Libya’s roadmap for distance learning

2022

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List of abbreviations

EMIS	Education management information system
IADB	Inter-American Development Bank
MoE	Ministry of Education
OER	Open education resources
PPE	personal protective equipment

1. Document purpose

This document was produced in response to a request from the UNICEF Libya team that was submitted to the EdTech Hub Helpdesk in October 2021. The UNICEF Libya team requested that the EdTech Hub Helpdesk team contribute to the co-creation of an agreed upon roadmap for distance learning in Libya.

To achieve this result, the EdTech Hub Helpdesk team, with the support of UNICEF Libya, organized two workshops in November. The overall goal of the two workshops was to set in motion a collaborative process where the Libyan Ministry of Education (MoE), UNICEF, and the EdTech Hub Helpdesk team would work together to co-produce a distance learning roadmap which speaks to Libya's context and has high levels of buy-in from the relevant departments of the Libyan MoE.

A situation analysis workshop was organized first with the goal of developing a clear understanding of past and ongoing initiatives, as well as outline the bottlenecks related to distance education in Libya by bringing together the Ministry of Education's relevant departments to present their different engagement with distance education in the past years.

The second workshop's goal was to establish the ministry's distance learning priority area for the next 6 months, around which the distance learning roadmap would be developed. The participants in the prioritisation workshop were asked to discuss possible priority areas according to the following four criteria:

- Alignment with Libya's national objectives
- Feasibility and practicality
- Sustainability (the extent to which the priority area is a long-term objective)
- Suitability of distance learning to address the priority area

The priority area which was agreed upon in the workshop was developing a distance learning system that provides support to children in grades one to six in case of school closures. This priority area forms the starting point around which this roadmap builds its analysis and recommendations.

This document has three main purposes:

- To establish the rationale for Libya to focus on distance learning and the development of a distance learning roadmap

- To provide examples that can serve as inspiration for a distance learning strategic vision for Libya, including different types of distance learning interventions which the Libyan MoE could consider undertaking
- To suggest next steps for the Libya MoE (e.g., digital mapping, user research) to implement distance learning initiatives

2. Definitions

Because distance learning-related concepts sometimes have multiple definitions, we find it useful to indicate the definitions which will be used in this document at the outset.

In-person learning refers to a "traditional approach where teachers deliver curriculum to learners live and in person in learning centers" (↑UNICEF, 2022).

Distance learning, which is the focus of this roadmap, refers to a method of learning and teaching where instruction is provided synchronously or asynchronously to learners who are not physically present together in a classroom or academic institution, mostly for reasons that have to do with accommodating learners and / or teachers and / or as a response measure to an emergency situation, e.g., as a response to the Covid-19 pandemic. Distance learning, also sometimes referred to as remote learning, can be delivered through a number of different delivery channels, whether these be online learning management platforms, paper-based take-home packages, radio, TV, mobile phones, or devices that do not require internet connectivity (↑Muñoz-Najar et al., 2021; ↑UNICEF, 2022).

UNICEF employs the term **blended learning** to refer to the "use of technology within teaching in the classroom" (↑UNICEF, 2022).

Hybrid learning "encompasses both remote and in-person experiences in the delivery of education content … [and] is distinguished from blended learning, as defined above. … hybrid learning is amorphous — recognizing that at any given moment in any context, learning pathways and options to deliver learning opportunities will differ and change" (↑UNICEF, 2022).

Learning loss refers to the stagnation or decrease in learner achievement relative to expected performance attributed to the disruption of in-person schooling either due to seasonal factors (e.g., summer breaks) or emergencies (e.g., the Covid-19 pandemic) (↑Alban Conto et al., 2020; ↑UNICEF, 2022).

3. Why distance learning?

It has been estimated that Covid-19 school closures have affected about 1.6 billion learners, resulting in a learning loss of more than 1.8 trillion hours (↑UNICEF, 2021b, as cited in ↑Giraldo et al., 2021; ↑United Nations, 2021, as cited in ↑Giraldo et al., 2021). The learning loss due to Covid-19 is not only a serious issue during the pandemic; it is also a serious challenge which must be confronted in the future. A whole generation of learners could be deprived of $17 trillion (estimated in present dollar values) in lifetime earnings as a result of Covid-19 school closures (↑UNICEF, 2021a). In addition, the pandemic will prove testing to education systems in the future, because school closures have also resulted in close to 24 million learners being at risk of not returning to school (↑UNESCO, 2020a, as cited in ↑Giraldo et al., 2021).

