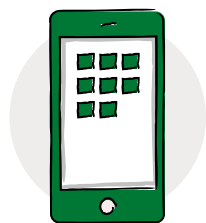
Recent studies point to growing evidence that girls are often 'excluded from the digital space and are less likely to know how to operate smart devices, navigate the internet, use social media and understand digital safety'.[21] Crises, such as the COVID-19 pandemic, have the potential to magnify such inequalities. There is some evidence that where there had previously been progress in promoting girls' use of technology, emergency learning solutions may have undermined this.[22]

A rapid review[23] of evidence on gender and COVID-19 responses by the EdTech hub drew four key findings:

1 Girls typically have less access to technology than boys, at home or school, due to gendered assumptions about competence, enjoyment or risk.

2 Increasing girls' access to technology can be disproportionately empowering, with benefits beyond formal education.

3 Parents and educators can act as gatekeepers preventing girls' access to EdTech – education programmes need to address both of these groups.

4 Mobile phones may provide opportunities to overcome persistent gender and infrastructure challenges.

So, girls typically have less access to technology but also benefit most from increasing access. You will want to find ways of ensuring girls have equitable access to digital technology and support to develop their digital literacy. This may be around the messages your programme gives to parents and educators (see 4.2) concerning the promotion of girls' access to and use of digital technology for learning, particularly mobile phones. Parents and siblings may also need encouraging to help girls learn how to use these technologies.

Adopt gender-sensitive digital pedagogy

Adopting gender-sensitive pedagogies in remote learning materials and support can mitigate the risks of further excluding and marginalizing girls. Gender-sensitive pedagogy places the learning level and local context of the girl at the heart of the programmes' approach to teaching and learning. The need for gender-sensitive pedagogy is recognized as one of the key lessons learned from programmes within the Girls' Education Challenge portfolio.[24]

CASE STUDY

Ghana – iCampus

In Ghana, iCampus took a gender-sensitive approach to programme design. A key aim of the programme was to increase the number of girls who were able to transition from senior high school to higher education, particularly in science and maths subjects. The programme sought to understand and reduce barriers to girls' progression to higher levels of study in science and maths. For example, one issue was that many girls did not have appropriate female role models in maths or science, so case studies were developed about Ghanaian women who had had successful careers in STEM subjects. Other issues included tackling socio-cultural attitudes and unsupportive education environments through professional development with teachers and heads of department.

Include a gender lens in programme monitoring and disaggregate data

Including gender within your usage and monitoring data can help you know to what extent your programme is achieving gender equity, or where more might need to be done.

Useful resources about girls and digital learning

EdTech Hub (2020) *Girls' Education and EdTech: Rapid Evidence Review*
http://doi.org/10.5281/zenodo.3958002

Girls Education Challenge (2020) *Priorities and Practices: Early Lessons from the COVID-19 Pandemic*
https://girlseducationchallenge.org/media/k0lbfq5f/lftf_covid-19_gec_project_response_june_2020.pdf

Inter-agency Network on Education in Emergencies (2019) *Guidance Note on Gender*
https://inee.org/covid-19/resources/gender

A telephone learning
conversation plus workbook
Photo: Plan International

4.1.3

Considering languages and literacies

The language used for text-based digital content may often be determined by institutional or government policy on the medium of instruction in schools. However, this can be a significant challenge for learners who do not have the medium of instruction as a mother tongue.

Provide digital materials in the mother tongue

For example, Pratham's Open School portal has curated digital resources in twelve commonly spoken languages in India, including Hindi, Marathi, English, Gujarati, Bengali, Urdu, Punjabi and others. When learners arrive at the portal, their first 'click' is to choose materials in their mother-tongue.

African Storybook provides stories in over 200 African languages, and Storyweaver nearly 300 Indian languages. In both cases, translations can be provided by users, who can also create new story books.

Strengthen basic literacy and numeracy skills

It is also important to note, due to issues of prior learning poverty, over half (56%) of all children worldwide will not be able to read or handle numbers with proficiency by the time they are of age to complete primary school – and these numbers *increase* as children move into lower-secondary ages. This is also an issue of equity, as children from lower income households, countries or regions are less likely to be proficient than children from higher-income households. Boys in particular face a disadvantage in reading.[25]

The interplay between issues of mother tongue, literacy, numeracy and digital learning are seen in the example of adolescent learners in the Dadaab refugee complex, a camp for 250,000 Somali refugees and the sixth largest population centre in Kenya.

CASE STUDY

Kenya – eLimu

Sometimes there may not be many existing resources available in the learners' mother tongue. For example, eLimu works with Somali-speaking refugees in Kenya. When organizations had tried to run vocational courses, such as carpentry or tailoring, young people did not have the literacy or numeracy skills needed to succeed. eLimu had developed literacy and numeracy apps in four East African languages, but did not have age-appropriate content in Somali for the adolescent refugees.

The project ran workshops with refugees, asking people what stories they told each other. The refugees told folk stories, such as the boy who cried wolf, alongside stories about their experience and identity as refugees. For example, the story Who am I? talks about the inner conflict of a young man who has grown up in Kenya and speaks Swahili, yet his family, culture and ethnicity are Somali.

From these workshops, eLimu created twenty digital stories, recorded by Somali speakers in the refugee camp. These became the basis of Sheeko, the first Somali-language reading app. The apps were made available to refugees through BRCK's Kiokit – a safe box with 40 ruggedized tablets, wirelessly charged, with its own intranet of educational apps.

Use audio and video to support learning, alongside text

As discussed in 4.1.1, many programmes have used audio or video as their main learning content. For children who are still developing their literacy skills, audio and video media may be more accessible than text-based digital media. Investing in low cost headphones is recommended. Headphones allow students to have both hands free; also, they can better focus on the video or audio without external noises and distractions. Several programmes, including eLimu above, use audio and video resources combined with text to help learners develop or strengthen literacy skills. See the example of Pratham's animated stories, below.

