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TV

Resource Pack to Support Remote Learning

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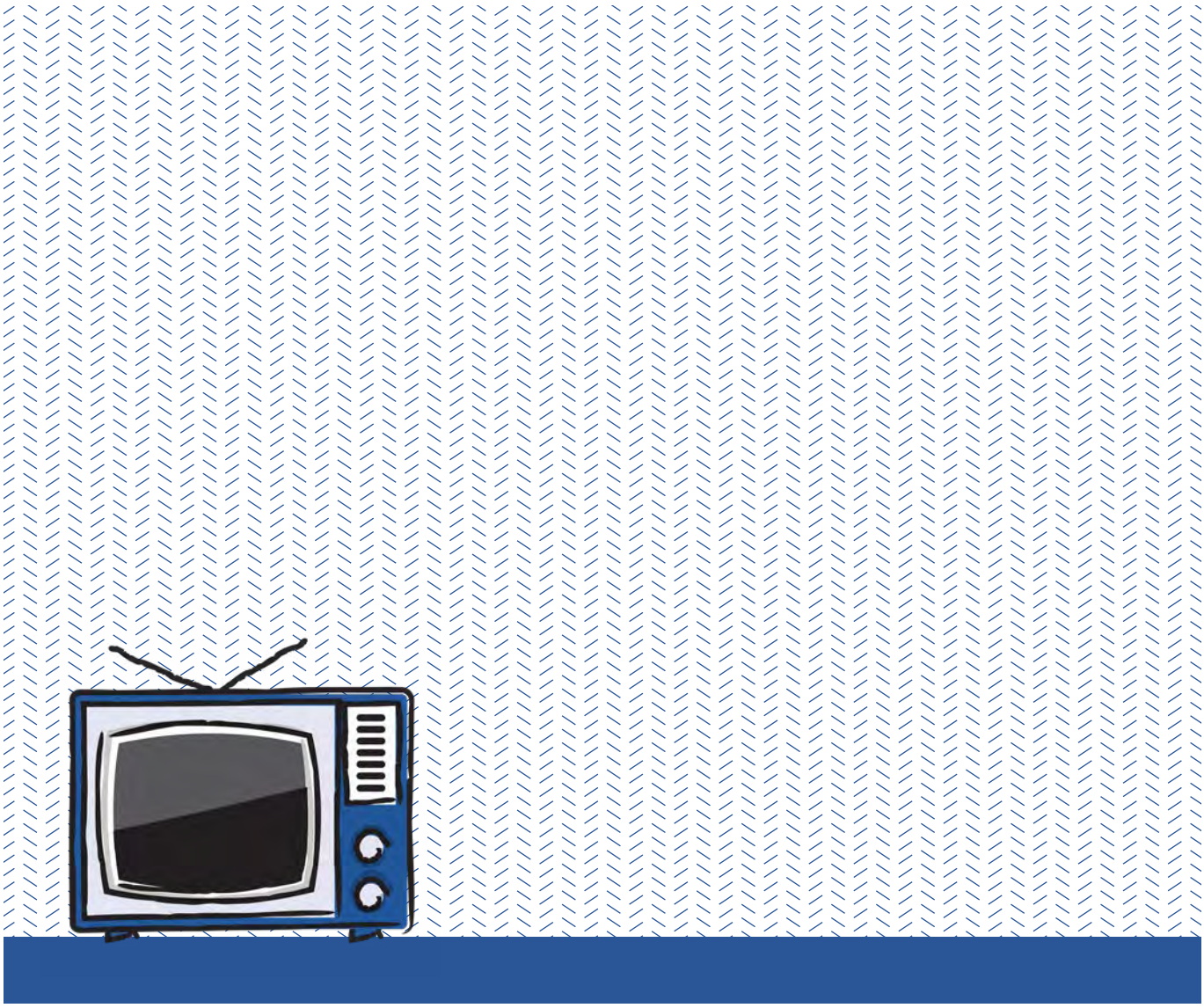

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About the Remote Learning Resource Packs

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 educational television pack

Educational television (edTV) has been the most popular technology chosen by governments in formulating their remote learning response to the COVID-19 school closures. A recent UNICEF survey of 127 countries using technology for remote learning identified that 75% are using edTV[1]. The World Bank reports that 79% of all households across the world have access to a television and 72% in developing countries[2]. 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 going forward, learning outcomes can be improved for all children. By looking at what different countries are doing, the edTV pack will uncover challenges being faced in edTV, propose solutions and share some of the successful strategies and promising practices being used.

The re-opening of schools does not mean an immediate return to pre-COVID-19 classroom teaching and will present new challenges for teachers and learners. UNICEF identifies three scenarios in which the lessons learned in 2020 remote learning may contribute to more inclusive and effective continuation of learning:

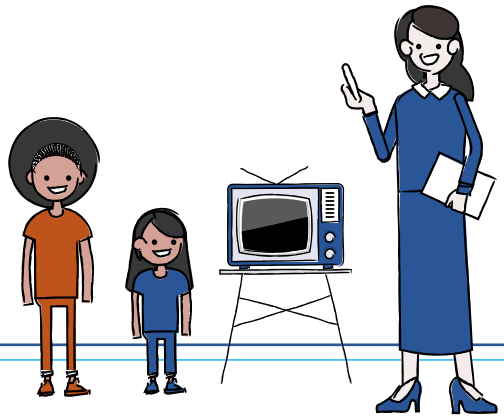
- **using remote learning to help children back into school**;
- **integrating remote learning into wider education systems**; and
- **remote learning for creating resilience**.

The issues raised in these packs, and their application to remote learning and classroom practice, will be relevant to all these future scenarios, to ensure that learning does not stop.

1.2

Who is this pack for?

This pack is for educators focussed on improving edTV, but also those who are planning to start developing educational television programming. Learning from others' experiences, the pack offers a set of planning tools for getting started backed by country examples where edTV is already in use. But you will realise that edTV involves collaboration between many different groups of people including Ministries of Education, national broadcasters, teachers, school leaders and so on, and they will also find this guide informative.



1.3

What is in this pack?

The pack is presented in seven sections:

1. **Section 1** introduces the seven remote learning packs in this series and this pack about remote learning using edTV.

2. **Section 2** explains what educational television is.

3. **Section 3** asks why edTV should be considered for remote learning and unpacks the potential benefits and limitations.

4. **Section 4** is for readers who are starting to use edTV for the first time and presents key steps to help you get started.

5. **Section 5** digs deeper into how you can improve learning outcomes through edTV and offers suggestions on actions for your consideration. All of the improvement stages are based on knowing what is happening on the ground, so data collection, analysis and reporting is the foundation on which you can build.

6. **Section 6** discusses some of the issues to do with costs and funding of edTV and guides you towards getting value for money.

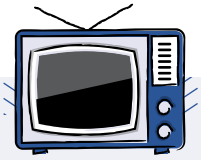
7. **Section 7** considers the future of education and the potential role of edTV in building resilience, providing for teacher shortages and marginalized children, as well as new, blended models of classroom teaching.

Reflection Points

Throughout the pack, you will see boxes inviting you to **consider these actions.** The actions listed are for you to reflect on and consider in relation to your own edTV programme.

2

What is educational television?



EdTV features

Video medium

Broadcast

Live or recorded

One-way

National coverage

Multiple delivery technologies

EdTV uses the medium of video through broadcast technologies. Video includes moving pictures, graphics and sound. Video can be provided through different technologies which include broadcast, satellite or cable transmissions, streamed via the internet, provided on storage media such as DVDs or USBs. Video can also be provided on low-tech devices for when broadcast or connectivity is not available.

Video can be broadcast live or may be delivered as a recording. Whichever technology is used, it is generally one-way communication, meaning the learner or viewer cannot interact directly with the content and there is no immediate feedback or communication between teacher (or presenter) and learner. However, there are some models that employ an interactive approach, where videos prompt learners to answer questions and learners have access to in-person tutors to support their learning (see Brazil's Amazonas Media Center model).[3]

EdTV involves collaboration between many different groups of people. This includes Ministries of Education, national broadcasters, teachers, school leaders and other stakeholders to produce (or procure) and transmit educational programmes to learners in their homes. Locally, school leaders and teachers have an important role to play in ensuring that their learners are supported to use the broadcasts if effective learning is to take place. If edTV is used in remote learning contexts, then parents and caregivers also have an important part to play.

EdTV programmes fall into three main types:

Live programmes

This is when a teacher gives a lesson live from a classroom setting or TV studio. Content is more easily aligned to the curriculum, and these can be rapidly produced. Many countries – Czechia, Spain and Indonesia are examples – use live broadcasts as well as other formats.

Pre-recorded programmes

These may comprise existing content from other providers or past national educational TV offerings. A good example is Khan Academy, which provides short video lessons, is openly licensed and is freely available on an increasing range of school subjects.

Edutainment

Edutainment combines educational content in the form of entertainment which is typically very engaging. Sesame Street (in 150 countries) and Ubongo (in 31 African countries) are well known examples. Edutainment may include educational drama as well as magazine programmes.

3

Why use television for remote learning?

The major advantage of educational television is learners' widespread access to the technology and the ability to reach learners at scale. Most countries have a national broadcasting system which reaches nationwide through the airwaves and a system of antennas, although very remote and/or mountainous areas may not have good coverage. TV ownership in rural populations, even in lower middle-income countries, is relatively high compared to access to the internet, for example. UNICEF research shows that TV-based remote learning has the potential to reach the most students (62% globally).[4] EdTV has been selected in low resource contexts where internet connectivity and digital devices are lacking. Because there is widespread access to television equipment and broadcasting systems, edTV can be set up very rapidly under emergency conditions such as those experienced in 2020.

EdTV has been used for decades in countries like Mexico, Brazil, China, India and South Africa to increase access to learning opportunities, especially for marginalized children. EdTV can be used in a variety of ways to support distance or remote learning, as well as to support learning in the classroom, for example during teacher shortages or absenteeism, or to assist with multi-grade teaching. It can be used to provide expert content when classroom activities are supported by less qualified teachers. EdTV can also be useful in distance teacher education and professional development programmes. It can be used to provide for out-of-school children in alternative education programmes and for remedial lessons for those children who have not yet reached their potential.

Pakistan

Within two weeks of school closures, Pakistan deployed two edTV initiatives as remote learning: 'TeleSchool' by the Ministry of Federal Education and Professional Training and 'Taleem Ghar' by the School Education Department in Punjab.

Brazil

In the Amazonas Media Center model interactive television programmes are used for older students where there are no qualified teachers. Classes are mediated by an onsite tutor.

