

Lo-Tech Mobile Learning Toolkit

A step-by-step guide to designing mobile learning that will reach the most excluded through just SMS and voice

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1. About the Toolkit

WELCOME TO YOUR LO-TECH MOBILE LEARNING TOOLKIT.

This toolkit is for you if you, or the organisation you work for, are thinking about developing learning that can be delivered through the most basic mobile phone. Using a 'dumb' phone means your learning will be as inclusive as possible. Your learners might be based in remote settings such as refugee camps, field locations, or crisis-affected regions. They might have intermittent connectivity and only have access to a basic phone.

We encourage you to use this toolkit in a collaborative way, with in-country leadership, technical experts, and learners working together to design, test, and deliver mobile learning. Examples and templates have been made available as open-source documents for you to download and use. Follow the links in the text or the annexe.

Using mobile learning is a way to deliver effective and engaging learning methodologies to everyone. In this toolkit, you will be taken through the steps to design for the most basic lo-tech mobile phone that a learner will have. We will show that even a course on a basic phone can result in an innovative high-quality learning experience. Using just messages (short message service: SMS, also called a ‘text’ or ‘text message’) and voicemail (also called an audio recording) the learners will not need to have a smartphone, mobile data, laptop, or downloaded applications.



This toolkit is based on experience in a pilot mobile learning project, run by the [Humanitarian Leadership Academy](#) and [On Our Radar](#), funded by Save the Children Denmark, and delivered with the leadership of Save the Children staff in Bangladesh, South Sudan, and Yemen. This pilot tested using these interactive SMS and audio recordings with front-line humanitarian workers, using critical content about child protection guidelines during Covid-19.

If your learners do have access to data, connectivity, and smarter mobile devices there are lots of other engaging ways to deliver mobile learning. As part of the same project, The Academy did two other pilots. We tested using WhatsApp with Syrian refugees in Lebanon and WhatsApp and Facebook in Afghanistan. You will see a spotlight on these projects on pages [7](#) and [12](#).



 **Tip:** If you are interested in a project that uses more hi-tech software and devices then there are so many options for you too. Skip to our ‘What if lo-tech isn’t the right fit for you?’ section on page [11](#) to find links to other resources to help you.

2. Why use lo-tech mobile learning?

Technology can be a tool to help reach the most marginalised communities of learners. With two-thirds of the world population now owning a mobile, text and voice messages or calls serve as the 'common denominators'; almost everyone has access to them, and uses them frequently. It is perhaps as close to a universally accessible tool there is.

In a humanitarian crisis, the basic phone can be the last means of communication.

When the internet is compromised or cut off, or the cost of accessing the internet goes up, or people can't travel to meet face-to-face, sending and receiving SMS and voice calls remains a resilient tool for sharing learning and communication.

It takes extra effort to design for dialogue and participation:

Mobile communication systems have been typically built to share information at scale or request mass submission of information. Both designs overlook the magic of mobile - it is a tool for dialogue and participation. Yet, building a learning experience on a basic mobile that achieves this can be challenging. Particularly when compared to using something more interactive like WhatsApp or a mobile learning application. Still, it is a commitment in your design that is worth making.

Using mobile learning to localise humanitarian work.

One of the [Start Networks' seven dimensions of localisation](#) is building the capacity of local partners and organisations. Using basic mobile phones as a learning tool will make sure that smaller local organisations and staff from more marginalised communities can participate in and harness remote learning systems. Using mobile learning, you can quickly gather feedback and data about learners and their engagement. Blending technology with a conscientious human response gives you - the designer - the opportunity to learn more about the learner, their needs, and their context, to better inform your wider work.

There are still significant populations, communities, and individuals who struggle with access to technology. Not all your learners will have access to smartphones, internet data, network coverage, or electricity to charge. Even if you are designing your course for the most basic phone, your learners may still encounter barriers. In order for your mobile learning to work with these barriers, your learning design needs to work for and with your learners, for example, which networks, devices, and languages they access and prefer.



This is why this toolkit focuses on delivering lo-tech mobile learning through the basic phones most learners in humanitarian settings will have. This can be done using only SMS messages and voicemail, for learners without internet connections, smartphones, or downloaded apps.



3. Spotlight on Yemen, South Sudan, and Bangladesh:

Using lo-tech mobile learning with front-line humanitarian workers

On Our Radar worked with local Save the Children teams in South Sudan, Yemen, and Bangladesh to pilot using lo-tech mobile learning that only used SMS messages and voicemails - as close to universal access as you can get. It was explicitly designed to test reaching the most marginalised audiences in humanitarian situations - e.g. those who are unable to access the internet, do not have smartphones, and struggle with reliable connectivity. It would be impossible for such groups to access more mainstream options as they have neither the devices, the connections, nor, in some cases, the digital literacy levels required.

It used a mixture of messages and audio voicemails to train local community workers in how to respond to Covid-19. On Our Radar's Radius platform was used for sending and receiving messages which were organised into 'flows' and sent automatically. Telerivet was used on a single handset, meaning that sending and receiving of SMS could be done on a local SIM card. This toolkit will take you through the details of how to set up and run a similar project, but the three main things that the teams learnt were...

- 1 The importance of testing. There were performance issues with telecoms networks, and SMS delivery was inconsistent or delayed. A full test-run with a small cohort before launching to a larger cohort would allow for changes that might need to be made.
- 2 It takes time to contextualise and adapt your learning content so it works for both a short SMS message or voicemail, but also for the cultural or linguistic context in which you are working. The audio messages were also customised and recorded by teams and adapted into more dynamic, engaging, and conversational audio 'radio style' content.



PROS

SMS and Audio are probably the lowest common denominators when it comes to connectivity, and therefore, the mobile learning route that will reach the most number of people possible.



CONS

Accessibility comes at the expense of a better user experience. You have to work very hard to make the content an engaging and interactive learning experience (though it can be done!)

4. Is lo-tech mobile learning the right fit for your project

The beginning of your learning design starts by asking some key questions. These questions guide you to decide if the basic phone learning outlined in the rest of this toolkit is right for your project and your target learners.

The key questions to start your learning design can be in the form of learning needs analysis or based on the four critical areas for questioning below. Each of these questions in the table below provides you with a list of things you need to analyse and answer. Answering these questions will help you design the best, most engaging experience. Yet, if the answers suggest your target audience are better serviced with different types of mobile learning - e.g. they all have smartphones and laptops, high-speed internet, or are able to meet face-to-face regularly - then you might realise that basic phone learning is not the right fit.