Pratham's Open School provides short animated storybooks for early readers aged 3–6 years. Each illustrated 'page' of the storybook has a short piece of text matching the picture. The text is supported by audio, often read by an Indian child, so that learners can hear and read along. The text is also supported by video, with each word of the text being highlighted as the narrator reads the passage.

Extensive use of online audio and video resources are demanding of data and bandwidth and are more appropriate for learners where mobile internet services are fast, reliable, and either affordable or zero-rated. Where such mobile internet services are unavailable, it may be possible to use audio or video resources offline, as in the eLimu example above. See 4.1.1 for other approaches to making digital resources available offline.

In addition to reading literacy, digital programmes also need to consider digital literacy. As previously noted, girls and children from lower-income households are likely to have had less exposure to digital technologies and less opportunity to develop digital skills.

We like to visit Grandma's village.

I like to hide in the mango tree.

Now I have to climb down.

Pratham's Open School animated storybook sample

Considering learners with Special Educational Needs and disabilities

While "inclusive education is commonly associated with the needs of people with disabilities... inclusion is broader in scope."'[26] The challenge of inclusion is to embody the principle that every learner matters and matters equally. Inclusion does not mean treating everyone the same: some children may need additional help or support to be able to participate in learning. As the World Bank notes:

> *"Equity sometimes requires investing more resources to ensure that children who live in rural areas, have a disability, or are from a linguistic minority have the same-quality service as anyone else."* [27]

People with long-term physical, intellectual or sensory impairments are among the most excluded groups, especially during and after emergencies. Emergency situations may have a greater impact on people in these groups, who can be excluded from educational responses for a variety of factors including physical, social and attitudinal barriers.

Mainstream inclusion across programme design, delivery and evaluation

The INEE Thematic Brief on Inclusive Education recommends mainstreaming inclusion through identifying groups at risk of exclusion and taking action to mitigate this risk. Actions could include ensuring the curriculum is appropriate and relevant for those with disabilities, and making sure teachers have the appropriate skills to support learners with special needs. For example, hearing-impaired learners could be assisted through written transcripts of audio resources and the inclusion of sign language in video materials. Data collection and monitoring can help identify who is *not* enrolled in education programmes.

Include inclusive education as an area of study

You could include inclusive education as an area of study. For example, Pratham made inclusive education a learning area for all school-aged children. Video resources in this area include a course on sign language for learners and those supporting learning. These resources could be used by *all* learners, including learners without hearing impairment, to improve the inclusion of hearing-impaired learners in education.

Use built-in assistive technologies

Most mobile devices, as well as laptop or desktop computers, have a number of assistive technologies built in. These can help learners with special sensory or cognitive needs, without requiring any additional software or cost. For example:

Learners who have writing issues may find dictation software helpful.

Learners with reading issues may find screen-reading technology helpful. This will read aloud text from websites and other digital content. Learners can also alter the voice or speed used to read aloud. Android's Select to Speak feature can help by reading words aloud when the learner points the phone camera at written text.

Learners with visual impairment may find it helpful to alter the display font and size, the screen magnification or colour of their device – for example, using high-contrast text or colour inversion (white text on a black background).

Learners with a hearing impairment may find it helpful to use their phone as a sound amplifier (with headphones) to augment their hearing. Alternatively, Live Caption can automatically caption speech on a mobile device.

Learners who have attention deficit may find it helpful to use digital devices in greyscale, rather than colour, and to turn off unnecessary notifications.

All of these features are built-in on most mobile phones. You will find guidance on how to use accessibility features on Android phones here.

Use specialist hardware or software when needed

Sometimes learners may need more help than available through assistive technology on mobile devices. See the case study below, where Deaf Reach provided hearing-impaired learners with large-screen computers.

A young man in Pakistan learning at home using sign language
Photo: Deaf Reach

Pakistan – Deaf Reach

Deaf Reach, Pakistan works extensively to support hearing-impaired learners, particularly from low-income families. Only 5% of the 1 million deaf children in Pakistan were in school before the pandemic. Deaf Reach developed an app, Pakistan Sign Language, to help children and their families learn sign language. By doing so, Deaf Reach intend to make literacy, education and skills training more accessible and to enable teachers and families to help deaf learners.

Deaf Reach also distributed low-cost computers, pre-loaded with digital resources from Pakistan Sign Language (PSL), to the project's students and their families. Resources included curriculum content in sign language, for Classes 1 to 12, and training resources for life skills, health and wellbeing. Digital resources also included guides to help parents to support their children's learning.

The use of large-screen computers rather than tablets or phones may help learners clearly see a sign-language interpreter or use lip-reading. The large screen computer also means learners hands are free, so they are able to join in with using sign language while using the digital resources.

4.2

Quality of learning and support

4.2.1

Maximizing learner engagement and activity

Make digital content fun and engaging for learners

Digital learning materials can be interesting, fun and engaging for learners. Maintaining children's interest and motivation to learn is crucial. Digital learning programmes have used a variety of 'hooks' to draw children into learning, including songs, dance, artwork, games and short videos on interesting topics: see some examples below.

CASE STUDY

India – Pratham

Pratham designed its Open School content to be enjoyable and engaging for learners. Fun and games are included as learning areas for children of all ages, e.g., songs to sing and dance to, wildlife videos, and simple web-based games, including maths games and puzzles.

Use digital channels to share 'low-tech/no-tech offline' learning activities

Just because children are accessing digital learning resources does not mean that all their learning should take place online or on-device. Digital materials can be a really effective way of encouraging learners to do 'hands-on' learning activities, offscreen and off-device.

CASE STUDY

India – Pratham

Pratham's Open School videos guide children through activities which they can do at home, offline. See the examples below.

Music videos encourage learners to make instruments out of household objects, including making a flute out of a carrot (see this video, at two minutes in, for an example of carrot-flute playing during a TED talk). Art videos encourage learners to try origami, or making art with buttons, seeds, or waste plastic.

Science videos include model-making activities. For example, this video about joints helps learners make a working model of the hand using low-cost materials such as card, straws, and string.