Distance learning can provide remediation for learning loss (↑Dawodu, 2021; ↑UNESCO et al., 2021), but only if the challenge of providing equitable access to distance learning is confronted. Around the world, 31% of learners remain unreachable through distance learning, including the 1.3 billion learners who do not have access to the internet at home (↑Giraldo et al., 2021). Addressing the challenges posed by school closures requires that we think of solutions that help narrow the gaps in learning and digital access between the most privileged and the most marginalised learners.

Furthermore, distance learning can act not only as a remedy for the past but also as a preventive measure for the future. In the wake of Covid-19, distance learning can help in building back a better and more resilient education system by providing a means to deliver equity in education. This is not to say that distance learning on its own can solve all problems; it is to propose that distance learning can act as a scaffolding around which a whole society approach to delivering equity in education can be built (↑Unwin et al., 2020). Importantly, this roadmap aims to ensure that the Ministry has a plan in place in the event of complete school closures in the future and / or to reach out-of-school children.

This roadmap can serve as the first step to establishing longer-term distance learning approaches within the education system. It is our hope that this roadmap can provide an impetus to building more resilient infrastructures for education. Instead of thinking of distance learning as a ready solution to all education problems, this roadmap aims to be a catalyst, a first step to providing the appropriate “infrastructure for lifelong and lifewide learning” (↑Unwin et al., 2020). As such, the roadmap advocates for, and spells out the necessary steps to build, a flexible system which is continuously tested, readapted, and enhanced so as to continually improve learning (↑Unwin et al.,

2020), but without forgetting that there exists a concrete need for immediate steps to be taken to face the challenges which school closures engender.

4. Summary of the current situation and workshop findings

Due to concerns about the spread of Covid-19, schools in Libya closed on 15 March 2020, affecting at least 1.3 million students who were unable to attend schools but also to access various essential services, such as psychosocial support, which schools and non-formal learning centres provided prior to the closure (↑UNICEF Libya, 2020). UNICEF worked with the Ministry of Education to develop a Covid-19 response plan. As part of this response plan, UNICEF supported the Ministry of Education in developing distance learning sessions on core subjects and recording close to 2,000 classes, which reached about 90,000 children in 2020.

Additionally, UNICEF restored 31 damaged schools in 2020 and continued to provide the ministry with support to re-open schools. This support included awareness raising around infection prevention and control measures in schools, the distribution of personal protective equipment (PPE) in different parts of the country, and training 95 teachers on education in emergency situations, child-centered pedagogical practices, and school health. Furthermore, UNICEF made a conscious attempt to address the humanitarian needs of the most vulnerable children, providing non-formal education to more than 13,000 children, through a combination of in-personal and distance learning activities, and education supplies to more than 69,500 children (↑UNICEF Libya, 2021).

4.1. Main challenges

During the situation analysis workshop co-facilitated by EdTech Hub and UNICEF, participants formed smaller groups in which they discussed what they believed were the most important challenges to address before a distance learning system is successfully implemented in Libya. The results of each group's discussion were then shared with all the other participants. The following points summarize the findings of the workshop exercise:

- The lack of adequate infrastructure, resources and data, especially in remote areas, is the most important challenge which must be tackled, according to the consensus of all workshop participants. Some of the types of infrastructure or resources mentioned that participants felt

were particularly important for the development of a successful distance learning system in Libya are:

- Internet connectivity, which was unanimously viewed by the participants in the workshop as an issue that continues to pose a major problem for the establishment of a successful distance learning system in Libya. Some workshop participants mentioned the high price of internet subscription as an important challenge.
- Electricity, especially in view of the frequent outages during the period in question. Frequent power outages are also cited in the literature, with one assessment study finding that the average daily length of power cuts is about 7 hours (↑REACH, 2019).
- Digital devices, as teachers and students often lack sufficient equipment and do not have adequate purchasing powers to buy the expensive devices they need. Table 1 below shows the available data as to the proportion of people in Libya who have access to TVs, mobile phones, personal computers, and the internet. Table 2 displays devices' shares of web traffic, which can be taken as a rough proxy device ownership.