Child and mother watching lessons together in Kenya

Photo: UNICEF, Translieu Nyaberi

Mexico

EdTV as a fundamental delivery mode

It is worth noting that mature programmes like *Telesecundaria* in Mexico can become a fundamental delivery mechanism in education systems. *Telesecundaria* has been in operation since 1968 and currently forms the basis of education in 6 out of 10 public high schools. Rigorous evaluations of *Telesecundaria* have shown increased enrolment for out-of-school children in secondary education and improvement in learning outcomes, as well as future employment[5].

3.1

Potential benefits of educational television

Depending on a number of factors, such as programme design and scheduling, programme content and viewing characteristics, there are many possible benefits of edTV including:

Access to the technology

Common standard of learning materials

Speed of mobilization of edTV programming

Evidence that edTV promotes learning

Cost-effectiveness and economies of scale

Low-technology options

Access to the technology

The main advantage of edTV is that it can be **easily accessed by a majority of teachers and learners.** Access is not only about receiving and interacting with learning content. **Access is also about teachers' ability to teach in this medium and learners' access to learning through the medium.** Through partnerships with national and local TV broadcasters, teachers can quickly learn to present TV lessons, although it may be in a somewhat didactic model. Whilst these programmes present learning content, they may not be engaging for students or support learning effectively. Nevertheless, by training teachers in interactive video production and including additional resources, programmes can be made more engaging.

Speed of mobilization

Access to the technology is one contributory factor in another advantage of edTV: **how quickly programming can be provided**. Countries across the globe demonstrated in 2020 that students can be reached through broadcast programming within two weeks of schools closing.

As edTV uses technology that is easily accessed by a majority of home-based viewers without the need for additional equipment, costs are relatively low for providers. Despite this, cost effectiveness analysis of edTV interventions has been scarce, with one notable exception being the Ubongo Kids programme produced in Tanzania. Broadcast in 31 African countries, reaching large numbers of children and benefiting from economies of scale, this programme reports per-person, per-year costs of 1 cent[6].

Cost-effectiveness and economies of scale

Economies of scale mean that substantial numbers of learners can be added without increasing costs. They have been revealed as an important dimension in cost analyses of the *Telesecundaria* programme in Mexico, where a 2002 study found *Telesecundaria* schools were 'no more than 16% more expensive per student' than general lower secondary schools, even though they have far lower student/class ratios[7].

Common standard of learning materials

Like all resource-based learning, broadcast television can contribute to **quality improvement**, as common standards of learning materials are made available for all students. High quality, national TV programmes can be designed and developed by the most qualified teachers, supported by professional broadcast producers. This is particularly important if large numbers of teachers are unqualified. EdTV offers possibilities for scaling up standardized instruction, facilitating differentiated instruction, expanding opportunities for practice and increasing student engagement.

Useful resources on evidence for educational television

The EdTech Hub's review of evidence for edTV is available at: https://edtechhub.org/wp-content/uploads/2020/07/RER-TV.pdf

Also look at the Knowledge Pack prepared by the World Bank about edTV with a focus on low-resource settings at: http://pubdocs.worldbank.org/en/267791593613610668/Education-TV-Knowledge-Pack-WorldBank-Edtech-Team.pdf

Evidence that edTV promotes learning

Children like television! Educational television has been found to make significant **improvements to children's learning** in lower middle-income countries. Much of this evidence comes from studies of highly developed edTV programming like Sesame Street and Ubongo Kids: for example, in a study of Ubongo with a sample of 38,682 children, educational television exposure was found to be significantly associated with mathematical capability[8].

Low technology options

TV is adaptable in that it can be **delivered through a variety of technologies** so if there is no nationwide coverage from national broadcasters then video programming can be provided through other technologies, including low-tech options. This can help to reach disadvantaged groups who may not otherwise have access. All options require some form of device – TV set, receiver, video player – to view the programmes, and all of these require electricity. Increasingly, students are able to access edTV programmes through mobile phones although data charges for streaming video may make this cost prohibitive in some contexts.

Myanmar

Where students could not be reached by broadcast television, solar-powered low-tech units were supplied by the Department of Basic Education preloaded with TV programmes, teacher training resources and other learning content. The units are based on Raspberry Pi technology which sets up a classroom network that can be accessed through mobile phones, tablets and laptops[9].

3.2

Potential limitations of educational broadcasting

The main limitation is that in broadcast TV, **learners have low interaction with teachers** and other learners which can lead to disengagement and lack of feedback (both ways) and learners' understanding. To make television more interactive, other media and technologies need to be added, such as social media and printed guides and workbooks. Communications via mobile phones (SMS, social media apps) can also be used to improve interaction between students and teachers as well as parents.

With broadcast TV, **learners also have no control over the pace of learning**, so they cannot ask questions or replay the programme if they do not understand. With recorded TV programmes provided on video (via internet or DVD), learners can pause and rewind to repeat and check their understanding.

Even though it is probably the most accessible technology for learners, **educational broadcasting does not reach everyone**. It requires learners to have, as a minimum, electricity, a TV set and in certain cases an antenna, and to live in reach of the broadcast footprint. It may therefore not reach learners living in remote areas. Even where there may be wider access, viewing of educational broadcasting may be limited by access to the channel or learner awareness of programming, as was found in a recent study in Bangladesh.

It is challenging to **track how much children learn from edTV programmes**. Monitoring progress in learning requires additional systems, such as online or mobile apps, to administer quizzes and give and receive feedback between students and teachers.

Countries are at different stages in their use of educational broadcasting, as well as in their returns to classroom teaching. Each will have a different view of where they can most benefit from repurposing edTV resources developed as part of COVID-19 responses or ongoing education provision and how best to spend valuable human and financial resources.

The next part of this guide is for countries where edTV is a new venture. If your focus is on improving the edTV system you already have in place, please go to Section 5 – or continue to Section 4 to remind yourself of the foundational activities and check your processes.

4

Preparing for educational television

Although over 100 countries already have an edTV programme to support remote learning, some countries are now considering whether this is the right approach for them in terms of supporting children's learning outside the classroom, particularly for older students.

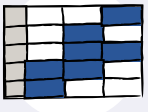
Once you have made the decision that you want to implement edTV, information in this section will help you to get started. There are several important steps to attend to:

Gather your team

Learn from experience elsewhere

Identify channels for TV broadcasting

Combine live broadcasts, pre-recorded content and edutainment programmes



Create and communicate schedules for edTV programming

Provide support for students, parents and teachers

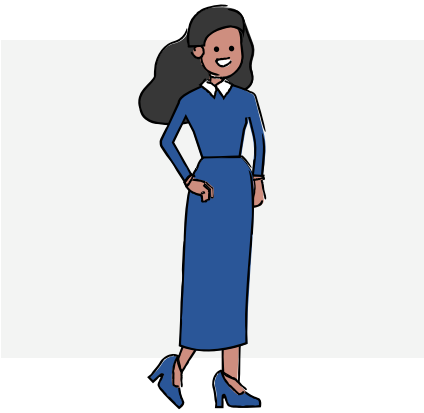
Gather your team

A large team of planners, teachers, managers, programme makers and technical experts are needed to collaborate to make edTV a reality. You may also find partners amongst NGOs, faith-based organisations and development agencies, as well as TV providers or publishers in the private sector. In some countries, you can leverage existing relationships that ministries of education have with national TV broadcasters.

The stakeholders in edTV fall into three main groups.

Curriculum and Content Teams

- Master teachers to present programmes and support content development
- Teachers to develop sequencing of lessons
- Script writers and producers to work with teachers to develop the lessons for TV
- Curriculum specialists for each level of programmes being made/broadcast
- Teaching assistants to manage social media and phone lines for Q&A sessions
- Companies and organizations with free content available for use



TV Broadcasting Teams

- Broadcasting technical staff with expertise in TV production, recording, editing and transmitting
- Television managers to provide access to TV studios, post-production and transmission equipment and services
- TV schedulers to provide transmission times
- Partnerships with private TV operators (e.g. to reach remote areas)
- Media regulatory authority may need to give approval

Monitoring and Quality Improvement Teams

- Monitoring and evaluation specialists from Ministry of Education
- Data specialists from broadcasters
- Statisticians
- Data collectors & enumerators including mobile operators
- Educational specialists to analyse the data collected

How these groups work together and interact will depend on your country context and the resources available. You may also consider engaging students in programme design as they can contribute to effective programming.

Viet Nam

Thousands of teachers throughout the country contributed to developing edTV lesson plans following the simplified framework curriculum circulated by the Ministry of Education and Training (MoET). Producing TV lessons for all subjects at all grade levels within a tight timeframe was a challenge which was met when each school within a province was asked to take turns at taking charge of at least one subject at one particular grade level. Each school's subject department was involved in creating and reviewing lesson plans and teachers with sufficient professional and IT experience were nominated to receive training and deliver the lessons.

Local Education Departments were also responsible for coordinating edTV lessons across their given regions by crowdsourcing ideas from teachers in order to develop edTV programmes. MoET partnered with provincial as well as national TV stations and a total of 28 TV stations collaborated with the local Departments of Education and took charge of filming, editing and broadcasting the crowdsourced lessons. It took only two weeks until the first batch of TV lessons aired[11].

Learn from experience elsewhere

Once you have assembled your team, the next step is to reach out to other countries in your region who have already started. UNICEF and World Bank country offices can put you in touch with relevant people involved in remote learning in other countries. You will learn from the experience of other people tasked with the same responsibilities and this can save you a good deal of time.

Identify channels for TV broadcasting

Most countries have a national broadcasting company with a nationwide reach. Often, these companies have a mandate to provide educational broadcasting, so this is a good place to start. Even when there is no dedicated channel for education, other channels have been given up for edTV for remote learning. In Morocco, for example, the national sport channel is also partly dedicated to education. In some countries, such as Malaysia and Cambodia[12], new channels have been started on the national broadcasting system. There may also be private broadcasters you can partner with, as happens in Mexico and Viet Nam, who may help you to reach more remote learners. In Kenya, the Institute for Curriculum Development has its own edu-channel where edTV broadcasts are made for remote learning.

Cambodia

In Cambodia, the Education and Information Ministries partnered to start edTV for their remote learning response in 2020 and created a new TV channel. Live programmes run 24/7 during the daytime and repeats during the night. They focused on national exam grades with 3 hours each provided to Grade 9 and Grade 12 students. The same videos were offered through the Ministry's mobile app for those students who could access the internet through YouTube, Facebook and in e-learning centres.

Reflection Point

Consider these actions to identify edTV channels

- Engage in discussions with your national broadcasting company. You may also have private TV providers who would be willing to work with you.
- Work with TV schedulers to identify where there is available transmission time and whether any channels are available for edTV.
- Engage with the Ministry of Communications and Information (or whichever organization is responsible for broadcasting) to discuss the possibilities of establishing a dedicated edTV channel.
- If edTV is going to be part of your long-term plans for educational provision, consider establishing dedicated education channels.
- Have you or others attempted to expand access? Was this effective? What have you learned from this experience?