Connectivity?	Capacity?	Comprehension?	Culture?
<p>Do you want to reach people who might not have access to the internet or may not have smartphones?</p> <p>Is there reliable connectivity (mobile network connection) in the areas where you want to deliver the learning?</p> <p>Are you able to do proper scoping of the connectivity - including the reliability of messaging across different mobile networks and the ease of topping up participants?</p>	<p>Will potential learners have access to basic phones?</p> <p>Are the devices their own or are they shared or controlled by someone else?</p> <p>Will it cost learners time (travelling to use someone else's phone or to an internet cafe for example) or money to use a phone?</p> <p>Do they have the financial capacity to engage or will they need money for top-ups to engage properly?</p> <p>Do they have the time in their day to engage in the mobile course?</p> <p>Do they have sufficient literacy to engage with SMS messages?</p>	<p>SMS and audio learning have to be delivered in small bite-sized pieces. Can the content be easily broken down?</p> <p>Is the content objective and informative, which can be shared by SMS and audio? Subjective content can require discussion which might not suit basic mobile learning.</p> <p>What languages would messages need to be sent in? What languages might participants choose to reply in?</p>	<p>Is your organisation ready to take on a tech project that requires budget and technical expertise, and may encounter unforeseen challenges?</p> <p>It can be wise to start a mobile learning project on a small scale, to get the flow, content, and connectivity</p> <p>When working with a new technology and different partners (such as a mobile network company) things will go wrong, plans will change, and there will be unexpected challenges. It is important that teams and participants are prepared for this to avoid loss of trust. Framing the early adopters - your first pilot learning - group as pioneers, with a job to spot and report problems, can be helpful.</p> <p>Are you close to the communities you want to work with? Is there an existing culture of co-production that you can draw on for this work? If not, establishing this technology here may prove challenging. Yet, if done well, this can be equally rewarding.</p>



Tip: See the MOOC Design Toolkit, pg 7-10, for a step by step plan on how to do a learning needs analysis. https://www.humanitarianleadershipacademy.org/wp-content/uploads/2020/02/HLA_QS_MOOC-Design-Toolkit.pdf



To download: A worksheet of this table for you to use [is provided here](#).

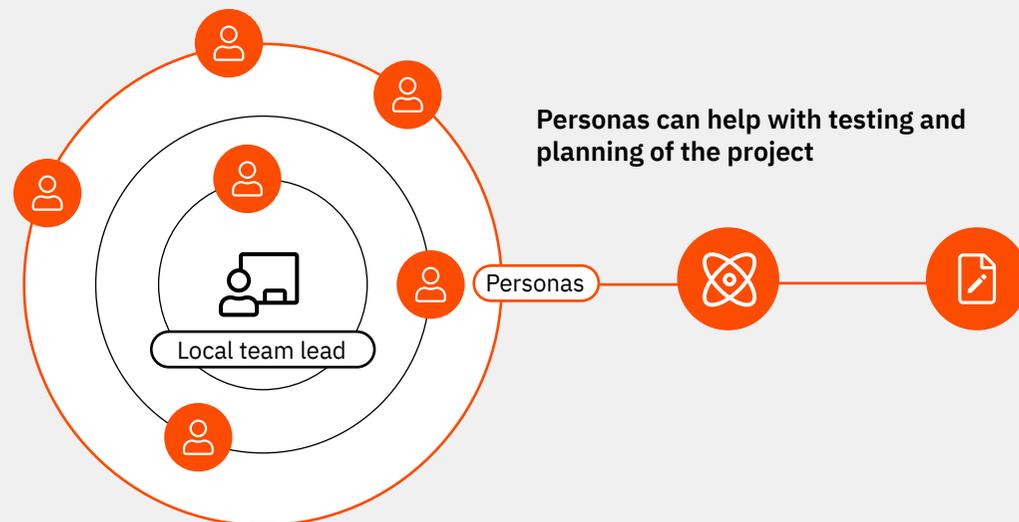


“In Bangladesh, we learnt lots from the survey we did as a learning needs analysis. We knew that some potential learners had smartphones and all used mobiles, but that many of them did not associate them with ‘work’ or training’. They were things they used for leisure, to listen to music, watch films, and talk to family and friends.

So whilst they had the devices and the connectivity, this would have been a big barrier to them engaging. So we set up a face-to-face session with potential learners to help them to explore how they could learn through their phone and build trust in this type of training. Now they love using their mobiles to learn. They send us pictures of them listening to their voicemails when they go to the gym, sitting with their families at home.

They are really enjoying that it is training they can do anywhere, when the time is right for them in their busy workday”

To really understand your learners and answer some of the questions above, community scoping workshops (if safe) or dialogues are ideal starting points. With community focal points or local team leads, it can be helpful to develop personas that depict your typical learner. These may help with the design but also with testing and planning of the project further down the line. These personas can help forecast some of the rough categories of challenges that learners might face, and the needs and opportunities that they might bring to the project. As you roll out your training, you can add actual user cases to the bank of personas for future design.



To download: A list of example questions that the team used in Bangladesh [that you could use in a workshop, dialogue or survey is provided here](#)



For a learner persona template, see pg 10 of the Academy’s MOOC Design Toolkit https://www.humanitarianleadershipacademy.org/wp-content/uploads/2020/02/HLA_QS_MOOC-Design-Toolkit.pdf

5. What if lo-tech learning isn't the right fit?

If you have now decided that lo-tech mobile learning is right for your project, after doing your learner needs analysis then the rest of the toolkit is for you.

After your learner needs analysis though, you might conclude that basic phone learning is not the right fit for your learner, project, or organisation. Your learners might have access to laptops, high-quality connectivity, smart mobiles, or other forms of technology. Mobile learning may not fit in with the other things they are juggling in their lives.

There are many other options for your learning that your analysis may point you towards instead: face-to-face workshops; an online learning website like [Kaya](#); smartphone learning apps, learning via messaging system (such as Signal, Telegram, or WhatsApp), interactive [chatbots](#), Learn Ink, which allows you to build a mobile learning course. More creative options such as [gamification](#) or [Virtual Reality](#), may be better suited also.

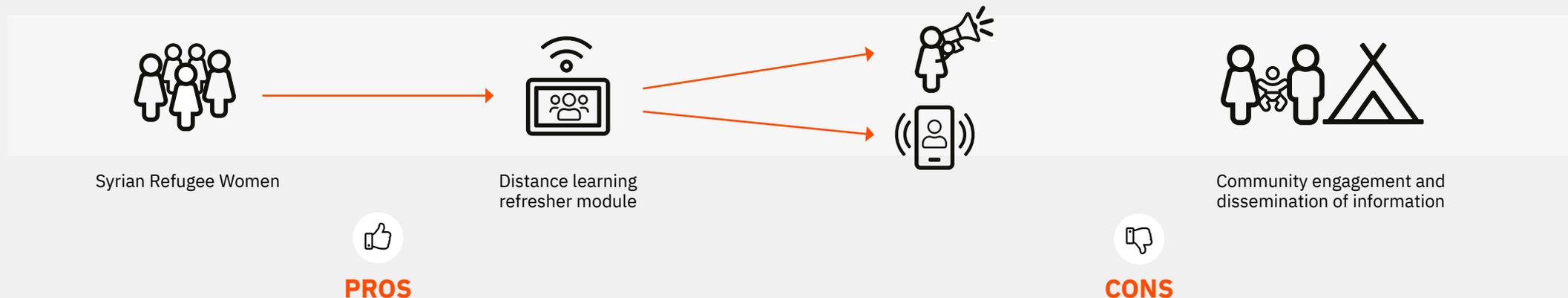
You might also think about blending your learning approaches. Mobile learning might not be perfect for what you want to do but could work well alongside other methods. Using lo-tech mobile learning may be a way to supplement another learning option to reach a wider audience and avoid excluding the more marginalised in your target audience.



6. Spotlight on Syrian Refugees in Lebanon: Using lo-tech mobile learning with front-line humanitarian workers

In Lebanon, The Academy worked with the Global Health Institute (GHI) to test how well WhatsApp could be used to reach Syrian Refugees. This project went beyond a lo-tech mobile learning approach, using a mobile phone app (WhatsApp) that requires that requires internet connectivity and a phone that installs basic applications. These communities were often excluded from more internet-heavy online learning that required expensive devices or data. Yet, most people did have WhatsApp on their phone and used it.