Table 1. *Difficulty in accessing devices.*

Type of Technology	Proportion of people with access
TV	76% (↑Musa, 2022)
Mobile phones	201%[1] (↑Musa, 2022)
Laptops and desktops	30-50% (↑REACH, 2019)
Internet	21.8%-73.8% (↑Kemp, 2021; ↑Musa, 2022)

[1] A total of 11,660,068 mobile phone subscribers; people tend to have two or more phones because the two main providers, Libyana and Almadar, have different signal strengths depending on where one is located (↑Musa, 2022).

Table 2. *Share of web traffic by device: a proxy for device ownership (↑Kemp, 2021).*

Device	Proportion of people with access
Mobile phones	80.7%
Laptops and desktops	17.6%
Tablet computers	1.6%
Other devices	0.09%

- Most participants mentioned that teachers' and students' competencies in the use of different types of technology are not at the required level. Participants stressed the importance of providing the training needed to increase efficiency in the use of technology. Participants considered that such training was needed to raise the competencies of teachers, students, guardians, and even government officials, and to increase the chances of success of the desired digital transformation.
- The workshop participants agreed that there is a wide-ranging disparity in teachers' knowledge of distance teaching methods. The importance of appropriate teacher training courses focusing on distance learning methods and strategies (including how to prepare digital lessons and electronic examinations) was highlighted as a significant challenge in the participants' discussions. This is in line with the limited data available: teacher surveys which were conducted only in the western part of the country indicate that only 40% of teachers had the necessary qualifications to teach, while the figure stands at an even lower 26% in the country's south (↑OCHA, 2021).
- The workshop participants generally agreed that there is currently insufficient financial support to implement a successful distance learning strategy.

4.2. Opportunities

Workshop participants saw the following points as presenting the most favorable opportunities:

- The government's commitment to implementing distance education, as evidenced by the establishment of a government committee for distance learning and the initiative to digitize the curriculum.
- The fact that teachers, students, and parents have access to the same kinds of devices.
- Government programmes and initiatives to train users in how to use technology for learning and teaching.

5. Strategic vision

This roadmap supports the Libyan Ministry of Education's vision to "provide equal educational opportunities and high quality for all members of society." Specifically, this roadmap's main priorities are:

1. Increasing access to primary and secondary education.
2. Improving the quality of primary and secondary education.
3. Strengthening the overarching education system in Libya.

In order for these priorities to be achieved, this roadmap recommends the following milestones, to be discussed and finalized with the Ministry of Education:

- By 2023, the Libya Ministry of Education will pilot a distance learning initiative targeted to children in grades one to six in three cities (Tripoli, Sebha, Benghazi; to be confirmed with the MoE).
- By 2027, distance learning will be mainstreamed across the country for grades one to six, enhancing children's access to quality learning opportunities in different settings.

Achieving these milestones would mean that the main priorities of this roadmap have been actualised. Not only would the Libyan Ministry of Education have built a better and more resilient education system, providing a means to deliver equitable, high-quality education; the Ministry would also have ensured that it has a plan in place to continue providing access to education in the event of complete school closures in the future and / or to reach out-of-school children.

6. Action plan

This roadmap's action plan is divided into two sections. The first section lays out the action plan's principles — the characteristics of the distance learning system which the Ministry of Education should aim for. The second section offers five detailed recommendations which form the most important concrete actions for the Ministry of Education to consider carrying out in order to realize the strategic vision outlined above.

6.1. Principles

The principles which inspire this roadmap's action plan are the following:

- Designing a distance learning programme around the selected educational priority (↑Adam et al., 2020).[2]
- Designing a distance learning programme which takes into account the digital infrastructure and the existing abilities (↑Khalayleh, 2021; ↑Trucano, 2010).
- Establishing collaborative system which facilitates work among the ministry's different departments (↑Al-Hindawi & Hashem, 2020; ↑Bangay, 2020; ↑Muñoz-Najar et al., 2021)
- Designing a flexible system that is tested and adapted continuously (↑Adam et al., 2020).