Siblings studying at home with Telescola television programme in Mozambique

Photo: UNICEF, Caudio Fauvrelle

Combine live broadcasts, pre-recorded content and edutainment programmes

The key to effective edTV content is to use the national curriculum as a framework and guide. It may not be possible to provide programmes for every grade, but there should be a good spread across pre-school, primary and secondary. You will need to prioritize certain subjects in certain grades. In Croatia, there was no pre-existing content so Grade 1-4 teachers were filmed holding classes and these were broadcast. Studio based programmes can be developed if broadcasters, curriculum specialist and teachers collaborate. Teachers or TV presenters may equally present the programmes depending on available funding. You may not be able to launch with all new programmes because of the time taken to produce them, but there are other viable options.

Peru

In Peru, the learning facilitator welcomes students and presents the session objectives; the teacher introduces the content for the lesson and guides the students through learning activities. Students jump in and interact throughout the session, to make the class even more engaging.

Existing video content is available for broadcasting under open licences, known as open educational resources (OER). There is more on OER in the next section. You should have access to national broadcasting channels as well as existing TV content from other countries that you can repackage for your curriculum. It is important to use multiple channels to reach as many students as possible. Private TV providers can be leveraged if broadcast licences include national emergency mandates or public service requirements for airtime.

Rebroadcasting content at different times enables more students to access programming. It can also help when electricity outages prevent children from viewing at the scheduled time or if there are several children in the house and only one TV. Older children may be required to work during the day when they are not in school to help support the family, so can only attend to their studies at night. This is particularly true for girls who are more likely to be given home chores and childcare duties which can further the gender divide.

Reflection Point

Consider these actions to get the right mix of programming

- Depending on your available resources – financial and human – you can offer live classes or recorded classes. Broadcasting recorded classes may be easier and less stressful than producing live TV. It also allows you to develop graphics and visuals to clearly communicate important points to the viewer.
- Work with broadcast production teams to guide you in programme production if your decision is to make some live programmes. A large number of specialist teachers, curriculum officials and writers will be needed to plan and script live programmes.
- Allocate team time to looking for existing television content which is relevant for your curriculum at different grades.
- Work closely with the scheduling team to be sure you are making or procuring the right amount of content/number and duration of programmes.
- Making your own edutainment programmes or educational drama is time consuming and expensive – it may be better to access available programmes, which mainly exist for lower grades.

Create and communicate schedules for edTV programming

Creating and communicating **simple schedules for when, where, what (subject) and whom (grade level)** this programming will be broadcast are critical to programming success. Many countries are providing student-friendly daily and weekly schedules on their education ministry website, some on their education television network websites and some on institutional websites (Kenya). Schedules are also being shared via SMS, WhatsApp and Telegram.

Your airtime will be limited, so important scheduling decisions need to be taken to ensure you cover all grades. In Czechia, Czech TV broadcasts educational programming for pupils under the supervision of the Ministry of Education, Youth and Sports (MEYS). MEYS launched a live daily morning programme led by teachers for primary-school pupils (grades 1-5); in the afternoons, educational TV programmes are provided for lower-secondary pupils (grades 6-9).

Use multiple channels for communicating the TV schedules to reach students in all corners of your country. Radio and newspaper, as well as national TV news programmes, are good options, as are social media. You may have to 'sell' the idea of educational TV, especially to parents and care-givers, so use this opportunity to explain the programme and also their role in supporting it.

Reflection Point

Consider these actions to create and communicate effective schedules

- Ask your broadcast partners for guidance on scheduling.
- Request guidance from your curriculum members on the programming needed for the different grades and subjects.
- Leverage a variety of channels for communicating your broadcast schedules – newspapers, websites, radio and social media. Wherever your Ministry has a presence, you can include this information.
- In remote areas, make sure that community leaders are aware and communicate with teachers, who can put up posters, use SMS or community loudspeakers to ensure parents are informed.

Provide support for students, parents and teachers

Although getting edTV up and running is a huge accomplishment for everyone involved, it is not enough just to provide learning programmes. You need to have ongoing interaction with teachers, parents and local stakeholders so that they can support effective learning through television. Use any two-way channels available to you, such as social media, radio, newspaper and local community channels to communicate and provide feedback so the programming is impactful.

Consider how you will provide support in these three main areas:

Technical

Students and teachers may have questions about how to access the programming, or when the relevant programmes are broadcast; a toll-free phoneline or online helpdesk could be useful.

Pedagogical

The important task of supporting learning moves towards parents and caregivers during remote learning. Teachers and parents need support to develop new skills for remote teaching and learning and may even need socio-emotional support. But remember, not all children have a parent or caregiver to provide learning support.

Socio-emotional

Students need socio-emotional support during prolonged periods of isolation or when they are unable to interact with friends, family and teachers. Support can be provided through the educational programming to some extent, but special systems may be needed where teachers keep in contact with students through mobile messaging apps such as Telegram and WhatsApp.

Useful resources to help you get started on designing edTV

This blog from the World Bank summarises five key insights in starting using and sustaining edTV for remote learning: https://blogs.worldbank.org/education/educational-television-during-covid-19-how-start-and-what-consider

Also look at the decision tree/process chart in a resource produced by the World Bank about educational television. It takes you through the key questions to help you make foundational decisions. The chart is available at: https://blogs.worldbank.org/education/educational-television-during-covid-19-how-start-and-what-consider

Jamaica

Government agencies, development partners and local philanthropists partnered to provide 36 telephone helplines for students.

Reflection Point

Consider these actions to provide appropriate support

- Produce guidelines for teachers at different grades to help them provide support to parents and learners. Remember: they will need both technical and pedagogical information.
- Like scheduling, use multiple channels to reach teachers such as social media and communications apps on phones.
- As remote teaching continues, the needs for socio-emotional support for teachers and learners increases. You may need to find specialists who can advise on this and guide you on how best to support teachers in this important area.
- Provide a toll-free number for students to call subject teachers.
- Teachers can provide support through Facebook groups for specific classes or subjects.

Pupil watches morning TV lessons with her mother, Kenya

Photo: UNICEF, Translieu Nyaberi

5

Improving learning in existing edTV systems

Many countries responded very quickly to the 2020 school closures with edTV programmes, so now is a good time to check and see where you can enhance that programming to improve student learning outcomes and help your teachers, learners and parents benefit even more. You may have established your edTV systems as a rapid response to the COVID-19 pandemic in record-breaking time – many countries started broadcasting in as little as two weeks after school closures were announced. As remote teaching and learning have continued, you have likely put in place systems for monitoring and improving edTV provision.

If schools are re-opening, then now is a good time to consider how your edTV assets can be used in a blended format to help deal with the new challenges being faced by teachers and learners. The edTV programmes developed for remote teaching can now be used as part of classroom learning for students who did not achieve the required learning while they were out of school.

Your improvement focus might fall into three areas: **access and inclusion**, **quality and support**, **assessment and evaluation**.

5.1

Access and inclusion

Address the (gender) digital divide and ensure equitable access

You need to be sure that all children and young people can actually watch edTV broadcasts. Exclusion and inequality will likely be exacerbated if already marginalized and vulnerable groups, like girls, ethnic minorities, and persons with disabilities, are more adversely affected by future school closures. There is a known gender digital divide in developing countries, with women and girls having less access to technological devices than boys and men; this may extend to television viewing equipment access.

Access is a complex area in educational programming. It can be divided into two areas – **technological access** to broadcast signals and the equipment to view it, and **equity and inclusion** issues which require us to make sure that all students, regardless of their gender, geographical location, learning ability or any other factor, have the same opportunities for effective learning with edTV.

Technological access

Nearly all corners of every country receive broadcast TV signals, but where they do not it is the responsibility of the relevant ministry to address regional differences and make alternative arrangements for remote teaching with edTV.

Capturing data on who is accessing edTV is challenging, as it is a one-way medium. You may be able to access this data through your broadcasting partners but data on which learners are watching which programmes can likely only be gained by carrying out surveys and getting feedback from students, parents and teachers. Your data collection should target remote areas to understand any challenges that students have in receiving TV signals or in having access to TV sets to receive the broadcasts.

Your national broadcasters may already have information on where their signals are not received. If you discover that certain areas are not able to receive the edTV broadcasts, there are a number of steps you can take.

A useful resource on measuring access

UNICEF offers guidance and a question bank to support surveys for monitoring distance learning during school closures. It is intended for anyone who is considering monitoring the reach and effectiveness of distance learning modalities, including technology-facilitated and blended learning modalities, through surveys of parents/caregivers, children/students and/or teachers. The guidance is divided into five key steps, with guiding questions, points for further consideration, and examples of good practices in monitoring and more generally in survey design. Accompanying this guide is a question bank, which provides sample questions to understand children's, parents' and teachers' experiences with distance learning.

The guide is available at https://www.unicef.org/rosa/media/12571/file/Monitoring%20Distance%20Learning%20During%20School%20Closures.pdf

Reflection Point

Consider these actions to provide technological access

- Work with your technical professionals to see what can be done to boost signals.
- Look for local narrowcasters (TV operators who deliver locally via cable) who may be able to provide edTV to areas where national services cannot reach. In Argentina, the television broadcasts premiered on the public channels are then also transmitted locally by private, provincial, university, cooperative and community channels.
- Make provision for children who cannot access edTV lessons. This may include providing educational content in another medium, such as workbooks, or using a different technology for the video medium, such as providing edTV on DVD or through community viewing centres.
- If children have internet access, you can also offer your broadcasts via YouTube or other online streaming services, as they do in Rwanda on the Rwanda Education Board e-learning channel.
- Be innovative! In Kenya, in order to provide wider internet coverage to all students and families, the Kenya Civil Aviation Authority (KCAA), in partnership with Alphabet Inc. and Telkom Kenya, has used Google's Loon Balloons floating over Kenyan airspace carrying 4G base stations. Loon is a network of stratospheric balloons that provide internet connectivity to rural and remote communities. The high-altitude balloons in the stratosphere create an aerial wireless network with up to 4G-LTE speeds. A single balloon can provide internet connectivity across an 80 km-diameter area. Users connect to the balloon network using a special internet antenna attached to their building and students can stream edTV programmes as well as access the internet. (Note that in January 2021, Google announced its decision to cease the Loon programme.)