These examples illustrate excellent uses of video. They guide children through multi-step activities that would be hard to describe in print or audio but are easy to understand and follow in video.

Because the video is on the learners' mobile phones, learners can also pause or replay content as they follow the instructions. For practical activities, revisiting and replaying offline videos represents a significant advantage over broadcast TV.

Such 'offline' learning activities can be ideal for reaching learners and caregivers where there is limited household access to the internet or mobile devices. For example, with the idea of making artwork using seeds, beans and a little glue, once learners or caregivers have the idea, the video might be helpful but is not essential. The idea for the learning activity can be shared locally through WhatsApp groups, by someone with a smartphone showing someone on their device, or simply just by word of mouth. Pratham has set up extensive volunteer networks to do just that, via WhatsApp and SMS.

It is also possible to set up offline low-tech/no-tech activities through social media without requiring caregivers to download audio, video or image files. Simple, text-based approaches can be useful for reaching the most marginalized communities with the lowest levels of access to digital networks or devices.

CASE STUDY

Zimbabwe – IGATE/CHILD

In Zimbabwe, IGATE/CHILD has used a simpler approach that does not involve any audio or video, but instead uses WhatsApp groups to share simple, text-based activities for children to do offline and off-device.

Here are examples of daily activities in literacy and numeracy:

– Would you rather have $6 per day for 15 days, $4 per day for 20 days or 2 lots of $50? Why?

– Imagine that somebody gave you a present. What is it? Why were you happy to get it? How are you using it? Write a phone message to thank the person who gave it to you.

For example, a child can do a numeracy activity on multiplication or division, using arrays of stones on the floor in their home. Such activities are sent to a local volunteer champion through WhatsApp. They then share activities with parents, either on WhatsApp or by copying out the activities on paper for families without phones.

4.2.2

Opportunities for learning together

Children learn best when they learn together with other children. Two or more children working together can often achieve more than each child working individually – they can help each other identify problems and find different solutions, with each child helping to develop the group's understanding. When a child is stuck, other children can often help them understand how to move forward. But how can children learn together when they are learning remotely?

Many of the case studies say little about children learning together. It is often assumed, perhaps correctly, that children are studying on their own at home. But there are strategies for promoting 'learning together' through digital learning programmes.

Encourage learning together with other children at home

Several of the case studies talk about the challenges faced in households where there is one smartphone and several children or adults competing to use it. This is a bigger challenge if you assume children need to learn on their own and only learn on-screen. It may be possible to reduce competition for screen time by encouraging learners to learn together and by using screen time to set up off-screen learning. Siblings can help each other learn, and in particular older children may be able to tutor younger children.

Many of the 'offline/low-tech' learning activities mentioned in 4.2.1, such as model-making, art, music and games, can be more fun if siblings do them together. The use of picture books in African Storybook and Storyweaver can also create opportunities siblings to read together at home.

Encourage learning together with other children beyond the home – in person – where possible

During the pandemic, disease control measures have often prevented learners coming together in person outside the home. But there have been times and places where children have been able to learn together, safely, in small informal groups or learning circles. Projects using this approach found it crucial to involve parents, community leaders, educators and local authorities to work together to find COVID-safe ways children to learn together.

CASE STUDY

Zimbabwe – IGATE-T

When possible, volunteer 'champions' facilitated informal 'learning circles, where groups of up to five learners would come together to do 'daily learning activities'. The project distributed activity instructions to champions via WhatsApp, but learners did not need any technology to do the activities together. Champions took measures to promote COVID-19 safe learning, such as using facemasks, handwashing and social distancing. When learning circles were not possible, champions encouraged caregivers to encourage and support children to do activities together at home.

India – Telangana remote learning and Village Learning Circles

This program used multiple remote learning channels, including broadcast TV, an online repository and sending digital resources to learners via WhatsApp. However, most of the learners were being excluded from remote learning as they did not have access to TVs, smartphones or the internet.

In some communities, older learners realized that many children in their villages were being excluded. As the lockdown began to lift, these older learners took the responsibility upon themselves to gather other children from the village, help them access the digital or broadcast learning resources, and learn together.

Learning circles typically involved five to ten learners using digital clips of video lessons shared through WhatsApp. Peer leaders found available accommodation, such as temples or community centres, and persuaded parents to allow other children to participate. Although there were some protests about COVID safety, peer leaders were able to demonstrate how they were following safety protocols.

Village Learning Circles have rapidly grown in number. Most remain peer-led (although adults have come forward to assist in some communities). The programme now recognizes the critical role Village Learning Circles play in widening participation in remote learning, setting a goal to ensure educational continuity during the school closures by establishing 50,000 Village Learning Circles.

What about learning together remotely, beyond the home?

Digital platforms offer the potential for 'working together from a distance', but the case studies suggest tools such as digital classrooms and video conferencing are not yet accessible or practical for most learners from low-income households.

Bhutan – Google Classroom

While the use of WhatsApp for digital learning was very common, there was only one example found of using digital classrooms or video conferencing in the case studies from LMICs. Bhutan used Google Classroom to enable learning together. Although the study found "Google Classroom is an effective online learning management system" the authors also found challenges for lower-income households relating to access to digital devices, affordable data, and network connectivity. Some learners noted difficulties in using desktop software on mobile phones "I feel uncomfortable to use Google Classroom in phone due to small screen size." Other learners valued the opportunity to learn together "Google classroom helps me interact with my friends" and "teachers were approachable."

Reflection Point

Learning is a social activity. Consider the following questions:

– How could you create opportunities for learning together, in your context?

– Would these need to be the same everywhere or could communities decide what would work for them?

– What kinds of support might you need to provide to support learning together?

– How would you promote and monitor safeguarding?

Parental support for learning

Whatever form of remote learning children are involved in, they are more likely to succeed with the support of their parents or caregivers. Some of the areas where children need help apply equally to all forms of remote learning. For example, children may need parental help finding remote learning programmes and resources, with motivation to study, with organizing their time and learning, or even just with having enough time free from chores in the house or in the field.