6.2. Recommendations

6.2.1. Gather crucial data

The first step to constructing a workable solution is to identify and unpack the problem. As part of this "discovery" process, it is recommended that the Libyan Ministry of Education conducts a mapping exercise to investigate the readiness of national infrastructure and users (both learners and teachers) in order to make informed decisions as to the modalities and / or platforms to use for the implementation of distance learning. This exercise could build on the information presented in Section 4 regarding access to technology and devices, which suggests that mobile access is most widely available across Libya. If possible, the exercise should break down the gathered data

[2] Since learners have different needs and face different challenges, focusing on inputs (for example, content and learning platform) alone is unlikely to be successful. A successful distance learning programme must take into account the users' needs, levels, and digital knowledge. Designing around a priority area also allows one to control for the user when testing the design and readapting it.

geographically and demographically (↑Haßler et al., 2020). Sample questions that this mapping exercise will help answer may include:

- How many children have reliable access to the internet?
- What percentage of schools have reliable access to the internet?
- To what extent does the population have reliable access to the Internet?
- What are the bandwidth limitations in different areas of the country?
- To what extent are laptops, tablets, smartphones, radios, televisions, etc. available for children to use?
- What are existing dedicated radio or TV channels for education? Which existing channels could governments repurpose for education delivery?
- Does the public education system already have one or more learning management systems (software for managing the delivery and administration of education programmes) in place? If so, which system(s)?
- What learning content do local governmental and non-governmental institutions have that is ready for distribution? What formats is the currently available, digitised content in?
- What open education resources (OER) exist that are aligned with, or can be aligned with, the national curriculum?
- What amount, if any, of distance learning-related teacher professional development have teachers already had?
- Are there communication tools in place to reach out to headteachers / principals, teachers, potentially parents or even students? (e.g., SMS portals, sending SMS via mobile network operators, Whatsapp groups, contact information database)

6.2.2. Based on the collected data, select modalities and / or platforms for distance learning

There are many ways to implement a distance learning programme. Table 3 breaks down these implementation modalities based on the kind of technology each uses, while Table 4 offers a comparison between Microsoft Teams, WhatsApp, and Zoom as potential softwares that could be used to enable distance learning. The Ministry of Education should consider both high-tech and low-tech solutions (e.g., radio or television for children who

don't have access to the internet) and select a modality of implementation based on the data collected previously during the mapping process.

Table 3. *Distance learning modalities (↑Burns, 2020; ↑Haßler et al., 2020; ↑USAID, 2020).*

Technology	Advantages	Disadvantages	Country Examples
Radio **Targeted Users:** low-income populations with no or very limited connectivity and limited technological resources	Most accessible in geographic reach and across age groups Low-tech requirements for users A radio-based distance learning programme can have a low per-student cost if it is developed as a multi-year programme (↑McBurnie, 2020a). It can also save on costs by using existing radio or mobile devices Easy to facilitate after basic training	Requires another means for monitoring learning (e.g., phone follow-up / caregiver check) Not accessible for people who are deaf, hard of hearing, deafblind, and some people with auditory processing disorders and autism	Cape Verde uses radio broadcasts in the form of dramas, lessons, and tutoring to reach learners on its 10 islands. Interactive radio instruction (IRI) is being used by "Honduras, Nicaragua, Papua New Guinea, Guinea, Liberia, Somalia, Cape Verde, Angola, Mozambique, Guinea-Bissau, Zanzibar, São Tomé e Principé, Mali, South Africa, India, and the Democratic Republic of Congo" (↑Burns, 2020).[3]

[3] For more examples, see exhibit 10 in this USAID review.

TV **Targeted Users:** populations with a high availability of TV but with internet access ranging from limited to none	Low-tech requirements for users; if a household already owns a TV there may not be extra cost Easy to facilitate after basic training Can be designed to be accessible to learners with hearing, sight, other impairments	Requires another means for monitoring learning (e.g. phone follow up/caregiver check) Less coverage in remote settings May require cable access Individualised instruction is not easy to implement	México's "telesecundaria" program offer curriculums "to rural junior secondary schools across México through a combination of in-class broadcasts, combined with text and discussions led by in-class proctors" (↑Burns, 2020). "Botswana Television (BTV) offers daily educational programming, primarily in maths and science, which reaches 90% of the country through its terrestrial transmitter and 100% of the country through satellite. Because not everyone in Botswana has the decoder needed for digital television, BTV still uses analog transmission" (↑Burns, 2020).[4]

[4] For more examples, see exhibit 11 in this USAID review.