Equitable access

Planning the programming to be diverse and inclusive improves equitable access which means everyone can learn from the programming regardless of who they are or where they live. There are obvious things you can do, such as providing edTV programmes in local languages, adding subtitles and having a co-presenter signing for children with hearing impairments (see Peru's *Aprendo en Casa*). It is a good idea to have a small team of teachers and ministerial officers responsible for accessibility who know what needs to be done and make sure it happens. There is an excellent guide to accessibility in television from the International Telecommunications Union (ITU).[14] In Spain, resources for teachers are made available online to guide teachers on attending to diversity and supporting children with special educational needs, including learning difficulties, but also for children with high intellectual abilities.

Widening the scope of 'teachers' who present or support lessons is one way to increase diversity and inclusion. Varied expertise can add diversity, by (for example) bringing in musicians, healthcare workers or photographers to support teachers in providing real-life lessons to students. Inclusiveness can be achieved through lesson presenters being women as well as men, teachers who have disabilities, and people from different ethnic or cultural groups. By providing subtitles in languages used in a country, this programming can be made more accessible and equitable (Lao PDR). Further work is needed in this area to see if a positive trend is produced by edTV programmes which talk with, rather than depict, people with these conditions and disabilities.

Even when children have physical access to view edTV, they may miss broadcasts if they are required to work to help support their families. Rebroadcasting repeats of the programmes at different times of the day can help with this, although limited airtime may be under pressure when you are trying to provide critical subjects for all grades. EdTV can also be made available via Ministry websites, on YouTube or other streaming video sites.

Your access and inclusion team will need a range of skills, including a gender adviser, people with experience of providing education for learners with disabilities and special needs and people who have designed and developed programmes using technology for those living in remote and rural areas. You may find these in your department for non-formal education. You may also consider involving your ministry of women and gender affairs as well as special needs professionals in your ministry of education.

Equitable access

Remember that providing an equitable service does not mean providing the same service to everyone regardless of their needs – it means providing additional support to students who need it so that they have the same chance of successful learning.

Positive perceptions

Ubongo Kids and Sesame Street introduced characters who have medical conditions or are differently abled, covering autism, albinism, HIV-AIDS and physical disabilities. Studies discovered that this promoted positive perceptions of people with those conditions and abilities amongst viewers.

A useful resource on inclusion

Pivoting to Inclusion: Leveraging lessons from the COVID-19 crisis for learners with disabilities is an excellent World Bank resource on lessons learned in providing for learners with disabilities.

The document is available at: http://documents1.worldbank.org/curated/en/777641595915675088/pdf/Pivoting-to-Inclusion-Leveraging-Lessons-from-the-COVID-19-Crisis-for-Learners-with-Disabilities.pdf

Rwanda

Providing for learners with disabilities

The Ministry of Education (MINEDUC) and Rwanda Education Board (REB) are providing for learners with disabilities by integrating Universal Design for Learning principles into their edTV provision, for instance by ensuring that sign language interpretation is included in edTV programming, which is offered via YouTube. They produce educational resources in Braille and make digital readers accessible for children who need them.[15]

Reflection Point

Consider these actions to provide equitable access

- Make sure that all your collected data is sex-disaggregated so that you can analyse the use of edTV by both boys and girls at all ages. Look for trends where there is gender imbalance and research further to find out why.
- In geographical areas (this may be a school district or even a single school) where you find that some students are being excluded, work with the head teachers and district officers and even community leaders to understand the cause of the exclusion and take steps to mitigate it.
- Work with special education institutions and teachers to collect data on children with special educational needs.
- Ensure all edTV programming is developed following the principles of universal design for learning.[16] Remember to make TV schedules accessible in multiple formats so that persons with disabilities can access them.
- Prepare guidelines for special provision for students with additional needs for head teachers and teachers. You can access resources on accessibility in television from the ITU.

5.2

Quality and support

Increase interactivity by integrating TV with other media

The effectiveness of television programming will be improved by supplementing it with additional material, often in print, but also via other media. Teachers have a vital role to play in this: in Bangladesh, teachers assign homework to students as part of their edTV programming and students are expected to submit this once schools reopen as this forms a part of their continuous assessment grades. In Argentina, teachers have developed workbooks for students and families with no access to television. In Spain, the Ministry of Education has partnered with the main educational publishers to provide materials to complement the broadcasts. Such material can also be used to enhance effectiveness of television programming. In addition, text messages can be used as simple and cost-effective ways to share schedules/reminders with beneficiaries and to encourage them to use the programming or share feedback. In Mauritania, take-home learning packages are provided along with radio and TV programmes because only 37% of the poorest households have access to a radio, and fewer than 1% have access to a TV.

Many countries have an online platform which gives information on TV schedules and access to other resources such as online learning and text-based learning materials for download or use online. Examples can be seen in India, Peru and Croatia. These websites are a useful central resource for remote teachers, learners and parents.

A useful resource on improving video quality

This guide prepared by the Regional Office for South Asia aims to help users assess existing videos and improve the quality to create more inclusive and interactive content. Specifically, it provides a checklist for the video materials.

Guidance on Optimizing the Effectiveness of Video and Television as a Medium for Teaching and Learning. UNICEF Regional Office for South Asia.

Reflection Point

Consider these actions for increasing interactivity

There are several strategies you can employ to strengthen student engagement and remote learning when designing edTV programmes:

- Increase interactivity by integrating TV with other media, e.g. community radio, printed workbooks and social media.
- Use social media or phone lines for live Q&A sessions after a broadcast.
- Address questions from the previous broadcast if you have live programming.
- Assign individual work after TV lessons. This can be submitted to teachers by digital means or transported to them by healthcare volunteers.

Support teachers to improve learning with edTV

Teachers are the drivers of effective student-centred learning, not just the technicians who deliver a curriculum. It is important to make sure that they are not over-burdened with administrative tasks during remote teaching or else they will not be able to adequately support students.

Peru

Reducing administrative load on teachers

Successive levels of administration started requesting reports from teachers, from the national education ministry, through the region and down to the local education unit. The administrative burden became so much that the teachers' union lodged a formal complaint. The ministry reacted quickly and adjusted the requirements.[17]

As with all new approaches, **teacher professional development** is critical to the successful integration of edTV into both remote and classroom teaching. Teachers can be supported to leverage edTV lessons in their teaching through existing teacher professional development programmes. In the longer term, this can be addressed in curriculum reform in pre-service teacher education to improve resilience of the education system by developing a cadre of teachers who can teach effectively with technology.

For educational TV to be truly effective, teachers need to build on the advantages offered, which include scaling up opportunities for standardized instruction, facilitating differentiated instruction, expanding opportunities for practice and increasing student engagement. By integrating edTV with other media and channels, teachers can improve the interactions they have with students.

In the remote classroom using edTV, teachers have no direct contact with students during the lessons, but there is a lot they can do to supplement the lessons and support learning using additional channels. These might include:

Printed learning resources to accompany edTV programmes

Setting up SMS, WhatsApp or Telegram groups on mobile phones to send text and audio messages

Phone contact between teachers and students

Providing advice and resources to parents and other caregivers who can support learning in the home

Viet Nam

In Viet Nam, teachers produced printed learning resources, which they delivered to the homes of their students to supplement the national TV lessons.

Peru

In Peru, teachers communicated and provided feedback to students and their families through telephone calls, SMS and social media.

Timor Leste

Timor Leste offered a course to teach parents how to guide children's learning at home.

Another important support for teachers is to consider a stipend to cover data and airtime costs as they use their personal mobile phones for connecting and communicating with students, parents and school administrators.

Pastoral care is one of the hardest aspects to achieve when teaching remotely. Teachers provide a range of supports for their students, from ensuring that learning happens, to socio-emotional support and personal advice. This is particularly true for girls, for whom school is often the only place where they can seek advice. Ensure teachers keep channels of communication open with their students through whatever technologies are available. Support services can be made available alongside edTV through phone calls, social media and communications apps.

To support teachers in Bulgaria, the Ministry of Education and Science has developed a national electronic library of teachers (e-content repository), which publishes materials of pedagogical specialists for working in e-learning environments, including video lessons, training programs, innovative methodologies, tests, films, exercises, entertaining pedagogy and presentations. In Egypt, the Egyptian Knowledge Bank provides a similar range of learning resources in Arabic.[18]

Leverage existing programming and open education resources

Open educational resources – or OER – have emerged as an important component of remote emergency teaching. Now is a good time to expand your knowledge of OER. Your government has most likely signed up to the UNESCO Declaration on OER (2012) and some teachers are probably already using them. OER are learning resources freely available for use and adaptation, which enable teachers to access high quality learning content and adapt it for their own teaching and learning context. A list of repositories and sources of OER is offered in Learning Resource 2.

Look for existing content from countries where your language of instruction is the same. In Learning Resource 2 you can also find a list of video content in Spanish.[19]

A useful resource on Open Education Resources (OER)

Understanding Open Educational Resources is a useful guide prepared by the Commonwealth of Learning. It covers copyright and open education licences and it provides guidance on how to find and evaluate OERs.

Understanding Open Educational Resources is available at http://oasis.col.org/handle/11599/1013

Reflection Point

Consider these actions to identify resources

- Form a core group of teachers and/or curriculum officers in each subject at each level and support them to identify and evaluate open learning resources; provide them with internet access and time to carry out the search and evaluation.
- Look into providing access to these resources through your own national repository from your education ministry's website; make sure you have plans for low-tech access for schools with no internet access.
- Train teacher educators in the use of open education resources and consider including this in teacher education qualifications and CPD.

5.3

Assessing learning

It can be especially difficult to track remote learning and ensure that learning outcomes are being achieved through broadcast television because of the one-way nature of the medium. Every educator knows that formative assessment – receiving immediate feedback on assessment tasks – is a crucial element of learning.

During remote learning

The best people to monitor learning and assess learning outcomes are teachers. Under normal circumstances, they do this in every lesson and have a variety of techniques and systems to do it effectively. Under remote learning conditions, teachers need additional tools to help them, particularly if the only way you are reaching a majority of children is through edTV. You may not need all these steps or you may devise others that are more relevant to your country's context.

Introducing innovative approaches such as having students develop portfolios of evidence of what they have learned in TV broadcasts, can keep students focussed during edTV programmes, but this requires a good deal of coordination and development, as well as dissemination of additional materials to the homes of students. There is also a potential for inequity to surface, as not all students will have access to paper, pens and other tools that they will need.

In Bhutan, schools are using social media applications like WeChat or WhatsApp, where teachers assign students with specific chapters to read and a set of questions to respond to. Students are required to answer the questions and send an image of their answers back to teachers to assess.

Students in Peru were expected not just to passively view TV lessons. Each lesson was designed for students to do in their homes, interacting with their families and environments and using a portfolio of evidence to showcase their learning.

As schools re-open

Monitoring and assessing learning will be much easier once schools reopen, even if things have not returned to pre-COVID-19 models.