For digital remote learning programmes, children also need access to digital devices such as their parents' phones. They may also need help to learn new digital literacy skills to use unfamiliar digital resources or apps. Social norms may also influence parental support for digital learning, through attitudes to girls' education and the use of technology, or expectations of children with special needs. Many parents may also be unsure of the value of remote learning, whatever form that takes, and may need encouragement to understand and support what is possible for their child.

Most parents care passionately about children's wellbeing and education and want to help their children keep learning. In the example below, parents from marginalized rural communities in Zimbabwe were proactive in seeking out and supporting opportunities to keep children learning:

> *"Community members are really supportive, interested, concerned as well dedicated in the education of their children. They even came to me consulting about ways in which their children can access learning during this Corona virus pandemic. This shows their great concern for the education of their children. It's their wish for every child in the community to be educated."*

> – Community Learning Champion, IGATE/CHILD, Zimbabwe

Raise parents' awareness – through messages, social media, and volunteers

Several of the case studies showed relatively low levels of awareness of remote learning programmes among parents. Digital learning programmes have used a wide variety of approaches to reach out to parents:

For #Ab Padhai Nahi Rukegi, India, several schools used a travelling loudspeaker to broadcast messages to parents in local villages, as well as creating tens of thousands of WhatsApp groups using parental contact details from schools.

Pratham's Karona, Thodi Masti, Thodi Padhai in India and IGATE/CHILD in Zimbabwe both used reached out to engage parents through a network of volunteers or Champions, using WhatsApp, SMS and word of mouth.

iCampus, Ghana, included messages promoting their digital content alongside learning programmes broadcast on radio and TV.

Raising awareness among parents can be a crucial first step to increasing reach and equity.

Send digital learning resources to parents through phones and social media

Many remote learning programmes used social media, particularly WhatsApp, to send digital resources to parents, for them to share with their children, including Pratham's Karona, Thodi Masti, Thodi Padhai and #Ab Padhai Nahi Rukegi, India.

Provide guidance on how parents can support remote learning

As well as learning activities, several programmes also send parents guidance, through their mobile phones, on how to support children's learning at home. For example:

In Nepal, OLE recognizes the need to involve parents in the programme of support and, in non-emergency times, organizes parental 'orientation' sessions to it. In terms of creating an equitable educational response, it also recognizes that some children come from disadvantaged backgrounds. Its online solution is designed to support leaners whose parents may not be able to support them in the home through literacy or other barriers.

#Ab Padhai Nahi Rukegi, India, developed the 'Top Parent' app to help parents of children aged 3–8 years. The app provided information and guidance on supporting child development and recommendations for other learning apps to improve literacy and numeracy skills. The app also gave parents a dashboard to track their children's progress.

Khan Academy provides extensive resources for parents to enable them to understand how to support learners engaged in remote digital learning.

Gather feedback from parents through monitoring and evaluation

Parents can be an important source of information about the reach and success of your programme, as well as identifying areas where more needs to be done.

CASE STUDY

India – #Ab Padhai Nahi Rukegi

Large-scale, randomized calling was set up at state level to obtain feedback from teachers and parents, and to collect stakeholders' views. The call centre speaks with over 500 parents and teachers every day. Initial estimates in early May 2020 suggested that 75% of parents had minimal awareness of the programme despite all the efforts to raise awareness. This finding led to a more vigorous communications strategy.

Parents' feedback showed that some of them had been added to the WhatsApp groups but were unaware of the groups' purpose. Others were aware of the groups' purpose and had received digital learning materials, but were not motivated enough to share their mobiles with their children. Finally, a share of parents also had technical challenges with data and connectivity.

These findings led to the activation of daily teacher—student and teacher—parent engagement measures, through which teachers had to phone five households a day. The awareness and motivation issues were tackled, but participation still remains at below 10% of enrolment numbers.

FURTHER DEVELOPMENT

Resource Pack 7 in this series is about Assessment for Learning (formative assessment) in remote learning programmes. It includes more information about involving teachers, parents and other caregivers in children's learning.

Reflection Point

Thinking about parents and caregivers:

- Are there any ways of involving parents that you could adapt for your programme?

- How would you motivate parents or caregivers to support learning?

- What guidance and support will you give caregivers, and how?

- How can teachers help caregivers support digital learning?

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4.2.4

Teachers and remote learning

International guidance on emergency remote learning encourages education systems to provide remote learning materials for students and training for teachers on how to use these. There is less guidance about how schoolteachers might practically support remote learners. There seems to be an automatic assumption that teachers will continue to support their learners through remote learning. It may not always be possible for teachers to support remote learning, particularly if both learners and teachers are offline and teachers are not resident in the community.

It may help to refer back to the UNICEF model discussed in 2.3. Self-learning programmes, in which learners use apps or find digital content themselves from an online repository, tend not to have any clear role for teachers in supporting learning. By contrast, teacher-guided approaches, where teachers typically use WhatsApp to send learners resources, guide student discussions and monitor students' progress, tend to have much clearer expectations around teacher roles in supporting learning. Similarly, resident-teacher roles are more evident in supporting local 'learning circles' face to face.

Even in teacher-guided approaches, the nature of teachers' support to learning represents a dramatic shift from previous classroom practice, and teachers may need significant guidance, support and monitoring to assist remote learners.

The case below illustrates a range of strategies used to practically engage teachers in supporting digital learning.

India – Remote learning circles in Telangana

Involving teachers in the production or curation of remote learning resources

The academic team selected several of the best local teachers and worked with them to develop lessons for delivery by video. Teachers practised the lesson before filming and received feedback from the academic team. Teachers in the video lessons for school children communicate clearly and use helpful illustrations. If you were to adopt a similar approach, including activities for learners could improve learning.

Establishing new ways of working for teachers

The programme set up WhatsApp groups for caregivers, learners and teachers, and assigned each teacher to a group of 10–15 learners. The programme expected teachers to send worksheets and videos to students via the WhatsApp groups and to provide feedback on worksheets completed by students. The programme also expected teachers to provide regular one-to-one feedback through telephone calls.