Basic phone and SMS messaging **Targeted users:** populations with widespread but limited access to the internet	Can be non-electricity dependent Low-tech requirements for users Easy to facilitate after basic training Can integrate monitoring of learning Often used in combination with other distance learning modalities (e.g. radio, TV) Can be designed to be accessible to learners with hearing, sight, other impairments Phones appear to be better placed for basic literacy (phonics) than interactive TV and radio. Even where it is possible to teach certain topics via TV/radio, digital activities are advantageous for certain topics, such as hard-to-learn topics in mathematics	Most children in low- and middle-income countries do not have access to online learning Users are using small screens Users may not have good connectivity, especially in remote areas Extra cost for phone and / or internet Can be engaging but often limited to two-way conversations / texting	"In Niger, SMS have been used for literacy and numeracy instruction. South Africa has successfully pioneered the use of serialised m-novels via simple cell phones. South Africa's Institute for Digital Education offers mobile-based storybooks" (↑Burns, 2020). Commercial tutoring providers in Nigeria, Kenya and South Africa "offer real time video or SMS tutoring" (↑Burns, 2020).[5]

[5] For more examples, see exhibit 12 in this USAID review

Smartphone, tablet, computer **Targeted Users:** high-income populations with reasonable access to the internet and good device availability in the household, including some laptops	Can integrate monitoring of learning Can be designed to be accessible to learners with hearing, sight, other impairments	Least accessible in reach, access, and age of users (and most inequitable access) Dependent on electricity / charging (but it is worth noting that these devices can be used offline if local servers / offline functionality is set up) Extra costs may be associated with these devices Requires significant technology literacy / training	The Ministry of Education in Cameroon developed a platform to provide lessons to students in secondary education (↑UNESCO, 2020b). GoClass is a digital "platform for primary and secondary school students in Chad, created in April to assist continuity of learning during the COVID crisis" (↑UNESCO, 2020b). Darsak, the official e-learning portal of Jordan, provides video lessons for primary and secondary school students (↑UNESCO, 2020b).[6]

Table 4. *Select platforms for consideration.*

Platform	Advantages	Disadvantages	Country Example

[6] See exhibit 13 in this USAID review.

Microsoft Teams	Educational features provided, including assignments, whiteboard, raising one's hand, live closed caption, and learning management system (LMS) Integration Highly customizable Integrated with other Microsoft Office apps Secure Can work with other applications the teacher is familiar with like WhatsApp, but and can also stand alone	Requires continuous internet connectivity (↟Endicott, 2021) Uses up hard drive space Requires training of teachers and learners	In Lebanon, the Ministry of Education and Higher Education (MEHE) developed a Microsoft Teams online learning platform in response to Covid-19, but only 21% of learners used the platform (↟Chuang & Khalayleh, 2021). A number of education ministries in Asia (Vietnam, Tokyo, Taiwan, Thailand, South Korea, Malaysia, and the Philippines) have partnerships with Microsoft to "enable remote learning for millions of students during COVID-19" (↟Microsoft, 2020).
WhatsApp	Can be used effectively to increase the success of teaching and learning processes (↟Fadda et al., 2020). Seems to be favoured by the learners themselves (↟Fadda et al., 2020).	Content must be resent if it is to be seen by new users recently added to the WhatsApp group Collects a lot of metadata including personal information such as users' location, phone number and device ID (↟Williams, 2021)	WhatsApp has played an important role in many Indian states' distance learning strategies which were developed in response to Covid-19 school closures. "Some states also used WhatsApp innovatively. Himachal Pradesh partnered with a private organisation to launch a WhatsApp-based assessments chatbot