FURTHER DEVELOPMENT

Remote Learning Resource Pack 7: Assessment is all about formative assessment in remote learning programmes.

Reflection Point

Consider these actions during remote learning

- Your Ministry has probably already collected data from schools and districts regarding learning assessment. Read the assessment reports and understand the situation to inform programming decisions. Assessment may have continued during school closures or may have ceased if edTV was the main or only medium for reaching the majority of students.
- If learning assessment data is not available from some regions/districts, plan to collect this data as early as possible.
- Consider the additional channels available for students to complete assessment tasks, return them to their teachers and receive feedback. These may be low-tech options such as assignment drop-off and pick-up points at school or might include interactive technologies like social media and email.

Consider these actions as schools re-open

- Teachers should first focus on building community and getting a sense of students' learning levels, but also their emotional, and social needs.
- Once teachers have sufficient information about students' learning levels and needs, begin instruction with lessons that are fun and interesting, but are designed to reveal whether students have a good grasp of the key skills and concepts they need for that instruction. This kind of formative assessment is regularly used by teachers to find out where their students are in their learning journey.
- Teachers will need diagnostic tests to measure learning losses, which need to be done for each individual student in every grade. Engage with assessment and testing specialists to prepare the diagnostic tests needed to measure learning losses and work with head teachers and teachers to support their use. Collect sex-disaggregated data on what the teachers find.

5.3

Evaluating programmes

As with any new educational initiative, it is critical to collect data on planned and unplanned outcomes, including learning outcomes. The purpose of this is to make informed decisions about what works and does not work well, who is accessing your programming and who is not, and so on. A distinction can be made between pedagogical and non-pedagogical data. Of course, data collection in education systems involves many people. In Bhutan, schools across the country are collecting data on the number of students with access to the internet, smartphones and television, and they are feeding this back to the Ministry of Education.

A useful resource on monitoring and evaluating distance learning

This resource provides guidance on how to monitor different modes of distance learning, including TV, and also has a question bank to help in the development of surveys.

https://www.unicef.org/rosa/documents/monitoring-distance-learning-during-school-closures

Pedagogical data is collected to understand the effectiveness of edTV programmes and make corrections for improvement of the programming. It is provided primarily by surveying students, teachers and parents and establishing feedback loops between them.

Non-pedagogical data tends to be numerical and is used to understand what people actually watch and use. App downloads and website hits can be measured by online analytics. The number of viewers can be captured through surveys and student feedback as well as collected from TV operators.

Peru

Monitoring and evaluation

The Ministry of Education's (MoE) Monitoring and Evaluation Unit, with the support of the non-profit organization Innovations for Poverty Action, began monitoring levels of adoption and satisfaction for their *Aprendo en Casa* or 'I learn at home' programming with principals, teachers, and families through regular phone calls.[20]

Phone calls gathered data relating to *Aprendo en Casa*'s reach, channels used by students to access remote learning, and support from teachers to students. The results of the monitoring process are made available for anyone to access through an interactive website, promoting transparency. The Ministry team in Peru notes the importance of actively collecting *and responding* to feedback from the community and being sufficiently flexible to adapt when needed.

Reflection Point

Consider these actions on programme evaluation

There are many actions your team can consider. You may not need all these steps, or you may devise others that are more relevant to your country's context:

- Identify what data has been collected in schools, districts, provinces; who holds the data; and what analysis has been done. Obtain copies of reports or, if you can handle it, the raw data.
- Set up data collection surveys and methods. In Peru, they used telephone surveys, but email or online surveys could also be used, depending on your context. Check also with development partners, as they may be carrying out relevant surveys, such as this one from UNESCO, and may be able to share data with you.[21]
- Liaise with education officers at all levels. Take care to learn from the experience in Peru, where initially teachers and head teachers were asked for so much information from different levels of the education system (national, provincial and district) that there was a good deal of duplication and teachers became overwhelmed.
- Remember to design your survey instruments to collect sex-disaggregated data so that you can monitor equity from a gender perspective. You should also make a special effort to identify the accessibility of edTV by children with special needs as well as remote dwellers.
- Include gender advisers in this monitoring and evaluation team to ensure that sex-disaggregated data is collected and the views and circumstances of men and women, boys and girls are measured equally.
- Make plans to identify who needs access to the findings from your data analysis. The MoE M&E Unit in Peru noted the importance of not only collecting data on access and learning, but also responding to the information gathered. Analyse the data to identify any areas where remedial action needs to be taken and pass this information on to the Department responsible.

Level IV pupil watches educational programs on television, Bangladesh

Photo: UNICEF, Muhamed Khaliduzzaman

6

Managing your costs to achieve value for money

Television is one of the most expensive media to use for education, due to the number of highly trained production and technical staff involved as well as the dedicated equipment and transmission technology. Ongoing transmission fees can make edTV cost-prohibitive outside of emergency measures. However, as already mentioned, edTV can reach students who do not have internet access and can be important in achieving specific learning outcomes. There is a different cost-structure with educational technology and capital costs to start education broadcasting can be very high, so it is important to plan appropriately according to the funding available.

6.1

Transmission & distribution costs

Broadcasters, both national and local, work on a cost-recovery or commercial basis and charge for transmission of all external programming. Education programming is seen as an important revenue generating stream for broadcasters in many countries. The cost of transmission may have been provided by national or private broadcasters free of charge as part of the government response to the 2020 global pandemic, but this situation is unlikely to continue indefinitely.

In order to reach all students, you may need additional distribution channels such as video or USB. These forms of distribution can carry high costs as they involve physical transport to remote areas.

6.2

Programme production costs

Earlier it was noted that edTV programming typically falls into one of three types. Costs will be different for each type. Production costs vary widely and depend upon the complexity of the programme being produced and as the complexity of the production increases, so do the costs. In all cases there will be personnel costs which may be Ministry of Broadcaster staff or consultants. During post-production there will be editing costs and translation and dubbing costs if you need to make programmes in more than one language. Editing of subtitles and adding sign language will also add a cost.

Live programmes

This is when a teacher gives a lesson live from a classroom setting or TV studio. This can be a fairly low cost option in terms of production as simple equipment and fewer staff are required. There is no editing requirement.

Pre-recorded programmes

The cost depends on the licence. If you are able to source relevant open education resource under Creative Commons licences then this programming could be free. Some TV programmes carry high licence fees. Pre-recorded programmes may require some editing to contextualise to your curriculum or context, or even to add sign language. In these cases, there would be costs for editing.

Edutainment

Edutainment, which combines educational content in the form of entertainment, is likely to have the highest production costs as more people are involved such as professional presenters and characters as well as designers, animators or puppeteers. These programmes also need extensive editing which requires the hiring of edit studios and editors. It was noted in Section 2 that the Ubongo programme, which is broadcast in 31 African countries, reaches large numbers of children and benefits from economies of scale. This programme reports per-person, per-year costs of 1 cent.[22]

Costs

Costs of edTV production are dependent on the style of the programmes selected and the complexity of the content and presentation method. The more technical experts involved, the higher the costs – but likely the better the programme!

Revision studies while watching EduTV channel in Kenya

Photo: UNICEF, Brian Otieno/ STORITELLAH.CO

6.3

Economies of scale

EdTV benefits from **economies of scale** and this is an important cost consideration. Whilst the production costs for programming might be high, once TV lessons are developed, they can be used repeatedly for subsequent years, as long as the curriculum stays the same. EdTV can reach more children without a corresponding increase in cost per learner. This means that you can add substantial numbers of viewers to a TV lesson and the overall costs do not increase; the costs per learner actually decrease. Compare this to a school classroom, where there comes a point when you cannot add additional children to the class and have to have a new class, with a classroom and a teacher and all the other services provided in schools.

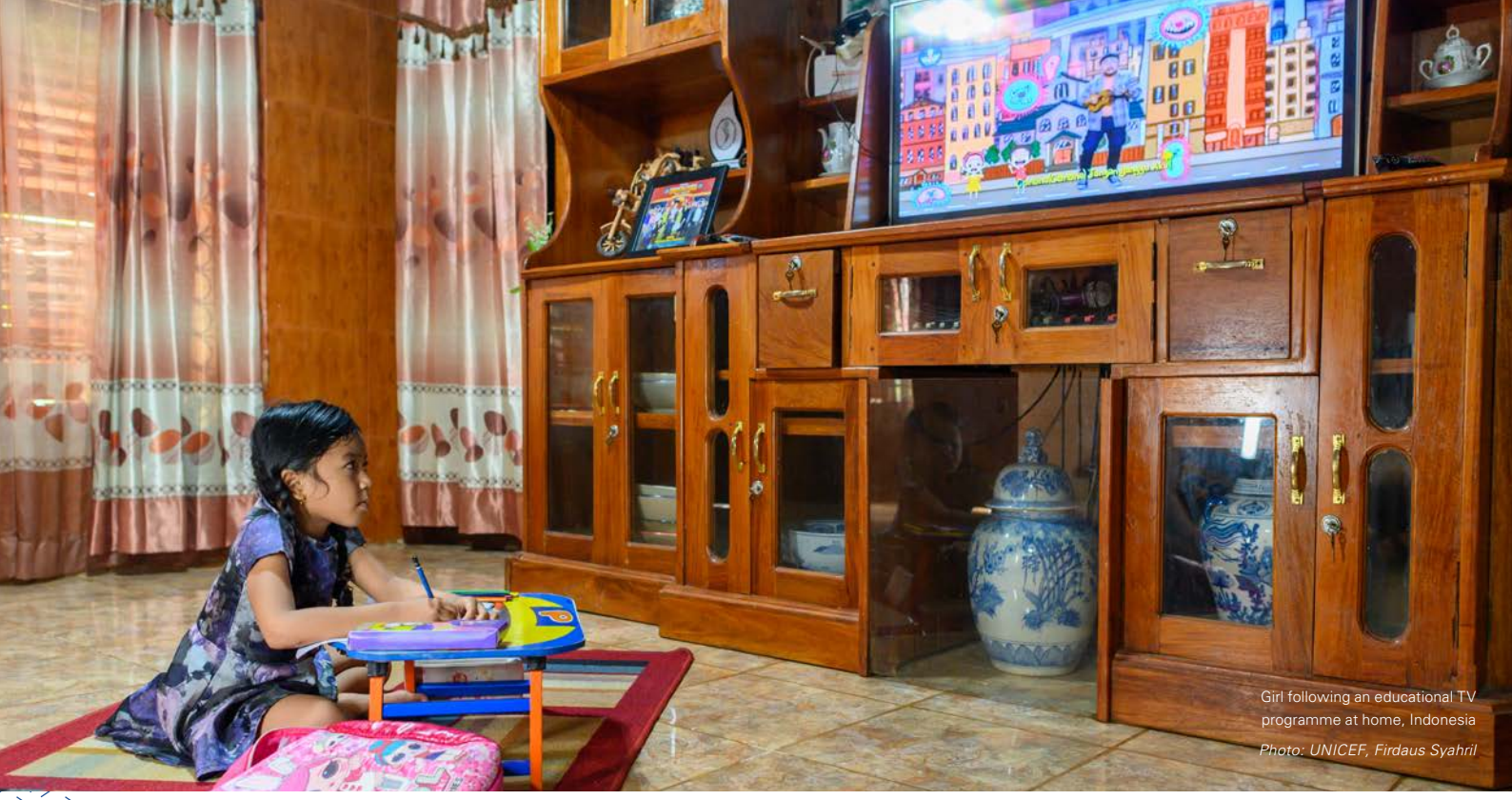
6.4

Supplementary materials and support

EdTV can be low on learner interaction unless additional channels are put in place. These could include phone-in response lines or make use of social media platforms. Any of these require additional people to manage student responses and channel questions to the presenters or programme producers and more people means increased cost.