Providing teacher training and support

The programme provided training and support to teachers through school principals and regional coordinators. Training included a ten-day workshop conducted remotely through WhatsApp. The training promoted flipped teaching through which learners begin by learning on their own with the video resources, then discuss what they have learned with their peers and teachers on WhatsApp groups.

Monitoring teacher support for remote learning

The programme used WhatsApp to monitor teacher participation. Teachers sent regular reports to school principals, who in turn provided weekly reports to regional coordinators. Teachers had to report the number of remote lessons they had conducted and any issues they had found with the learning resources or student participation.

Similar strategies were seen in other teacher-led approaches using WhatsApp to support digital learning. See examples below.

India – Madhya Pradesh

Madhya Pradesh, India, established over 50,000 WhatsApp groups and allocated teachers to these. Online training, through the CM RISE digital teacher training progrmame, was provided to orient teachers to their new roles. There was a very clear expectation of the teachers' role to phone five students every day to help learners access digital resources and to answer their queries. The programme also used systematic approaches to monitoring teacher-student engagement through the use of Google Forms.

Reflection Point

Thinking about teachers and their role in digital remote learning:

– How has the role of teachers changed in your context with the shift to remote learning?

– What challenges might teachers face as facilitors of remote digital learning?

– What support have teachers been given to understand and undertake their new roles?

– Do you know what additional support or guidance teachers would find most helpful?

– How are school heads and education officers monitoring and supporting the quality of digital learning? How could their role be strengthened?

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4.3

Assessment for learning and programme design

4.3.1

Using assessment to inform programme design

Using available assessment evidence, or generating new assessment evidence, can ensure your programme is relevant to learners' needs and help maximize your impact on learning outcomes.

Use assessment of learning to frame your programme design

International evidence on learning outcomes in literacy and numeracy might give a broad indication of where learners might need support; national and local assessment evidence might provide more specific information. As covered in section 3, knowing about the learners you are aimingto reach, their readiness to learn and their current knowledge and skills will give you a good foundation for thinking about the learning purpose and the design of your digital programme.

Use assessment of learning to test your design

As noted in 3.4, design testing is focussed on testing key assumptions and resources as you develop the programme or an innovation to the programme, before it is rolled out at scale. The purpose is to ensure, as far as possible, that the programme works in the way it was designed before learners engage on a wider scale.

One way of doing this is to test some of your learning or assessment activities on small groups of target learners, before rolling out the programme at scale. Including assessment of learning in such 'sandboxes' can give helpful feedback about how well your programme activities and content are aligned with learners needs.

Use assessment of learning for quality assurance

Digital assessment tools, such as online or interactive quizzes, can provide programmes with useful information about whether or not programmes are 'teaching at the right level' and helping children learn. Such information might be particularly important where learners are 'self-learning' using digital resources or apps.

For example, EdoBEST@Home, Nigeria, has developed a series of interactive quizzes for every grade from ECD to Primary 6. The quizzes can be accessed via QR Code online, WhatsApp or SMS. Such interactive tools provide information about the extent to which learners have understood the content of particular digital lessons. This information could be used to adjust the content or level of subsequent lessons.

Where learning is teacher-guided, for example, through WhatsApp groups and phone calls, teachers may have regular contact with learners and get a good sense from this, or from work submitted by students, about whether or not learners are progressing. Systematic quality assurance provides opportunities for such insights to be fed back to improve programme delivery. See 4.2.4 for examples of how teachers engagement with learners is fed into quality assurance processes.

Reflection Point

- What are the key indicators of learning progress that will inform future programme adaptations?

- In what ways, can digital assessments, quizzes, surveys, etc. capture changes in learning outcomes at key points throughout the learning programme?

- How can digital technology enable you to capture these data for all learners and track individual learners' progress through the programme?

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4.3.2

Using assessment for learning

Many learners had little opportunity to interact with their regular schoolteachers while their schools were closed due to the pandemic, particularly in circumstances where learners and teachers were both offline and many teachers were not resident in the local community.

Remote learning programmes have used a variety of approaches to try and create opportunities for individual assessment, for tracking and supporting progress, and celebrating success. Broad responses include:

### Helping parents monitor learning progress

Parents can contribute to the use of assessment for learning and can help learners celebrate success. For example, in #Ab Padhai Nahi Rukegi, India, the digital component of the campaign also provides parents with an app to help them track primary-aged learners' progress via the Top Parent dashboard (see section 4.2.2 for further details).[28]

Using automated mobile quizzes and feedback

As discussed in 4.3.1, automated quizzes can provide programmes with monitoring data. But the same quizzes and tools can also provide very useful feedback to learners – helping celebrate success or prompting learners to go back and check their understanding. Such quizzes are typically deployed through WhatsApp or SMS. Sometimes the same chatbots can provide automated feedback to learners over both SMS and WhatsApp platforms.

Individual feedback and guidance by teachers

Teacher-guided approaches may create regular opportunities for contact between teachers, caregivers and learners, as well as allowing opportunities for learners to share or discuss their work with teachers. For example, Remote Learning Circles, Telangana, India, created opportunity for assessment, feedback, and guidance by asking learners to regularly submit worksheets to teachers. Teachers were also required to call learners and caregivers to give one-to-one support when necessary. So, for example, teachers could use the assessment of learners' worksheets to celebrate success or offer support for learning as appropriate. Similarly, teachers working on the #Ab Padhai Nahi Rukegi, Madhya Pradesh, India also had daily interaction through WhatsApp, supplemented by regular phone calls from teachers to learners and caregivers, to guide learning.
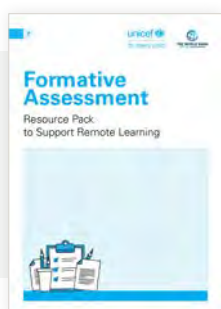
FURTHER DEVELOPMENT

Resource Pack 7 in this series is about Assessment for Learning (formative assessment) in remote learning programmes. It includes more information about involving teachers, parents and other caregivers in children's learning.