With misinformation about Covid circulating through the refugee population, and the population vulnerable to complications and hospitalisation, the team had to find a way to get information to people quickly. Many people already used WhatsApp, and importantly already used it to communicate with friends and families in the camp, so they could utilise existing community networks. The project worked with a set of women, delivering a learning programme for them through a WhatsApp group. With them trained up, they in turn then share vital health information about Covid, safe practices, and debunk myths within their own groups and connections, acting as multipliers of the messages.



The WhatsApp group was very quick to set up and was easy to use as everyone was familiar with it.

Learning materials could be in text messages, audio messages, images, and video. They also developed videos with subtitles and audio description so people with visual or hearing impairments could engage equally.

WhatsApp also allowed for conversation, so they were able to answer questions from community members who were worried about Covid-19. Participants told us they much preferred discussing topics and issues and these drove engagement rates.

The development of informational videos and infographics took time to get right and contextualise. They had a subject matter expert and a designer work together to create them.

Internet connection was sporadic due to network coverage.

People didn't always top up their data. This meant some messages took a while to reach the learners, so they had to plan for that.

7. Spotlight on Afghanistan: WhatsApp, Facebook and offline apps

Using lo-tech mobile learning with front-line humanitarian workers

In Afghanistan, the American University of Afghanistan ran a pilot to work with not just WhatsApp, but a variety of everyday applications to train people to share vital health information regarding Covid-19. They used a mix of WhatsApp groups and Facebook community groups, and offline software like Adobe Collections for the people who only had very sporadic internet access.

Whilst most people they wanted to reach were not familiar with online learning platforms, most used common online applications like WhatsApp and Facebook. Most families also had access to at least one smartphone capable of running these apps. The high cost of the internet data was a key barrier to people engaging, so it was vital the team produced content that used as little data as possible. Intermittent internet connectivity and electricity supply used to charge phones were other issues learners faced. Therefore, the team designed their materials to be easily downloadable so that they could be used offline or at times when phones could not be charged.

They used a similar approach to the work with Syrian Refugees, training a group of ‘community leaders’ to then distribute the information. Through this they had great reach, distributing Covid-19 materials, videos, messages, posters, and infographics into more than 20 different provinces in Afghanistan, in Pashto, Arabic, and Dari languages.

They also used an auto-reply application so people could get answers to the most common question even when the community leads were not online.



PROS

The WhatsApp and Facebook community groups provided the fastest way possible to get information into the community.

It allowed for immediate discussion, with the community leads moderating these and answering questions.

The auto-reply application they used meant that people could always get answers.

They used offline applications so people could engage in learning materials when they didn't have data or network coverage.



CONS

The high cost of internet data was a key barrier to people engaging.

Intermittent internet connectivity meant people couldn't always engage.

Intermittent electricity supply meant sometimes people couldn't charge their phones to engage in the programme.

8. Designing the learning experience

So if lo-tech mobile phone learning seems to be a good fit for your learners, great! The next stage is to plan the steps you will take to design, monitor, test, and evaluate the mobile learning project. From now on, the toolkit will focus on using SMS and voicemail on lo-tech mobile phones.



For a comprehensive model for learning design, see the ADDIE model used in the MOOC toolkit
https://www.humanitarianleadershipacademy.org/wp-content/uploads/2020/02/HLA_QS_MOOC-Design-Toolkit.pdf

Co-design with your learners

There are 4 main factors to consider when designing your learning experience for SMS and voicemail. You need to consider the device, the language, the learner, and the context in which you will deliver it. The adjacent table outlines this and set out the key questions you need to reflect on.

The more time you have to plan the better, as a minimum, someone with deep knowledge of the community settings should be driving the design, even if that means they are working on the basis of well-informed assumptions.

The more collaborative the design process is, the better. However, there are some stages that you can test internally - device testing and translations. For the third and fourth factors, 'learner' and 'context', make sure you test with potential learners or people in similar contexts. Let them know that their feedback is valuable and helpful and that these are essential steps before the course launches.

1. Device	You will be sending the content as SMS and audio voicemail, so all content will need to be in either SMS or audio format. Remember that you have character limits for SMS. You can send 'long messages' where several messages form together to make one message. However, there is no guarantee that they will arrive in the correct order due to different mobile networks.	Test internally
2. Language	You may need to translate the content. Languages with different scripts use a different number of characters in a message, so you will have a shorter character limit. For example, Arabic and Bengali SMS are a maximum of 70 characters. Numerals may be different, so when asking people to reply to a quiz or a question, recognise they may reply in Roman numerals (e.g. 1), another script, or even with the written word for the number (e.g. One).	
3. Learner	Adapting the content to the specific learning needs of your learners. Each group of learners might have different levels of experience or prior knowledge. Also their current work might mean they need to apply or use the learning in different ways in their day-to-day work. The more you tailor your content to meet your learners' needs, the more relevance and impact it can have.	Test externally with potential learners
4. Context	Recognise the wider context in which your learners are. Don't just translate into formal language. Use the dialect, tone of voice, and conversational phrases etc. that your learners are using. Think about 'who' the messages should come from and whose voice should be on the audio, or which characters they might play.	

Develop your objectives

It is now time to set your learning objectives. To have a successful learning project, you need learning objectives that clearly state what learners will achieve by the end of the course.

Learner responses at the analysis stage will help inform the objectives. Combine the following questions with learner analysis responses to set your learning objectives:



What should learners be able to DO by the end of the course?



What should they KNOW by the end of the course?



What/how should they FEEL by the end of the course?



Tip: With lo-tech mobile phone learning, you are limited by small amounts of content - like an SMS or a short recorded message - so you need to be very specific with your learning objectives. This means breaking them down into small pieces and being realistic about how much learning can be achieved with a small amount of content.



Tip: Start by setting learning objectives for the overall mobile course. After this, write objectives for each day or module for the course too. Make sure that the module objectives combine to reach the overall learning objectives.



Tip: Bloom's Taxonomy' is a useful tool that gives you a list of verbs to structure learning objectives. [See page 14 of the Academy's MOOC Design Toolkit](#)

Develop your content

Once you have your objectives you can then begin to select course content. The main question you want to ask here is: **What does the learner need to know in order to reach the learning objectives?**

Select the content sources BEFORE you start writing - the writing step comes later.

Designing for social learning

Even if your learners are not face-to-face, they are still on a learning journey together. Design and facilitate ways for this to be a social learning experience.

You can ask learners to reply with examples of what they have done with their learning and share these replies with the whole group. You could set 'action learning' tasks that give learners a chance to apply the modules to their work or community context and report back. This could include feedback, case studies, and stories from other participants showcasing what they have done with the training.

Adding a healthy dose of competition, or celebrating the most responsive learners can be motivating too, as can stretch tasks, to give learners something extra to aim for.



Here are 5 tips for your content selection process:



Adapt

Start by reviewing and selecting content that is already available in other forms - for example, in an online course, a PDF, a video or a webinar.



Create

If you are creating new content, plan where you will source the information and material from.



Participate

Involve your learners in the content development stage. Ask them what they need to know to achieve the learning objectives, and test content with them to make sure it resonates.



Contextual

Adapting the content to the context is crucial. Are there political, cultural, and social references that you should include, or remove?



Social

Remember that lo-tech mobile learning through SMS and audio is about so much more than just broadcasting information. Mobile learning at its best is conversational, two-way, and creative. Design opportunities for learners to be involved as collaborators, and to hear about each other's experiences.