There is also the cost of your communications strategy, which is part of this support. This includes sharing clear and updated information on schedules and programme grades and subjects with your audience. The cost of your communications strategy also has to be factored in as well as general information and PR about the edTV programming.

It is important to understand that edTV interventions with the lowest per-learner costs are those that provide only TV lessons and no other support or learning resources. These do not factor in teachers' salaries, which are a large cost-component.



Girl following an educational TV programme at home, Indonesia

Photo: UNICEF, Firdaus Syahril

6.5

User costs

Whether streaming video content online or through a TV, there are cost considerations for households as well as teachers. These include devices, data expenses (for streaming and/or providing support to students), and electricity costs. Creating partnerships with telecommunications companies to zero-rate site access for video content can help mitigate data costs. Other strategies to ensure lower-income students can access content could be to include data costs as an allowable expense in cash transfer programs or provide offline access to multimedia material, like in the example of Myanmar's DBE boxes.

6.6

Development partner funding

Education technology history includes examples of unsustainable experiments with donor-funded, system-wide edTV interventions in developing countries during the 1960s, 70s and 80s. The one thing literature on these early edTV systems provides is information on costs, which has been missing for studies published after 2000.[23] The early programmes demonstrated that edTV can impact positively on learning outcomes at a lower cost than classroom-based learning. Note, though, that nearly all these programmes (e.g. El Salvador, Cote d'Ivoire, Colombia, Niger, India and American Samoa) were not sustained when development partner funding ceased. EdTV programmes in Brazil and Mexico were sustained by government and continue to this day.

6.7

Post-COVID funding considerations

During COVID-19 responses to school closures, many countries received funding for alternative measures including edTV to ensure learning could continue. This funding may not be available in the future. There may also be reductions in the education budget as national economies have suffered a downturn due to the pandemic.

You should be careful of **hidden costs**, such as the cost of airtime provided by national or private broadcasters. They may have been provided free of charge as part of the government response to the 2020 global pandemic, but these organizations work on a cost-recovery or commercial basis and will ultimately need to charge for transmission and broadcasting. Another hidden cost to consider is the provision of **electricity in schools**. The cost of providing electricity during the global pandemic has fallen to parents, but when schools re-open, edTV will not be available in the many rural primary schools that lack power. Other forms of power provision will be needed such as solar or diesel generators.

It is beyond the scope of this resource to go into detail on how to cost edTV other than to say that your team will need to look at the comparative costs between providing remote learning through edTV and other educational technologies such as radio, print and online learning. And costs will need to be viewed in the light of effectiveness of the teaching and learning process and learning outcomes for students.

Mexico's *Telesecundaria* program provides an idea of cost considerations for your team. In terms of physical inputs, each school requires a building, TVs, a satellite dish and a receiver. The program itself is targeted at rural areas where secondary school access is limited, population density is low, and/or there are difficulties in resourcing the school (i.e. teachers).[24] Many of the schools therefore do not have reliable electricity and use alternative power sources, such as solar photovoltaic (PV) systems.[25] Cost considerations include future access to the national power grid, but also training for communities on maintaining renewable energy infrastructure.

Regarding content and human resources, there are initial investment costs to produce videos and recurrent costs to operate the schools (ie. teacher salaries).[26] The program is financed by the federal government with states receiving the funds.[27]

Overall, the cost per student in a *Telesecundaria* is lower than it would be to resource a standard school given the context described.[28] When conducting cost comparisons for a similar model, your team could consider the target districts or regions and how their contexts may change input costs.

A useful resource on costing open schooling

This resource from the Commonwealth of Learning speaks more broadly to costing open schooling programmes, not just edTV. It covers essential costing information. It is set out as a workbook with exercises.

Cost and Financing in Open Schools is available at http://hdl.handle.net/11599/42

7

Looking ahead

UN agencies are predicting that the events of 2020 will have a dire impact on economic growth, which will result not only in greatly reduced education budgets in the coming years, but also a strong possibility of reduced support from development partners for education. In addition, job losses and declining remittances will impact families' ability to pay school fees. All of these conditions point to an increasing need to 'do more with less' and existing relevant edTV content can assist with that.

7.1

Build resilient education systems that withstand shocks and emergencies

Education systems are vulnerable to natural disasters, the climate emergency, conflict and community-based infectious diseases. Learning from the Ebola breakout in West Africa in 2014 informed the response to COVID-19 and has shifted the debate from whether to adopt technology-enabled instruction to how technology can best enhance teaching and learning in school and at home.

EdTV has proved that technology can be mobilized quickly to meet a global pandemic in over 100 countries and could continue to form an integral part of any national education system to help increase resilience to future shocks and emergencies. This could be done by making edTV programmes available permanently through an on-demand system and ensuring that teachers are trained to integrate edTV in both classroom and remote teaching. Also, by integrating edTV with other digital media such as social media networks and communications as well as online and mobile learning. And let's not forget printed guides and workbooks.

Ministries of Education can consider using the extensive edTV content developed during COVID-19 beyond the short term as has proven effective in Mexico, Brazil, South Africa and Tanzania to name a few. It is important to have edTV programming curated and available in case of future school closures and not have to rush into emergency programme development as happened in 2020.

7.2

Support blended learning and catch-up when schools reopen

The rapid response to school closures resulted in over 100 countries developing edTV programmes. These are now an excellent learning resource which can be leveraged for use in the classroom, and to support catch-up programmes to mitigate learning losses that occurred while children have been at home. It is likely that when schools re-open there will be a more blended approach to teaching and learning which can benefit from using the resources developed during 2020 including edTV programmes. In blended learning, children may attend school for only part of the week but continue their studies at home for part of the week. Resource based learning using edTV and any other media which is accessible to teachers and students can be used to support blended learning.

Teacher supports local children watching 'School at Home' in Cote d'Ivoire

Photo: UNICEF, Frank Dejongh

It is possible to archive all education television programming on online platforms (e.g. edTV websites or YouTube channels) so they can easily be reused as on-demand content. Consideration will be needed on guidance and incentives for educators to integrate education broadcasting into lesson plans and blended approaches as schools reopen.

As schools reopen, plan for formative classroom assessment so teachers can adjust their instruction to their students' level and to provide constructive feedback to students, which is crucial for learning recovery. Large-scale assessment is best suited to support informed system-wide decision-making to support schools and students. This includes informing resource allocation to schools and students who need it the most even in the context of tight financial restrictions due to economic repercussions of the pandemic. Likewise, high-stakes examinations used for certification of studies or selection to the next level of education may need to be adjusted in the context of schools reopening.

Kenya

While schools were closed, the Kenya National Examinations Council planned a census-based national large-scale assessment to be administered immediately after schools reopened to help teachers understand students' learning status.

Child studying at home with educational TV channel EDU TV, Kenya

Photo: UNICEF, Brian Otieno/ STORITELLAH.CO

7.3

Provide for marginalized groups, especially out of school children and youth

There are not always sufficient places at upper secondary to meet the demand of a growing youth population who successfully complete junior secondary. This causes increasing numbers of young people to be 'pushed out' of the education system. New educational TV programmes developed in 2020 can be used to expand access to upper secondary through continued remote teaching with lower costs. A study of the open schooling programme, which provides printed guides, TV, radio and e-learning materials in Namibia showed that the same results could be achieved by their students at two-thirds of the cost of regular senior secondary[29]. EdTV programmes can also be used to support young people with challenges in physically attending school through being disabled.

Useful resources on reaching the most marginalized

This recently published guide by the UNESCO Chair for ICT in Development and EdTech Hub provides guidelines and reflections on the use of digital technologies to provide more equitable education. The guide is available at: https://edtechhub.org/education-for-the-most-marginalised-post-covid-19/

Also look at this guide from the UNICEF Regional Office for South Asia that focuses on the use of low- and no-tech modalities to reach the most marginalized. UNICEF Regional Office for South Asia. The guide is available at: https://www.unicef.org/rosa/media/7996/file/Guidance%20Continuity%20of%20Learning%20during%20COVID-19%20-%20Reaching%20All%20Children_UNICEF%20ROSA.pdf

India

Providing equitable access

Television initiatives can promote equitable access to educational resources, which was a key objective in Telangana state in India, where the edTV and other technologies are used to provide programmes for marginalized groups. Telangana Social Welfare Residential Educational Institutions Society (TSWREIS) is an autonomous body under the Scheduled Caste Development Department of the state government, which runs residential educational institutions serving 150,000 students (two-thirds are girls). Their model is to support students via mobile technology and edTV and includes teacher training and support to parents. Existing monthly TV programmes were expanded to more regular broadcasts. About 10% of students could not access broadcast TV and these were supported by phone calls from teachers as well as 3-minute video micro lessons recorded by teachers and distributed on USB drives.[30]

7.4

Address teacher shortages and absenteeism

Through the use of high-quality educational broadcasting, it is possible to provide national curriculum programming to remote schools where there are insufficient numbers of qualified teachers. This is also true for regions with high levels of teacher absenteeism. In Mexico, *Telesecundaria* students attend school every day and cover the same subjects and curriculum as traditional public secondary schools. However, the content is broadcast via television and students complete exercises under the supervision of a single generalist teacher instead of the usual eight or nine subject-specific teachers that other middle schools employ per grade. This helps to address conditions of teacher shortages, as well as reducing the per-pupil costs.