			to track the effectiveness of its digital interventions (Bansal & Bahri, 2020). In Rajasthan, the education department used WhatsApp to share with students every Saturday a quiz created in Google Forms via WhatsApp every Saturday to assess the week's improvement in learning" (↑Doraiswamy et al., 2020).
Zoom	Educational features, including session recording, student engagement tracking, LMS integration, captioning, keyboard shortcuts, one-click content sharing, real-time co-annotation, and digital white boarding Easy to use	Concerns about online security Requires training of teachers and learners	The Ministry of Education in Kenya has been using Zoom to offer education in response to Covid-19 (↑Ngware & Ochieng, 2020).
Telegram	Can be used effectively to increase the success of teaching and learning processes (↑Sari, 2017) Seems to be favoured by the learners themselves (↑Pereira, 2018)	Only provides end-to-end encryption for secret chats; does not offer end-to-end encryption for group chats and, chat backups (↑Abbas, 2021; ↑Williams, 2021)	In Singapore, Telegram was used by at least one university professor to provide students with direct help from the professor or one of the teaching assistants (↑Study International, 2022)

	Unlimited server storage (↕Abbas, 2021) Media compression (↕Abbas, 2021) A group capacity of up to 200,000 members (↕Abbas, 2021) Multi-platform support (↕Abbas, 2021)		
Kolibri	Allows learning to happen even without internet access (↕Learning equality, 2020) Designed to run on as many devices and operating systems as possible, including low-cost and legacy devices (↕Learning equality, 2020) Available in multiple languages, including Arabic (↕Koomar & Jull, 2020) Includes tools (such as a coach dashboard, exam creation, exercises, assignment of content for differentiated instruction, and a recommendation tool) which support self-paced learning (↕Learning equality, 2020)	Does not have materials for teacher education (↕Koomar & Jull, 2020)	In Honduras, digital learning resources from the Ministry of Education were supplemented by additional resources from the Kolibri Content Library (↕Learning Equality, 2020) In South Africa, some of Kolibri's content was aligned to the curriculum and made available online (↕Learning Equality, 2020)

	Upcoming development work that aims to enable learners to be agents of their own learning (↕Learning equality, 2020)

6.2.3. Establish working groups to oversee the design and implementation of distance learning initiatives

A successful distance learning programme requires organising the ministerial workforce in such a way that effective communication with teachers, parents, and institutional partners is possible. Establishing a core team within the ministry provides the necessary instrument of strategic guidance and oversight over the design and implementation of distance learning initiatives. It also provides a hub that the Ministry can make sure is set up with the necessary tools to oversee the design and implementation of distance learning initiatives. One of the working groups' responsibilities should be to agree on one-year goals for using EdTech in distance learning initiatives. We recommend that two working groups are set up:

- A Steering Committee, which is responsible for the following main tasks:
    - Meeting (at least) once every two months.
    - Taking responsibility for the overall distance learning strategy and establishing short-term priority tasks related to distance learning.
    - Reviewing the results achieved so far.
    - Assessing whether changes need to be made in light of the reviewed results.
- A Technical Team, which is responsible for the following main tasks:
    - Meeting (at least) once every two weeks.
    - Developing operational strategies to achieve the initiatives' objectives and track their implementation.
    - Formulating the next steps needed for the implementation of the initiatives in schools and communities.

6.2.4. Address other key components of the education system

Prioritize and establish one or more of the following initiatives, which cover some components of any successful distance learning programme:

- Teacher training

An education system is only as good as its teachers; "countries with successful education systems always have motivated, well-respected teachers" (↑Unwin et al., 2020). A successful distance learning programme has to make sure that teachers are trained in how to support and facilitate learning remotely, how to effectively use digital technologies in teaching and in formative and summative assessment, and how to utilise digital technologies to support their own learning and peer-to-peer communication (↑Unwin et al., 2020).

- Alignment with curriculum digitization

Curricular alignment is "the process of categorizing diverse digital materials… according to their applicability to curricular objectives within a given country curriculum" (↑Chandra, 2020). This is especially important for distance learning programmes that rely on digital materials which come from different sources and are organized based on different logics. In order for digital content libraries to become usable by teachers, the content has to first be aligned to the curriculum (↑Chandra, 2020).