Will you use SMS or Audio for your learning content?

If you are designing modules to be shared to lo-tech basic phones you have two options:



1

Send SMS



2

**Record audio to
send as voicemails**

Assuming both are viable tools in terms of access and literacy, you will need to decide what content will work best in SMS and which will work best in audio.

As you review, adapt, and create content, consider the literacy levels of your learner groups. Despite the shorter format, SMS still requires some level of literacy to engage. There might be spelling and grammar errors in learner replies which you need to predict or plan for. Some learners will find SMS very challenging and prefer to use voice only. Think about using an IVR system that uses keypad numerates for multiple-choice responses. There may still be numeracy barriers but these may be less than the literacy required for SMS.

The following table will help you decide what content is best to design as SMS, or as audio voicemail. These are not hard rules, so you will need to make judgments as you develop your course but they should help you decide which content will lend itself better to a short message and which to audio.

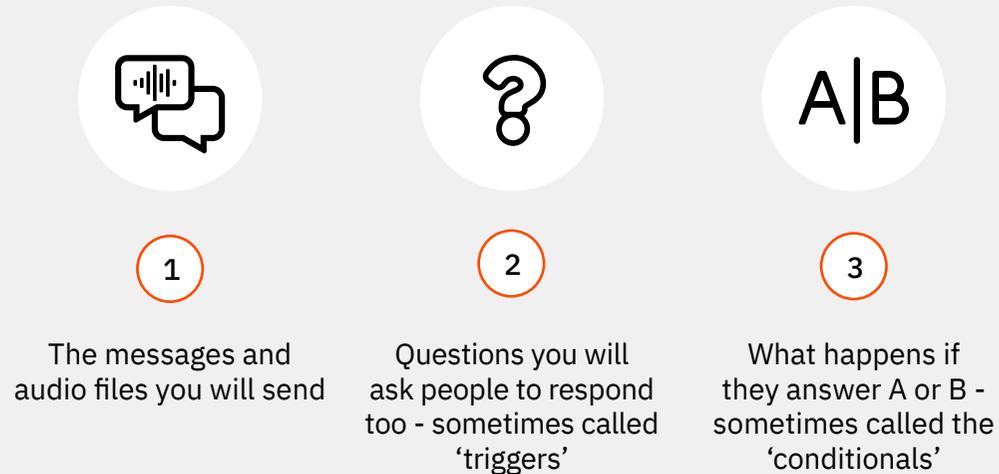
Type of content	What does this type of content do?	Is SMS or audio the right fit?	Explanation
Navigational content	Tells learners what to expect and when Prompts and encourages	SMS	Send by SMS because you can keep it short and instructional Learners are also more likely to keep these on their phone, although note that older phones have very low storage and can only store a few SMS
Summary content	Provides technical information and knowledge Summaries or key messages from audio or whole modules	SMS	Send by SMS because it can be broken down into short sentences Key information and raw facts fit easily into short message format of SMS If it is a very complex summary it may be better in audio
Substantive learning content	Provides detailed explanations Explores a topic in depth	Audio	Use audio because you can record a dialogue or conversation to convey the depth of the issue 30 seconds-3 mins is a good guide range for the length for an audio recording
Interactive content	Checks learners' engagement and understanding Reinforces the key learning points from the audio content Setting tasks or activities to apply learning	SMS	Send by SMS as it allows you to be interactive For example, ask learners for a text response and then reply again based on their answer For example, set a quiz with multiple choice SMS responses. For example, prompt learners call a friend, get someone else's view on a topic
Monitoring and evaluation content	Quizzes to check knowledge Rating of modules or content Feedback on the course and content	SMS and Audio	Send by SMS as it allows you to be conversational and ask questions. You can get quick, simple replies and find out the impressions people have of the content. Easy to ask for a rating out of 10 of their knowledge level or of the module more generally For qualitative responses you can also ask people to send you audio through a voicemail

Developing the automation of the learning journey

Once you have decided on your content and what format to send it in, you can now start to map this out into a flow.

A flow is the 'logical flow' of your course content. This maps out the order of the SMS messages and/or voicemail audio you will send.

You can design the 'flow' in a very simple diagram that consists of:



You will need a good flow mapped out regardless of which platform you might then choose to manage it on, so map it out first as a stand-alone piece of work.

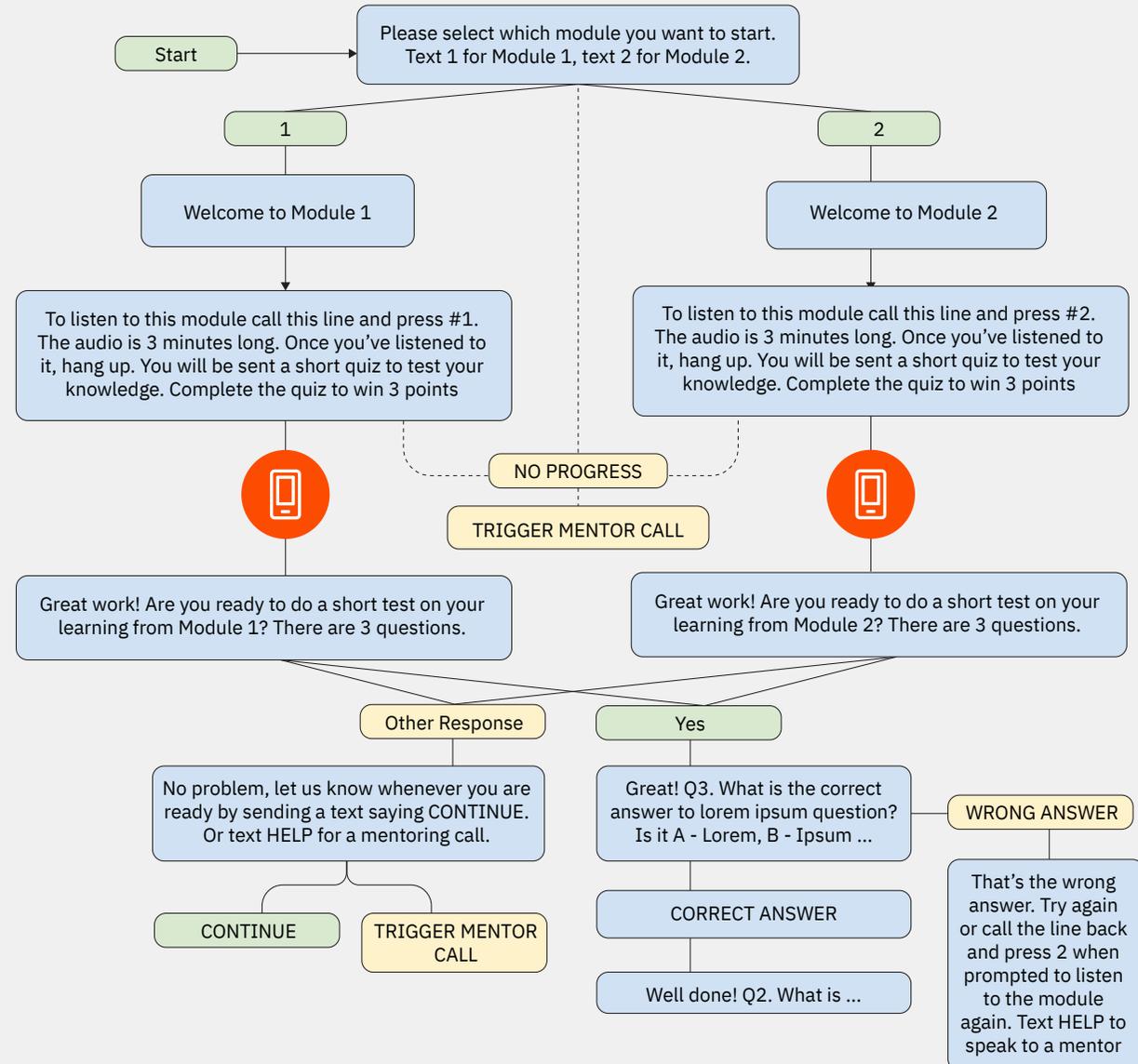
For example, you might map out the welcome message, then join it to the first message for module one. That message might then ask if people are ready to listen to the audio. Your flow then breaks into two. One for if they say yes, and the other if they say no. If they reply yes, then you send them the audio and so on. The example diagram illustrates this.