A teacher in Bangladesh shows her students how to use instructional materials to learn English

Photo: EIA

5

Quality assurance and evaluation

Quality assurance

To really learn from the experiences of programme implementation (both successes and challenges) and to continually improve the programme, you will need a robust quality assurance framework. Wherever possible, think about how the mobile devices themselves might be used to collect data, but always keep it simple. A small number of indicators, which are meaningful, feasible to collect and acted upon at all levels, will yield improvements, whereas multiple and complex indicators run the risk of efforts being focused on collecting data rather than acting upon it.

Set out below are examples of the types of data you might collect and tools you might use.

Framework aspect	Examples of data types	Example of tools that could be used by digital learning programmes
Tracking reach	• Number of learners accessing learning activities each week • Time spent on learning activities each week • Disaggregating data, where possible, to track equity of access for vulnerable groups i.e. girls, children with disabilities, ethnic minorities	• App in-built analytic tools • Chatilyzer – WhatsApp Chat Analyzer & Visualization Tool • On-line quizzes
Gathering feedback	• Learners' views of their interest, how often they engage, levels of support, etc. • Caregivers' views on supporting learners, level of support they receive	• Closed quantitative surveys e.g. using SMS survey tools such as TextIt • Short phone interviews to uncover what works well/what needs improving
Collecting stories and insights	• Particular successes or challenges identified to find out how and why they happened	• User video posts • Teacher and/or learner keeping teaching/learning diary for a few days and then interviewed about its content • Interviews and observations • Critical incident studies of reported issues
Reviewing and action planning	• Asking: What worked best? What worked worst? What can we change?	• Timed action plan

See section 4.3 for examples of how programmes have used the various tools to support quality assurance.

5.2
Evaluation

Evaluations are a major investment in time and money. Your choice of evaluation criteria should therefore focus on a small number of essential aspects of the programme. Evaluations should not usually take place more than once a year, and for a longer-term programme may occur once every two years.

Consider how will you know if your programme is successful by thinking about criteria that will tell you about its reach, effectiveness, children's learning and cost-effectiveness. It is important to collect data both on numbers, e.g., how many learners are actually participating in the programme compared to how many were planned at the programme design stage, and on insights, e.g., probing why a particular sub-group of learners did not participate and considering the factors behind why an aspect of learning support is successful.

Potential evaluation dimensions are:

Reach, with focus on:

- how many learners participated and whether this changed over time; and

- the reasons for changing levels of participation.

Practice, with focus on:

- whether the programme materials and media were easy to understand and use;

- whether learners had the planned time and space do the learning activities; and

- whether those with power and influence promoted and encouraged the learners to undertake the learning activities and whether others supported them.

Learning, with focus on:

- any changes in children's learning; and

- the usefulness of the learning to the children and young people, with particular reference to UNICEF's readiness agenda, i.e., that 5-year-olds are ready for school, 10-year-olds are ready to succeed at school, and 18-year-olds are ready for life and work.

Value for money, with focus on:

- the cost-effectiveness of the programme, both for individual learners and their families and from the perspective of the programme itself; and

- whether, in particular, the choice of learning media and resource proved cost-effective, and whether the choice of support mechanisms also proved cost-effective.

6

Integrating digital with other remote learning approaches

In almost all cases, digital learning programmes have deployed digital content and platforms alongside other remote learning media, often including audio or video content used across digital, mobile and broadcast media.

- Digital platforms may be used to offer supplementary resources, such as study-guides, timetables, and guidance for parents on how to support their children's learning.

- Digital repositories may be seen as a way to widen access, or create more flexible opportunities, for the distribution and use of remote learning materials often also broadcast on radio or TV; for example, providing access to children whose households do not have radio or TV coverage, or who cannot be available for learning at the time their content is broadcast.

- Although print and broadcast media, particularly radio, are often assumed to be the most widely accessible media, especially for reaching disadvantaged children and youth, this situation is changing rapidly. As in the case of EdoBEST@Home, Nigeria, household access to mobile technology may potentially reach more learners. Combining broadcast and digital media, through mobile phones, is likely to reach more learners than any single technology.

In many cases, digital media, and particularly social media platforms like WhatsApp, have been used to enable two-way communication between teachers and learners or their caregivers.

Whether you choose to use digital or broadcast media, UNICEF recommends complementing your approach with:

- paper-based learning materials; and

- using mobiles to maintain contact with parents and to support learning at home – e.g., through digital platforms such as WhatsApp groups and by using phone calls or SMS.

Looking ahead

In 2020, countries around the world introduced remote learning as a crisis response to the COVID-19 pandemic. For many children, the reopening of schools will not mean an immediate or full return to pre-COVID-19 patterns of education, with learning returning to its original boundaries of lesson time and the classroom; there will be an ongoing need, well into the future, for more fluid and mosaic approaches that incorporate learning in school, at home, and in the community for many children.

There are at least three scenarios in which remote learning has an important role to play:

Using remote learning o help children and young people back into schools

Integrating remote learning provision into mainstream education systems

Using remote learning as a means of creating learning resilience

Using remote learning to help children back into schools

When children return to school, they are very likely to need additional support to catch up on learning or regain confidence in using knowledge and skills learnt before the pandemic. Teachers and school leaders will need to understand which children have been able to access remote learning during the school closure and which programmes they have engaged with. It will also be critical for teachers to find out where the learners now are in their learning after this period of disruption.

CASE STUDY

Ghana – iCampus

As children began returning to school, iCampus has promoted using the digital learning materials to help children catch up on lost learning. As well as being available on the online portal, the iCampus content is also shared from local iBox servers attached to senior high school computer suites. The servers also create a local WiFi network, with a radius of up to 100m. Since learners have returned to schools, there are anecdotal reports of large numbers of learners accessing the digital content over WiFi in the school grounds before and after lessons.