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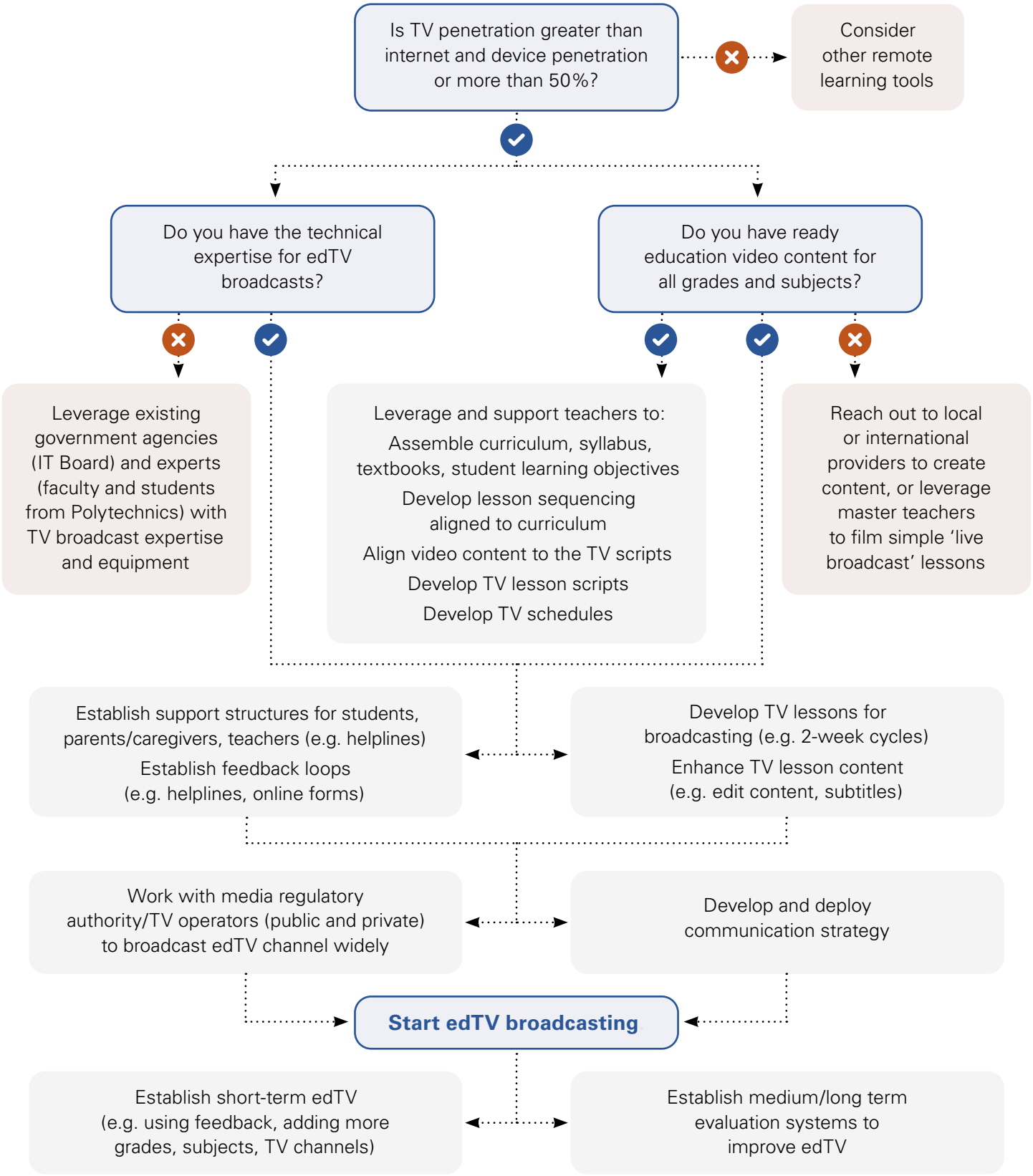
Learning Resource 1

Decision Tree for EdTV Quick Start



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Learning Resource 2

Television Open Education Resources – OER

ALECSO OER

- Hub on OER commons of Arab countries
- For all levels
- Various subjects; mostly Arabic
- ALECSO OER | OER Commons

Directory of Open Educational Resources (DOER)

- A product of the Commonwealth universities and educational institutions that provides OER for Higher Education, Open Schooling, Teacher Education, Technical and Vocational Skills Development
- Various subjects and learning levels
- English
- http://doer.col.org

Khan Academy

- Offers practice exercises, instructional videos, and a personalized learning dashboard that empower learners to study at their own pace in and outside of the classroom
- Online and offline access
- Mobile app available
- Mostly OER (CC-BY)
- Available in several languages (Listed in WB doc)
- Main subjects: languages, Arts, STEM, social studies and humanities
- https://www.khanacademy.org

OER Commons Videos for the Classroom College

- https://www.oercommons.org/curated-collections/570

Sabaq

- Pakistan OERs
- Provides video lectures that are focused on the Pakistani curriculum and delivered in simple Urdu so that the students can easily understand them. Their videos cover all topics in Islamabad, the Punjab, Sindh, Khyber Pakhtunkhwa and Balochistan education boards. All their video lectures are also available on DVDs.
- Urdu and English
- For K-12
- Variety of subjects
- Available online and offline
- https://sabaq.pk

Search engine: https://search.creativecommons.org

- Use this to search for available material

TedTalks

- Most of the videos are Creative Commons; however license may be required to show to groups (see policy: https://www.ted.com/about/our-organization/our-policies-terms/ted-talks-usage-policy)

Videvo

- Videvo offers free stock videos and motion graphics for use in any project. You may use these video clips free of charge, in both personal and commercial productions. Video clips that carry the Creative Commons 3.0 license must be attributed to the original author.
- https://www.videvo.net

YouTube

- Can search for Creative Commons material through filter

Learning Resource 2

OER Resources in Spanish

From Ministerio de Educacion Y Formacion Profesional. (2021). *Profes en casa* [Aprendo en Casa].

https://aprendoencasa.educacion.es/familias/profes-en-casa

Mathematics

- José Ángel Murcia channel: YouTube channel with videos on Mathematics content with a playful approach for Primary.
- Learning Mathematics with Malena: Malena Martín's YouTube channel with videos about Mathematics materials and games for Infants and Primary.
- Alfonso Educator: Alfonso González's Youtube channel with videos on Mathematics content for Infants, Primary, ESO and Baccalaureate. They are organized by levels.
- Juan Francisco Hernández channel: YouTube channel with videos on Mathematics and Physics contentfor ESO and Baccalaureate. EBAU challenges and tests are included.
- Javier Valdés channel: YouTube channel with videos on Mathematics and Chemistry content for ESO and Baccalaureate.
- Mates con Andrés: YouTube channel with videos on Mathematics content for ESO and Baccalaureate. It has a section of videos on the 2nd Baccalaureate syllabus. You can find a list of videos, organized by topic, for this course at this link.
- Miguemáticas: YouTube channel with videos on Mathematics content for ESO and Baccalaureate.
- Gervafernández channel: YouTube channel with videos on content of Mathematics and other scientific areas for ESO.
- Mates by your side: Manuel Domínguez's YouTube channel with videos on Mathematics content for 2nd year of Baccalaureate.
- Professor10demates: YouTube channel with videos on Mathematics and Physics and Chemistry contentfor ESO and Baccalaureate.
- Maths4Everything: YouTube channel with videos on Mathematics content for ESO and Baccalaureate.
- Derivating: Youtube channel of Eduardo Sáenz de Cabezón, with videos to learn Mathematics in an enjoyable way for ESO and Baccalaureate.
- Mathematical pills: YouTube channel with short videos on contents of ESO and Baccalaureate.
- lasmatematicas.es: Juan Medina Molina's YouTube channel, with YouTube videos on Mathematics content for ESO, Baccalaureate and University. Another channel of this same professor where you can find more videos about Mathematics is Shurprofe.
- I learn: YouTube channel with videos about Mathematics, Physics and Technology content for ESO.
- Las Mates de Mila: YouTube channel of Mª Milagros Puerta with videos on Mathematics content for ESO and Baccalaureate.
- Mathematics without more: David Armenteros web page, with videos on Mathematics content for ESO and Baccalaureate. They are organized by levels.
- Aprendemanía: YouTube channel with videos about Mathematics (and other subjects) for ESO and Baccalaureate.

Language

- Ameicuentosanimados: YouTube channel of the World Association of Early Childhood Educators (AMEI-WAECE) with stories and many more resources to educate. For Infant and first years of Primary.
- Beatriz Montero storyteller: YouTube channel with stories and other audiovisual resources for Infant and first grade students.
- #Lenguaen3minutos: Youtube channel of Domingo Chica Pardo with short videos on various contents of Language for ESO.
- Language with ICT enters: Quique Castillo's YouTube channel with videos on Spanish Language and Literature content for ESO and Baccalaureate.
- El Edén de los Cínicos: Pedro Moriche's YouTube channel with videos about Language and Philosophy content for ESO and Baccalaureate.

- Carlos López Morante channel: YouTube channel with videos on Spanish Language and Literature content for ESO and Baccalaureate.
- Pablo Poó Gallardo: YouTube channel with videos on Spanish Language and Literature content for ESO and Baccalaureate.

Geography and History

- The Cradle of Halicarnaso: YouTube channel of José Antonio Lucero with videos on content of History and culture in general for ESO.
- History in Comments: Carlos González's YouTube channel with videos on Geography and History content for ESO and Baccalaureate.
- Geles Fernández channel: YouTube channel with videos on Geography and History content for ESO and Baccalaureate.
- History Lessons: Rosa Liarte's YouTube channel with videos on Geography and History content for ESO.
- Academia Play: YouTube channel with videos on History content with a playful approach.

Philosophy

- Unboxing Philosophy: Daniel Rosende's YouTube channel with videos on content on Philosophy and Ethical Values for ESO and Baccalaureate.
- Reading History of Philosophy: YouTube channel of Fernando Puyó with videos about Philosophy content for High School.

Sciences

- La Hiperactina: YouTube channel with popular science videos, explained in a simple and enjoyable way.
- Plato's Robot: YouTube channel with videos on scientific content.
- Give Yourself a Volt: YouTube channel with popular videos on Physics.
- Quantum Fracture: YouTube channel with videos with animations on Physics, in a casual style.
- On the Road to Science: YouTube channel with popular videos that treat various scientific topics in an entertaining and fun way.
- FQ Experimentos: YouTube channel with videos with homemakers to learn Physics and Chemistry, Biology and Mathematics. For ESO and Baccalaureate.
- NPR's Skunk Bear: YouTube channel with popular science videos in English with Spanish subtitles. For Primary, ESO and Baccalaureate.

Physical education

- Teacher Mister Alonso: Youtube channel about English and Physical Education for Primary.
- Physical Education at Home: compilation of Physical Education videos for 1st, 2nd and 3rd grade of Primary, from the CRA La Abadía (Castilla y León).
- Lucía Quintero channel: YouTube channel with videos on Physical Education content for ESO and FP.