ON OUR
RADAR

www.onourradar.org

- Messages from Radius to participant
- Action required from dashboard user
- Messages from participant to Radius (Expected journey)
- Messages from participant to Radius (Diversion from expected journey)



When developing your flow consider:

- The order in which the SMS and audio will be sent
- The flow of the conversation you want to have with your learner - when do you want them to respond?
- The responses you will ask back from learner - is it multiple-choice, true or false, or an open question?
- What next SMS, audio those responses will trigger



Tip: Remember that SMS and audio do not have to be one-way, where the learning designer/mobile learning platform only sends and does not receive. Mobile learning can be interactive and creative. You can include questions and answers (Q&A) in your flow, source questions, and feedback from the learner group. You can set learner assignments or challenges, create tasks for learners to report back on, and develop quizzes to test learning.



Tip: Design for social learning

A big challenge when learning with a basic phone is the inability to do group work, compared to the ease of group connection online or on chat-based apps such as WhatsApp. Good facilitation of the learning, even with a basic phone, can still foster a sense of community around a learning group. For example, the facilitator can record a summary of the learner's answers or assignments that the group can listen to. This will give people a sense of the wider work being done. Setting challenges that result in a leading learner or ranking can help people to feel motivated and part of a bigger movement of learners. If your learners are genuinely offline then there is little you can do to make use of threads or group chat tools, but with good facilitation and planning, they will still feel part of a collective process.

Plan to track learner progress and success

Alongside your learning objectives and learning content, develop your monitoring plan. This plan will set out how you will know if a learner has achieved the learning objectives - will it be by a quiz, a task, a rating system, or something else? By planning ahead you can build this into your automation and flow. You do not need to wait until the end of the course to monitor learner progress - it might be something you add in at the end of each module.

You will also want to structure opportunities for learner feedback. You can build natural questions into the engagement flow to find out more about what people learnt, liked, or rated. Make it engaging and participatory and you will get rich data to use to adapt the course as you go along and evaluate the impact of the learning too.

9. Scripting your course

Now your content has been selected, you can start to script your SMS, and script and record your audio. Follow these steps for successful scripting.



[A full module of messages](#) and audio recording scripts are available here to give you an idea of what the finished content could look like

Writing SMS messages

Adapting your content for SMS might seem a tricky task at first. There are four factors to take into account.



Phone

Think about the most basic device your learner might be accessing the course on. Remember most basic phone screens are very small, so long messages will be hard to read and may be ignored. Streamline your language as much as possible, send one point per message. You have audio for longer content. Some basic handsets will also have memory limits so keep messages short in case learners have to delete some messages before they can receive new ones.



Messages

You will need to adapt for the character count. English language messages are limited to 160 characters. Separate the information so there is one point per SMS. Be very clear in your flow about what exactly you want to get across in each message.



Remember how small the screen is when you write your messages



Language

Languages that use non-Roman scripts such as Arabic, Hindi, Thai, and Bengali, have a lower character count - as low as 70 per SMS (as these have to be encoded differently). Twilio has a [free tool](#) to check your message length. Some platforms might not support different languages, so check that your platform of choice is suitable for writing and receiving messages in the learners' preferred language.



The Mobile Network

If you are sending messages using a phone network or via internet data, consider the reach and reliability of the network. For SMS messages, some networks will also have 'rate limits' (the number of message segments you can send per second). This limits how many messages you are able to send over a certain period of time. With some unreliable networks, multiple messages may also not arrive in the right order.

Scripting your audio

Engaging conversations are great ways to keep your learners attention during an audio recording, so you might want to script a conversation between two people for your audio.

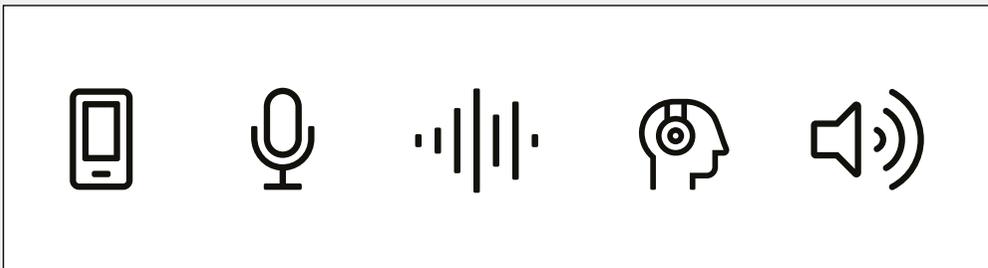
Think about who has the conversation. Is it a teacher and student, or two colleagues, or two friends? Plan for how to contextualise the script, including the names, tone of voice, phrases, and dialect.



Recording Audio

Audio is a great learning method for mobile learners - and it is where you can be creative, social and conversational.

To record audio, start simple: you only need a smartphone, a quiet place to go, and some patience to try it out again and again.



“In Yemen, we designed an SMS + audio course for humanitarian volunteers in three governorates. We started to record the audio conversations ourselves, but soon realised that it sounded like a teacher, which was not the style we wanted. For the conversations to have real impact we decided to hire some professional voice actors. They helped develop the scripts further to make them feel more natural and friendly, with more simplified terms. Then, the script was recorded in a studio to create really high-quality dialogues that were then sent to our learners via voicemail.

You can of course do it yourself very simply, with a phone, a quiet space, and some time to practice - but we felt this added more quality for the course and for the learners.”

Here are some top tips on recording audio:



Use a voice recording app on your phone



Go somewhere quiet

Background noise can ruin the sound and you want to avoid being interrupted. Even the sound of a generator, a TV, wind or a fan can disrupt the sound



Always do a test recording first

Then listen back to it - ideally with headphones - so that you can check the sound for clarity



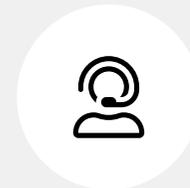
Practise, practise, practise!

By repeating the audio several times you will feel much more comfortable and at ease with the script for when you record



Use short pauses between key points to make it easier for the listener to follow

This will also help with editing the audio if needed.



Keep your mouth close to the phone

In most phones, you speak into the bottom when recording audio in the same ways are you would while making a call. Speak slightly above or to the side of the mic to avoid distortion.



Listen to your favourite radio shows

Experiment and copy the techniques they use.