Integrating remote learning into education systems

Remote learning experiences during the pandemic have brought forward discussions around the ways in which education can become available in different delivery modes and methods. Considering that teachers and students have been exposed to these new modes and methods during the crisis, as the pandemic subsides there is an opportunity to integrate remote learning and face-to-face, classroom teaching. There is also an opportunity to think about creating new pathways for learning for children and young people, including for children and young people who are out of school.

CASE STUDY

India – #Ab Padhai Nahi Rukegi

The State of Madhya Pradesh, India will build upon its remote learning experiences, digital resources, and social media platforms when schools reopen. The remote learning initiative #Ab Padhai Nahi Rukegi will expand to the Hamara Ghar Hamara Vidyalaya (Our Home is Our School) programme. This programme will supplement ongoing online efforts with offline content, including new textbooks and workbooks reaching students via door-to-door delivery.

Once schools reopen, the digital library and WhatsApp communication channels will be integrated with in-class instruction, and leveraged to reinforce everyday lessons, especially since the upcoming academic year might have staggered school days, or regular periods of lockdowns and school closures.

Rather than returning to previous patterns of schooling, when schools reopen Madhya Pradesh will continue to develop an approach expanding upon:

– blended learning for students;

– digital teacher training; and

– parents as co-educators.

The state of Madhya Pradesh is currently developing its long-term digital strategy, incorporating lessons learned during the pandemic response.

Remote learning to create resilience

Partial and ongoing school closures mean that remote learning will continue to be an essential education platform for many children and young people for the foreseeable future. Beyond the current pandemic, the climate emergency, conflict and economic turmoil are just a few of the shocks that will affect children's learning in the coming decades. Remote learning could help education systems, schools, educators, children and their families become more resilient – both in terms of continuing education and withstanding shocks more generally.

CASE STUDY
Learning Passport

The Learning Passport[29] is one example of where digital approaches to remote learning may be moving beyond 2020. Learning passport is a new EdTech approach combining online, mobile, and offline learning, to close the poverty gap and bring high quality learning opportunities to children from low-income households and communities. Learning passport includes digital resources for children, youth, teachers and parents.

Learning passport uses local hubs to provide offline access to all of the digital content. The digital hub can be connected to a large-screen for group learning or it can create a Local Area Network on WiFi for learners to access on individual devices. The content on the hub can be updated offline via *Sneakernet* – people carrying the content via USB drives or SD memory cards. There are some similarities with both the iBox in Ghana and the Kolibri offline learning approach.

The truly unique feature of Learning Passport is that every learner has a personalized record of their learning history – their Learning Passport – that is unique to them and travels with them across national and digital borders. So, for example, if a child migrates from one school, project or country to another, their learning goes with them. Even if the curriculum changes from one country to the next, the child can evidence what they have already learned and continue their learning journey.

A girl in Timor-Leste shows the online platform she uses to continue learning while schools are closed – her Learning passport
Photo: UNICEF

CASE STUDY
India – Telangana remote learning and Village Learning Circles

The success of Village Learning Circles has now made them a critical part of the programme's remote learning strategy and the programme has set a goal of having 50,000 Village Learning Circles before schools reopen. These can have an ongoing role in supporting learning going forward and contributing to a mosaic of learning in school, at home, and in the community.

Key Resources

Why use digital technology for remote learning?

- World Bank (2020) Mobile Distance & Hybrid Education Solutions Knowledge Pack PowerPoint Presentation (worldbank.org) accessed 09 April 2021

  https://pubdocs.worldbank.org/en/685691598013656403/WorldBank-EdTech-Team-Knowledge-Pack-MobileDistance-HybridEducationSolutions-version2.pdf

Preparing digital learning programmes

- Commonwealth of Learning (2015) A Basic Guide to Open Educational Resources (OER) (accessed 09 April 2021)

  https://unesdoc.unesco.org/ark:/48223/pf0000215804.locale=en

- Commonwealth of Learning, in partnership with UNESCO and the World Bank (2020) #OER4Covid Support Group OER response to Covid-19 (oeru.org) (accessed 09 April 2021)

  https://oer4covid.oeru.org/

- The Open University (2020) Flipped Learning (accessed 09 April 2021)

  https://iet.open.ac.uk/file/iet-teaching-at-a-distance-01-flipped-learning.pdf

- EDLAB (2021) Problem-Based Learning Media2 – EDLAB (accessed 09 April 2021)

  https://edlab.nl/innovation-old-3/media-2/

- The Open University (2017) Innovating Pedagogy – Spaced Learning (p9-11) (accessed 09 April 2021)

  https://iet.open.ac.uk/file/innovating-pedagogy-2017.pdf

  Examples of digital repositories

  - Khan Academy – https://www.khanacademy.org/
  - African Story Book – https://africanstorybook.org/
  - Story Weaver – https://storyweaver.org.in/
  - Kolibri – https://learningequality.org/kolibri/

- Khan Academy (2020) Distance Learning Guide (accessed 09 April 2021)

  https://keeplearning.khanacademy.org/distance-learning-guide

- Creative Commons (accessed 09 April 2021)

  https://creativecommons.org/share-your-work/

- OER Africa (2020) Adapting Open Content (accessed 09 April 2021)

  https://oerafrica.org/content/adapting-open-content

- Agile Alliance (2015) Minimum Viable Product (accessed 09 April 2021)

  https://www.agilealliance.org/glossary/mvp/#q=~(infinite~false~filters~(tags~(~'mvp))~searchTerm~'~sort~false~sortDirection~'asc~page~1)

- EdTech Hub (2020) Sandboxes: our approach to systemic experimentation (accessed 09 April 2021)

  https://edtechhub.org/2020/01/28/sandboxes-our-approach-to-systemic-experimentation/

Developing effective digital learning programmes

- EdTech Hub (2020) Girls' Education and EdTech: Rapid Evidence Review (accessed 09 April 2021)

  https://zenodo.org/record/3958002#.YHBI59qSlPY

- Girls Education Challenge (2020) Priorities and Practices: Early Lessons from the COVID-19 Pandemic

  https://dfid-gec-api.s3.amazonaws.com/production/assets/47/LFTF_COVID-19_GEC_project_response_June_2020.pdf