Music

- Jaime Altozano channel: Youtube channel with videos of various kinds about Music for Primary and Secondary Education.
- A little bit of everything ... Innovating in the classroom: Cristina Tormo's YouTube channel with videos on Music content for Conservatory, ESO and Baccalaureate.
- Musikawa: Antonio J. Calvillo's website with videos on Music content for ESO and Baccalaureate.
- DonLuMusical: YouTube channel with musical games, choreography, songs, etc.
- Little Mozart: YouTube channel with songs and resources for music education.
- Toni Gallart: Youtube channel with sheet music with visual reinforcement to help learn to read music.

Orientation

- Juan Morata channel: YouTube channel with short videos on study techniques, academic and professional guidance, etc.

TIC

- Raúl Diego channel: YouTube channel with videos on the use and operation of various applications and digital tools.
- eLMformación: YouTube channel with video tutorials of tools related to ICT in training and education.
- Youtube channels of OSI and IS4K: channels with videos on various issues related to Internet security.

Technical Drawing

- Arturo Geometría: YouTube channel of Arturo Montero with videos on contents of Technical Drawing for ESO and Baccalaureate. Also in English at Arthur Geometry.

Vocational Training

- Antonio Guirao channel: YouTube channel with videos directed at the Training and Labor Orientation and Business and Entrepreneurship modules.

English

- Super Simple Songs - Children's Songs in English: YouTube channel with videos with children's songs in English for Infant and Primary
- Classic children's stories in English: YouTube channel with videos that tell classic stories in English. Audio and text included.
- KidsTV123: YouTube channel with videos with songs in English for Infants and Primary.
- Oxbridgebaby: YouTube channel with videos in English for Infants and first years of Primary.
- Learn English with Emma: YouTube channel with videos about content in English for Secondary and Baccalaureate.
- BBC Learning English: BBC YouTube channel with videos on different topics to learn and practice English.
- TED-Ed: YouTube channel with educational videos in English on different topics. They include subtitles.
- Everyday Grammar TV: YouTube channel with videos on grammar content of the English language.

Various

- Aaron Asencio channel: YouTube channel with videos on content of Language, Mathematics and Natural and Social Sciences for Primary.
- Bea Cerdán channel: YouTube channel with varied videos organized by levels and / or subjects, for Primary.
- La Eduteca: YouTube channel with videos on various content aimed at Primary school students.
- Andújar Orientation: YouTube channel with videos with children's songs, stories, riddles and other resources for Infant and Primary.
- Happy Learning Spanish: YouTube channel with educational videos for primary school children.
- unProfesor: YouTube channel with videos on content belonging to different curricular areas for Primary and ESO.
- Unicoos: YouTube channel with videos on content of Mathematics, Physics, Chemistry, Technical Drawing and Technology for ESO, Baccalaureate and University.
- SciShow Kids: YouTube channel with videos in English about curiosities about history, science, etc. For Primary students.

Learning Resource 3

National Educational Television Programmes

From World Bank. (2020). *Remote Learning, Distance Education and Online Learning During the COVID19 Pandemic: A Resource List by the World Bank's Edtech Team (English)*. World Bank.

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Name	Country	Description	Age Grade	Format	Mobile App?	Language
Sesame Street	150 countries	Sesame Street is an educational children's television series that combines live action, sketch comedy, animation and puppetry. It is produced by Sesame Workshop. The program is known for its engaging child friendly programs communicated using Muppets characters, and includes short films, with humor and cultural references relevant to the country. The series first premiered in 1969. Now, contextual versions of Sesame Street are developed land aired locally in countries across the world.	Ages 3-5	TV, radio, online	Yes	English, Spanish, Portuguese, German, Dutch, French, Arabic, Japanese, Chinese, Hindi, Bangla, Dari, Pashto (Afghanistan), Afrikaans, English, Zulu, Xhosa, Swazi, Ndebele, Sesotho, Northern Sotho, Tsonga, Tswana and Venda
Ubongo	31 African countries	Ubongo leverages the power of entertainment, the reach of mass media, and the connectivity of mobile devices to deliver effective, localized learning to African families at low cost and at scale.	PreK-9 Ages 3-14	TV, radio, online	Yes	Kiswahili, English, Kinyarwanda, Thai, French Hausa
Aula Em Casa Amazonas	Brazil	Initiative of the State of Amazonas e Pará to support remote learning through TV (the Brazilian Amazon region has a long tradition of this, going back to the 1970s). The content is also available on its YouTube channel, and complemented with its online platform hosted on the ministry of education website.	6-12	TV, online	No	Portuguese
Chinese Network Education Television (CETV4)	China	China Education Television's CETV4 "Same Class" began its live broadcast on February 10, 2020 and has invited nearly 100 'famous' schoolteachers to teach the curriculum content across all levels of school education. It has committed to provide high-quality curriculum content to students throughout the country during the pandemic.	PreK-12	TV, online	-	Chinese
Swayam Prabha	India	Ministry of Human Resource Development (MHRD) has launched this group to run 32 educational TV channels on 24x7 basis. CIET, NCERT disseminates curriculum based educational TV programs for students and teachers. These channels are available for viewing across the country using DD free dish set top boxes and antennas. The channel schedule and other details are available on its website.	6-12 Higher Education Teachers	TV, online	Yes	English, Urdu
TV Edukasi (Teleisi Pendidikan Indonesia)	Indonesia	TV Edukasi (Education TV, formerly TVE) is an Indonesian television station owned by Ministry of Education and Culture (MoEC). and began in 2004. Currently TV Edukasi has two channels: channel 1 for students and channel 2 for teachers. It is managed by Pustekkom, a semi-autonomous body under the direction of its MOEC.	K-12 Teachers	TV, radio, online	Yes	Indonesian, English
EduTV	Kenya	Edu TV is an initiative of the Ministry of Education (MoE) of Kenya in collaboration with Kenya Institute of Curriculum Development (KICD) and Kenya Broadcasting Corporation (KBC) to provide educational learning via free to air TV channels. KICD has been using Edu TV since 2016 to provide supplementary education aligned to the school curriculum. Lessons will be broadcast on the KICD owned channel called "Edu Channel TV". Schedules will be available on the KICD website. These broadcast TV lessons are also available on its YouTube channel called Edu TV Kenya.	1-8	TV, radio, online	No	Kiswahili, English

Name	Country	Description	Age Grade	Format	Mobile App?	Language
Korea Educational Broadcasting System (EBS)	Korea	EBS is the Korean public broadcasting organization that aims to inform, educate, engage, and enlighten people. Complementing public education in Korea, EBS is dedicated to ensuring accessibility and openness in education for all. It supports educational television program broadcasting across the country.	K-12	TV, radio, online	Yes	Korean, English
EduwebTV (TV Pendidikan)	Malaysia	The national education television organized by Ministry of Education of Malaysia.	K-12 Teachers	TV, online	-	Malay, English
TV Okey	Malaysia	TV Okey is a Malaysian free-to-air television channel operated by the public broadcaster, Radio Televisyen Malaysia. It is also being used to air education programs for students during the COVID-19 school closures.	1-12	TV, online	Yes	Malay
Telesecundaria	Mexico	This is the Mexican government's initiative that integrates different learning strategies focused on the use of educational television for secondary school students. It began in 1968 aimed at out-of-school students.	6-12	TV, online	No	Spanish
Athaqafia TV	Morocco	National television channel 4 named Athaqafia broadcasts educational lessons in Morocco. The Athaqafia channel is set to broadcast lessons daily according to the regular school curriculum. The lessons are also available on the digital terrestrial network TNT, Nilesat satellite, SNRT Live website and via a mobile application.	PreK-9 Ages 3-14	TV, radio, online	Yes	Hausa, French, Arabic, English
Arryadia TV	Morocco	Broadcasting and Television National Company (SNRT) has dedicated its sports channel named Arriyadia TV to also broadcast university lectures for students.	Higher Education	TV, radio, online	Yes	French, Arabic, English
Taleem Ghar	Pakistan	Platform that provides daily educational videos. Contents are classified by grades and subjects and are also downloadable (also includes an app).	K-12	TV, online	Yes	English, Urdu
CIFRA	Russia	The portal provides educational materials for self-study. Every week, new lessons will appear aligned with the textbook contents. Educational materials are organized in 6 subjects for students from grades 1 to 11.	1-11	TV, online	-	Russian
Ain channel	Saudi Arabia	Ministry of Education has organized Ain channel to be the education channel for all grades. Students can gain access to their classes through 20 Ain channels on TV and Ain's YouTube channel.	K-12	TV, online	Yes	Arabic, English
EduClan	Spain	This is a Spanish platform that offers digital learning resources for children between 3 to 10 years of age. This has been developed in coordination with the Spanish Ministry of Education and major players from the publishing industry. This content is also available on TV via 'Apredemos En Casa.'	PreK-5 Ages 3-10	TV, online	Yes	Spanish
UNIAN	Ukraine	"All-Ukrainian School Online" - lessons in 11 subjects for students in grades 5–11 classes. Classes appear on the schedule plate on a daily basis.	5-11	TV, online	-	Russian
Fairfax County Public Schools	United States	Fairfax Network in Virginia creates free programming for educators to use in the classroom. The programs are also offered free to public television stations and cable systems that serve school systems across the US. Program content covers a variety of topics across curriculum areas and grade levels, as well as exemplary instructional strategies to assist teachers with their practice.	K-12	TV, online	No	English

Name	Country	Description	Age Grade	Format	Mobile App?	Language
KQED	United States	KQED is broadcasting a California state standards-aligned educational television programming. This was developed to help schools and districts bridge the digital divide and provide equitable access to learning for all students at home, regardless of access to internet or computers. This runs on all weekdays.	PreK-12	TV, online	-	English
SCETV	United States	South Carolina ETV (SCETV) is the state's public educational broadcasting network. SCETV provides national and local educational programs to students at home (and classrooms during regular school days) via the internet through Knowitall.org, LearningWhy, and PBS Learning Media.	K-12	TV, radio, online	-	English
WCNY TV Classroom	United States	This is New York's edTV programme that provides lessons on the themes of ELA, math, science, health and physical education, history, and social studies.	K-12	TV, radio, online	No	English
WTU	United States	Washington DC Teachers' Union is partnering with Fox5, its sister station, FoxPlus WDCA-TV to air 30-minute lessons on television for students during school closures.	K-high school	TV, radio, online	No	English
Rawafed TV	West Bank and Gaza	The Rawafed educational portal is set up to achieve the goals of the Ministry of Education and Higher Education, and to support quality teaching and learning. Rawafed TV broadcasts educational lessons for students to support remote learning.	1-12	TV, online	Yes	Arabic, English


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