10. Setting up the tech

While you are designing your learning experience, you also need to scope out the technology you will use alongside this. This is a vital step and it can be time-consuming. Make sure you plan in time, budget, and the tech expertise to do this step properly.

There is currently no perfect 'ready-made' solution to delivering mobile learning. Therefore, scoping as much information as possible and using this to choose the right set-up for your learning content, and your learners, is important.

You will need to scope out and choose three main components for your technology set-up.



Network

The network operator you will send your messages and voicemail audio on.



Handset or line

What line or handset you will use to send your messages and voicemail audio on.

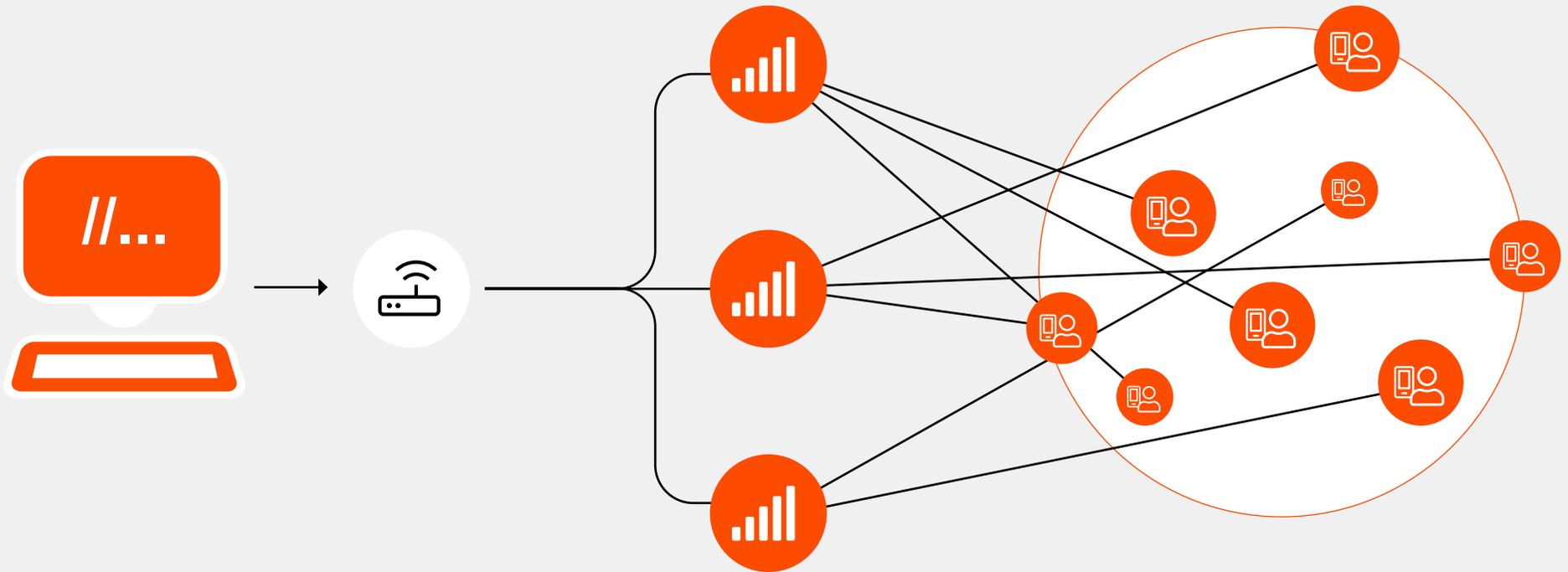


Platform

What platform you will use to manage the sending and automation of your messages and voicemail audio.

You may also end up using a combination of different platforms, lines, and networks to make it work well in the learner's context. So it is important you have someone on your team at this scoping phase with the technical knowledge to be able to help choose and then set up these components.

How the components for lo-tech mobile phone learning will work together



The platform to manage your messages and audio

The line that will send your messages and audio

The network operator your messages and audio will be going to your learners on

Your learners get the messages and audio on their phones

Network

To send SMS and voicemail you need to use a mobile phone network. Your learning needs analysis would have identified which network your learners are on. For example, in Bangladesh these were Grameenphone, Banglalink, and Robi-Airtel.

You will want to send SMS and audio on a line or SIM card on the same network as your learners, if possible. For example, if 100% of learners use Grameenphone network, choose that. If, as is probably the case, learners are on a mix of networks, then you will then need to find a network that works well with majority of your learners. This table tells you what are the issues you need to scope out to help make that decision.

What to Scope	What to look for
Coverage	<p>Find out about network coverage (phone signal) for your learners. Are there areas where they get full signal or no signal? You can start this process with desk research - many network providers offer maps of their network coverage and the GSMA Connectivity Index is a comprehensive global resource. However these maps are typically out-of-date and are often optimistic or inaccurate. There is no replacement for local knowledge and real-world testing. Ask staff, colleagues, partners, and a sample of your learners what networks they use, what the coverage is like in different areas, and any known issues with sending/receiving messages or calls.</p>
Functionality	<p>Some networks have difficulty sending messages to other networks, or sending long messages, or have lengthy delays. You will need to test the following functionality:</p> <ul style="list-style-type: none"> ● Receive and send SMS to phones on different networks (cross-network connectivity) ● Let the learner reply to automated SMS (2-Way SMS) ● Support audio calls and audio recordings ● Manage Bulk SMS (sending the same SMS to multiple learners at once)
Topping up learners	<p>You do not want money to be a barrier for engaging. Research how much it will cost for learners to receive the learning via SMS and audio. You will often find this information on a network's website. How will you plan to reimburse or charge the learner? What is the process for topping up airtime (crediting a phone)? Find out if top up can be done:</p> <ul style="list-style-type: none"> ● by third parties (you top up a learners' phone) ● in bulk (you top up multiple learners' phones at one time) ● online (you top up a learners' phone remotely, without an individual scratch card) <p>For some networks, you may have to buy scratch cards for people individually to top up themselves. Other networks will be as simple as bulk topping up everyone online from a laptop.</p>
Rate limits	<p>A rate limit is a restriction, per second, of the number of messages you can send on their network. For courses with a small number of participants and a small number of messages, this will not be a problem, but if you want to send lots of messages and reach a larger number of people then you want to avoid networks with low rate limits.</p>

If network connectivity is proving difficult, you might want to reach out to a mobile tech specialist like [On Our Radar](#).

Handset or line

Once you have chosen your network operator you will now need a line - a number - from which to send your messages and audio.

Ideally this is a local line. This reduces the cost compared to sending and receiving international SMS and audio. A local line is likely to be more reliable compared to sending and receiving international SMS and audio.

To get a local line, there are two options:

- 1 A virtual line through an aggregator: The virtual line will function between you and your learners. You will send the messages to the aggregator, the aggregator will send the messages on to the learners. Check prices for each aggregator, alongside their country, region, and network coverage. Aggregator lines include [Twilio](#), [Infobip](#), [Africa's Talking](#), [PairSMS](#), [World Text](#), [Sinch](#), and [360NRS](#).
- 2 A local phone and a local sim: This option involves getting a physical handset - a smart phone - and local SIM in the same country as your learners. This is the handset through which all SMS and audio is sent and received, so it must have a reliable mobile network connection, a continuous power source to charge its battery, and a reliable way of ensuring there is credit. An application like [Telerivet](#) can be installed onto the phone through which the SMS and audio flow can be programmed and automated. In some contexts, where rate limits are restrictive, you may need lots of handsets to run together to send out messages. This type of application is called a gateway tool.