- UNESCO (2020) Building Back Equal: Girls Back to School Guide (accessed 09 April 2021)

  https://unesdoc.unesco.org/ark:/48223/pf0000374094.locale=en

- Inter-agency Network on Education in Emergencies (2019) Guidance Note on Gender (accessed 09 April 2021)

  https://inee.org/covid-19/resources/gender/

- Inter-agency Network on Education in Emergencies (2010) INEE Thematic Issue Brief: Inclusive Education

  https://inee.org/system/files/resources/INEE_Thematic_Issue_Brief_Inclusive_Education_2010_ENG_0.pdf

- Google (2020) Android Accessibility Overview (accessed 09 April 2021)

  https://support.google.com/accessibility/android/answer/6006564?hl=en-GB

- UNESCO (2017) Fact Sheet No 46: More Than One-Half of Children and Adolescents Are Not Learning Worldwide (accessed 09 April 2021)

  http://uis.unesco.org/sites/default/files/documents/fs46-more-than-half-children-not-learning-en-2017.pdf

Endnotes

Why use digital technology for remote learning

1. Adapted from Traxler (2009) International Journal of Mobile and Blended Learning, 1(1), 1-12

2. UNICEF (2020) Guidance On Distance Learning Modalities https://www.unicef.org/rosa/reports/guidance-distance-learning-modalities-reach-all-children-and-youth-during-school-closures

3. Pratham (2020) Digital Resources – Enabling Learning for All https://www.pratham.org/covid-19-response/digital-resources-enabling-learning-for-all/

4. OLE Nepal (2020) E-Paath http://www.olenepal.org/e-paath/

5. World Bank (2020) Education Continuity India: #Ab Padhai Nahi Rukegi (#Learning Will Not Stop). https://oecdedutoday.com/wp-content/uploads/2020/09/India-Learning-Will-Not-Stop.pdf

6. iCampus Ghana https://icampusghana.com/

7. COVID-19 Support Nepal www.covid19nepal.support

8. Pratham Open School (YouTube Channel) https://www.youtube.com/c/PrathamOpenSchool/about

9. Pratham Open School (Low Tech Resources) https://www.prathamopenschool.org/LTR/Contents/6000001

10. UNICEF (2020) How Many Children And Young People Have Internet Access At Home? https://www.unicef.org/media/88381/file/How-many-children-and-young-people-have-internet-access-at-home-2020.pdf

Preparing digital learning programmes

11. World Bank (2019) Learning Poverty Brief https://www.worldbank.org/en/topic/education/brief/learning-poverty

12. UNESCO Open Educational Resources (OER) https://en.unesco.org/themes/building-knowledge-societies/oer

13. Creative Commons (2017) About The Licences https://creativecommons.org/licenses/

Developing effective digital learning programmes

14. Trucano (2020) How ministries of education work with mobile operators, telecom providers, ISPs and others to increase access to digital resources during COVID19-driven school closures https://blogs.worldbank.org/education/how-ministries-education-work-mobile-operators-telecom-providers-isps-and-others-increase

15. Kado et al. (2020) Effectiveness of Google Classroom as an Online Learning Management System in the Wake of COVID-19 in Bhutan: Students' Perceptions Bank. https://www.istes.org/effectiveness-of-google-classroom-as-an-online-learning-management-system-in-the-wake-of-covid-19-in-bhutan-students-perceptions-54-s.html

16. UNICEF (2020) Guidance On Distance Learning Modalities. https://www.unicef.org/rosa/reports/guidance-distance-learning-modalities-reach-all-children-and-youth-during-school-closures

17. YouTube: Digi-SATH, #Ab Padhai Nahi Rukegi (Channel). https://www.youtube.com/channel/UCA7DSoBWh2INc6SV_xGKCxA/playlists

18. Google Play: DIKSHA Platform for School Education, Ministry of Education, India. https://play.google.com/store/apps/details?id=in.gov.diksha.app&hl=en_IN

19. Pratham (2020) Connecting with Children – Learn and Fun! https://www.pratham.org/covid-19-response/connecting-with-children-learn-and-fun/

20. Pratham (2020) KTMTP survey https://www.pratham.org/wp-content/uploads/2020/10/KTMTP-External-Partners-Feedback_29082020-2-converted.pdf

21. UNESCO and EQUALS Skills Coalition (2019:9) I'd blush if I could: closing the gender divides in digital skills through education

22. COL Girls Inspire https://girlsinspire.col.org/how-can-we-assist-the-girl-child-to-make-her-voice-heard/

23. Web et al. (2020) Girls' Education: Rapid Evidence Review http://doi.org/10.5281/zenodo.3958002

24. Girls' Education Challenge (2020) Priorities and Practices: Early Lessons from the COVID-19 Pandemic https://dfid-gec-api.s3.amazonaws.com/production/assets/47/LFTF_COVID-19_GEC_project_response_June_2020.pdf

25. UNESCO (2017) More Than One-Half of Children and Adolescents Are Not Learning Worldwide. https://learningportal.iiep.unesco.org/en/library/more-than-one-half-of-children-and-adolescents-are-not-learning-worldwide

26. UNESCO (2020:12) Inclusion and Education: All Means All https://en.unesco.org/gem-report/report/2020/inclusion

27. World Bank (2020:56) Realizing the Future of Learning: From Learning Poverty to Learning for Everyone, Everywhere (English), Washington, D.C, World Bank Group http://documents.worldbank.org/curated/en/250981606928190510/Realizing-the-Future-of-Learning-From-Learning-Poverty-to-Learning-for-Everyone-Everywhere

28. World Bank (2020) Education Continuity India: #Ab Padhai Nahi Rukegi (#Learning Will Not Stop). https://oecdedutoday.com/wp-content/uploads/2020/09/India-Learning-Will-Not-Stop.pdf

Looking ahead

29. The Learning Passport https://www.learningpassport.org/