- Parent / caregiver engagement

Parental engagement is a crucial aspect of supporting learning (↑Education Endowment Foundation, 2020). The greatest academic performance improvements have been observed in cases where schools engage parents and offer guidance on specific actions to take to improve children's academic performance (↑Axford et al., 2019).

- Education system management

An education management information system (EMIS) refers to any "system responsible for collection, maintenance, analysis, dissemination, and utilization of data in an education system" (↑Abdul-Hamid et al., 2017). An EMIS can be used as a tool to manage teachers and schools, to strengthen teaching and learning, to improve access to education data, and to analyse information to improve and optimise decisions and performance (↑Abdul-Hamid et al., 2017).

6.2.5. Monitor, evaluate, learn, and adapt (MELA) for continuous improvement

Monitoring and evaluation are two activities which are necessary for learning, adapting, and improving distance learning initiatives, but they are, strictly speaking, different activities. Monitoring is "a process that tells us what is going well or where we should pay more attention," while evaluation "refers to an activity that attempts to determine impact after implementation" (↟Kaye et al., 2020).

Kaye et al. (2020) mention some aspects of distance learning which can be monitored, alongside with questions that can be asked as part of the monitoring process for each area. These include:

- Usage: How often do learners use and engage with the resources?
- Learning: Are learning outcomes improving? What learning measures are you tracking and can show improvement or lack thereof in learning outcomes?

Monitoring is an essential component of a successful agile approach. Taking into account the findings of digital mapping and user research, the Ministry of Education, alongside its partners (including UNICEF), can use an agile approach to design pilots. Monitoring the implementation of these pilots would allow the Ministry and its partners to evaluate outcomes, reassess assumptions, and redesign so as to improve outcomes.

7. Next steps

7.1. Preliminary tasks

This roadmap recommends the following two measures as preliminary steps required before the development of a distance learning pilot:

- Draft a terms of reference for a consultant or firm who can conduct a digital mapping exercise to investigate the readiness of national infrastructure and users (both learners and teachers) in order to make informed decisions as to the modalities and / or platforms to use for the implementation of distance learning
- Engage a consultant or firm to conduct user research to give insight into how teachers are currently using technology or are accessing digital resources.

These tasks can be completed by UNICEF, in consultation with the Ministry.

7.2. Proposed timeline for recommendations

	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
	2022									
Preliminary tasks										
Draft a terms of reference for a consultant or firm who can conduct a digital mapping exercise (UNICEF with Ministry consultation)										
Engage a consultant or firm to conduct user research to give insight into how teachers are currently using technology or are accessing digital resources (UNICEF with Ministry consultation)										
Recommendations										
Gather crucial data (consultant / firm)										
Select modalities and / or platforms for distance learning (Ministry with UNICEF support)										
Establish working groups to oversee the design and implementation of distance learning initiatives (Ministry)										
Prioritize and establish one or more supplementary initiative(s) (Ministry)										
Monitor, evaluate, learn, and adapt (MELA) for continuous improvement (Ministry with UNICEF support)										

7.3. Potential risks and mitigating measures

A number of risks are inherent to the attempt to implement distance learning programmes. Table 5 shows the most significant risks which workshop participants identified and how the above recommendations map to these risks, acting as mitigation measures.

Table 5. *Potential risks and mitigating measures.*

Potential risks	Recommendations as mitigating measures

Digitization without facing the challenges which the digital divide poses can exacerbate inequity among learners (e.g., digitizing the curriculum without considering the needs of learners that are visually impaired; ↕Trucano, 2010)	Gather crucial data Prioritize and establish initiatives around teacher training, alignment with curriculum digitization, parent / caregiver engagement, and / or education system management Monitor, evaluate, learn, and adapt (MELA) for continuous improvement
Relying on a distance learning strategy that does not take into account the lack of infrastructure and resources can lead to an incomplete project that wastes valuable resources (↕McBurnie, 2020b; ↕Trucano, 2010)	Gather crucial data Select modalities and / or platforms for distance learning based on the collected data
A lack of coherence between the members of the different committees on distance learning within the Ministry of Education and between the Ministry of Education and other ministries can result in efforts being duplicated, wasting valuable time and opportunities (↕USAID, 2020)	Establish working groups to oversee the design and implementation of distance learning initiatives

8. References

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