Whichever option you choose, test thoroughly across learner networks and devices.

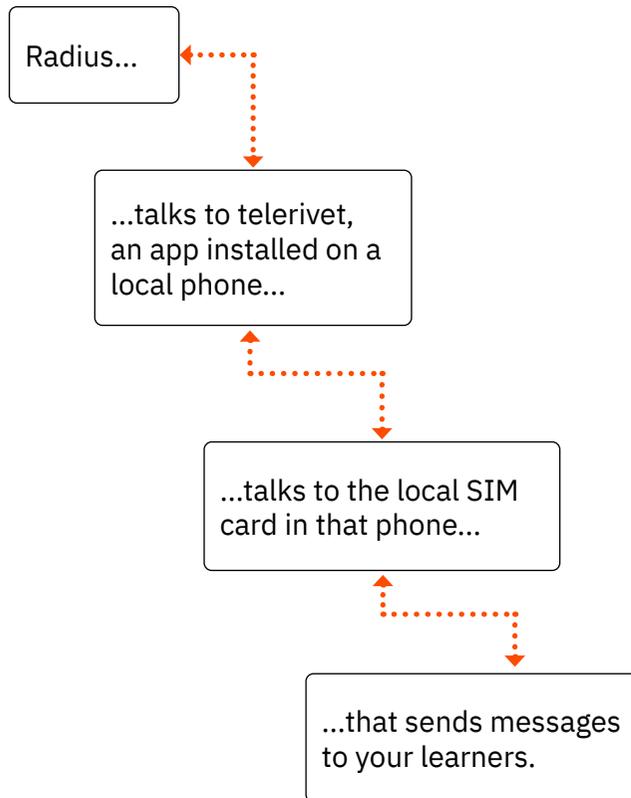


“In Bangladesh we started off using a virtual aggregator line to send our messages as we thought that this would be the easiest option. However, we soon discovered that it wasn't sending messages to all the networks or receiving replies to us. So, we then tested another option, of a local handset and sim card with Telerivet installed. This worked much easier. It was more work for us to manage it, but we were confident that messages arrived. In addition, it allowed teams in Bangladesh to oversee the flow progress on the handset and shoot any troubles arising from participant end in terms of understanding and complexity. So be prepared to chop and change things as you go along and learn what does and does not work best.”

Choosing a platform

Alongside the network and line, lo-tech mobile phone learning requires a platform to manage the flow of SMS and audio. You won't be typing each SMS into a phone - you need an online platform (like a Learner Management System but for SMS) to do this for you.

An example of how tech in a customised platform we used in the pilot project worked together



There are two main choices for a lo-tech mobile phone learning platform:

1 Ready made platform

A ready-made platform has a fixed structure and will manage your learning for you. These platforms will allow you to manage sending your messages and audio and have the functionality to help plan and build your learning flow within it too. An advantage of this is that it is already set-up and will often have technical support included in the price. The disadvantage is that the platform might not be tailored to work in the countries where your learners are, or on the network of your choice, or with your preferred learning flow. A ready-made platform can require continued running costs and enrollment costs per course. They are also fixed in their functionality so you will be unable to tailor it to your specific project. [FrontlineSMS](#) and [Textit](#), and some aggregator providers deliver ready-made platforms.

2 Customised platform

You might have a better fit for your learners and your learning flow by investing in a customised platform. This will give you more control of the design and delivery of your course.

For example, the [Radius platform](#) is designed to work only using SMS and audio. It can be tailored to work for different projects and gives the project lead control of the platform dashboard. This control includes when messages and audio get sent, who they get sent to, and what replies the learners receive. It can send messages directly to learners' phones, or through a gateway tool that is installed on a local handset. A customised platform can be built to link in with different lines, aggregators, and services - not just one.

RapidPro is another platform that allows you to build a customised app to manage your messages and its API allows you to integrate into other systems and websites you might be using.

Arist



Arist is an example of a ready made platform. It is specifically designed for mobile learning; so it allows you to develop your learning flow and content in the platform. It uses international SMS to avoid local connectivity issues, so it is simpler but more expensive.

11. Time to test

Once you have designed the learning experience, adapted it for SMS and audio, completed technical scoping and planning, it is time to start testing everything; test it again and then test it once more. This stage will make or break your project's success. Investing time and capacity to test properly before course launch is essential. This can result in a successful technical framework, platform, and course structure that you can scale up or adapt and roll out rapidly in the future.

Expectations of learners

When delivering learning through a new technology your learners are not used to, you will need to set new expectations. Many of your learners might not associate their phone with learning. To help set expectations you can.

- Arrange an onboarding call, in-person meeting or email to talk learners through the mobile learning process
- Write up a 'Frequently Asked Questions' document and send it to learners before they begin.
- Use one audio voice message or a series of SMS at the beginning of the course to explain the mobile learning process, including tips for how they can learn best.

Here are some tips to help you with testing:



Start small: With a new mobile learning project, it is important to innovate and then scale up, rather than innovate *at* scale. Don't try to launch your first ever mobile course to 5000 learners! The first time, keep it small, test it, pilot it, and make sure that everything works well and smoothly.



Communicate with your learners: Keep your pilot learners engaged throughout the testing phases. Be honest with them that you expect some things to go wrong. Prepare SMS messages to explain problems that you can send as soon they happen. Let your test group of pilot learners know how they can provide their feedback to you, for example, in an email, an SMS or a shared Excel spreadsheet, and how much detail you need about the issue they are reporting.



Choose different testers: There is a risk during testing that some learners will begin to experience 'participant fatigue' - where they have been involved for too long, and begin to disengage from the testing or learning process. Test the learning course with other colleagues, and a small subset of learners who have opted in to being part of the testing.



Test locally: Testing of the actual connectivity can ONLY be done locally as it needs to be running over the real networks, so factor in time for multiple people (or a person with multiple phones/SIMs) to do the testing, using different networks, locations, and times of day.

There are four main areas you need to test:

Learning Content	Delivery of the messages and audio	Automation and Flow of messages and audio	Full User-test
 Tip: testing learning content can be done before the SMS and audio technology flow is set up	 Tip: test this as soon as you have set up a mobile line	 Tip: test with draft content	 Tip: test that everything works together
What you need to test			
 Test how the adapted content is received by learners.	 Test that all networks can send and receive SMS and audio. Do this by sending SMS and then audio voicemails from each network to another network.	 Test that SMS and audio are received in the correct order, at the correct time. This is the final stage.	 Test if everything is sent, if everything arrives, if learners can reply, and if they like the content.
How to test it			
<p>Send potential learners examples of SMS and audio content.</p> <p>Questions you can ask include:</p> <p>Is the audio clear and is the accent easy to understand?</p> <p>Is this audio written for the right audience? Is it engaging?</p> <p>Are the series of SMS easy to read on your phone screen?</p>	<p>Send SMS in very short intervals. Do they arrive in the right order?</p> <p>Send long messages. Do they arrive in the right order?</p> <p>Test network rate limiting by sending a large number of messages all at the same time. Are all SMS sent and received?</p> <p>If using a local handset, test it has a stable data connection. The connection should not move between GPRS, 3G, and 4G, as this cuts the signal and can stall messages.</p>	<p>Send out a question, e.g. “press A for the next module, or press B to start again”. Does the platform send the correct response?</p> <p>‘Break’ test the automation. This means asking learners to send unexpected responses. For example, if the question says to “Reply with 1-4” then try replying with 5. Does the platform request the expected response again?</p> <p>If learners reply in different dialects or scripts, is the platform set up to capture these replies?</p>	<p>Send a full module to potential learners.</p> <p>Ask learners to identify as clearly as possible any final challenges or problems with the module.</p> <p>Test before you start - and test throughout delivery. Let learners know how they can give feedback one the course has started in case a new problem arises.</p>

Testing Report Template

A testing report template is a good way for your testers to capture what goes wrong and when. Share a version of this with your testing group. The tester will complete the first five columns and the designer (you, or someone in your project team) will complete the last three columns. A version is available for you to [download and use here](#).

Tester (name)	What went wrong?	What were you trying to do at the time?	Date/Time	Tester's phone type, network, location	Action to take	Action taken?	Signed off as done
E.g. Mary	e.g. It stopped sending me texts	e.g. I was on Day 2, I replied C to the multiple choice, then nothing happened. I kept texting but got no response.	e.g. Sep 21, 13:00	e.g. Samsung Galaxy S6, Grameenphone, Cox's Bazar camp 1			

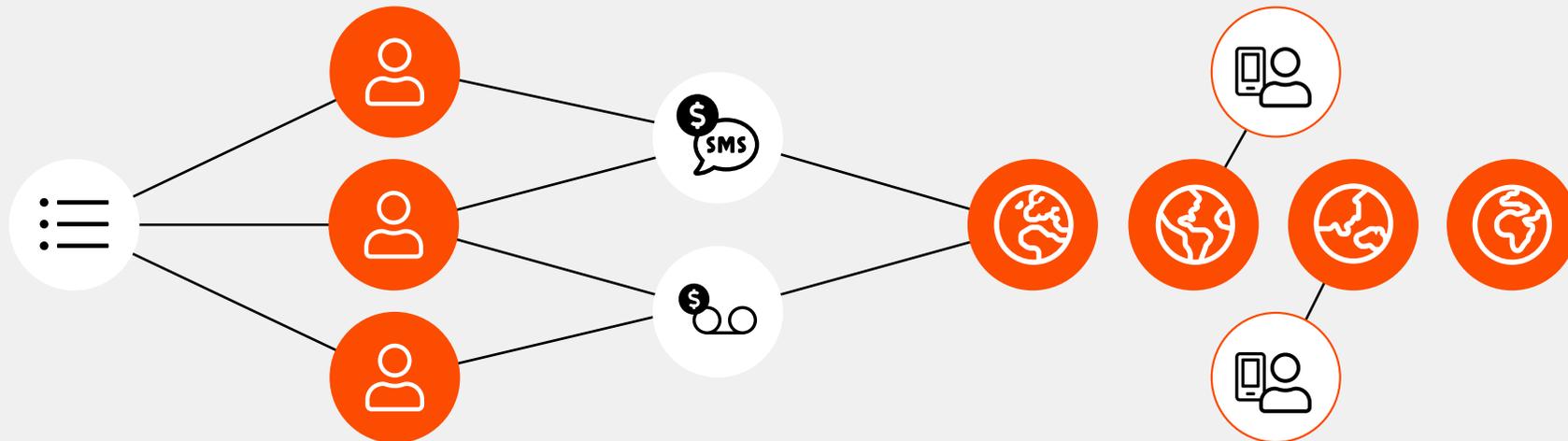


Use the testing feedback to iterate and continually improve your mobile learning course!

Budgeting for lo-tech mobile learning

When developing the budget, make sure that, in addition to any standard budget costs, you include the following items. If you are new to mobile projects it would be easy to miss these out:

- 💰 The staff time and the costs of the full scoping and testing phases
- 💰 If your project involves using a local handset or line to send SMS or audio, budget in the costs of purchasing a line (if virtual through an aggregator) or local handsets which you might need for local connectivity
- 💰 Platform costs - either ready-made or customised. This cost needs to include the set up, customisation, and running costs.
- 💰 Network delivery costs if you are sending SMS or audio through local networks. Every SMS or audio recording you send to a learner will have a small cost - note that some message aggregators may make a small charge for incoming SMS. Do reliable estimates of the number of messages/calls your total flow will include. Multiply this by your number of learners. That figure is the total amount of SMS and total amount of audio recordings you will send. Budget for this amount accordingly, based on estimated costs from your chosen network provider. Factor in additional budget for sending SMS and audio during testing.
- 💰 Top-up credit for learners. To make the course financially accessible to learners, you may choose to reimburse learners for their own connectivity costs. This cost is based on how many SMS and voicemails you expect to receive *from* learners i.e. how many SMS or voice messages they may send – either directly in response to your questions, or on their own initiative. Consider which currency this top up will need to be in and whether you can top up learners remotely in batches or if this needs to be done manually in-country.



Consent & safeguarding

Any mobile phone course needs to comply with your organisation's data protection policy and any country-specific data policy (e.g. General Data Protection Regulation - GDPR). You will need to have learner consent to use and store their data on a platform - including their mobile number. For example, this consent can be in the form of an SMS that they reply to or a link to a form they can sign if they have internet access and a smart phone.

Cross-reference your consent process with the data protection policies of other mobile learning platforms or gateway tools. Data Protection Africa is a good resource if you are doing your project in Africa.

The way you design and deliver lo-tech mobile phone learning should also be in line with your organisation's safeguarding policies. Identify and mitigate any known safeguarding risks, including who will have access to learners' personal phone numbers; who will be able to send and see messages; and who will be paying money to people to top-up phones.

 Tip: For a reminder of safeguarding practices in an organisation, take the free, online, 1 hour [Safeguarding Essentials course](#).

Getting Started

Congratulations - you are now ready to launch your lo-tech mobile mobile phone learning course!

Communicate with learners before course launch so they understand what the course expectations are and what their learning journey will be. You might want to develop a list of Frequently Asked Questions (FAQs) that can be shared with them.

Once the course has launched, you might still get feedback from learners or technical issues arising. Be prepared for additional work to arise and to fix issues throughout the running of the course.

12. Celebrate Success

Just because the learning isn't happening face-to-face doesn't mean you can't reward and accredit the learners who complete the course. Before you give a certificate or digital badge, you need to be satisfied that the learner has achieved the learning objectives. This might be through a quiz or assessment, or through their completion of all modules.

You won't be able to share a certificate or digital badge by SMS or audio. You can, for example, ask the learner to reply with their email address if they would like an e-certificate or digital badge. If they don't have an email address, consider arranging for a certificate to be printed locally where the learners are.



A digital badge is a type of certification, which acts as proof of learning. It is especially useful in the humanitarian sector where a lot of staff learning is through experience, rather than through formal education. The humanitarian passport platform HPass is a place where learners can gain and store their digital badges, and where organisations can design and award badges.

Looking after local handsets

If you have a local gateway phone through which you are sending messages, keeping it safe and working is vital. Make sure that the handset is in a fixed location so you know that is where it gets signal. Take a snapshot of the device connected in that location in case you forget and put a notice on it that tells people not to unplug the handset even if it's fully charged. Make sure it is always plugged in and that the wall socket is still working.

Make sure the handset has no other apps installed that might interfere with its ability to send and receive messages or audio voicemail, such as WhatsApp or other call or messaging apps and make sure that data is always turned on. Regularly check that there is enough credit/top up on the handset and regularly check connectivity by opening a Google search page.



13. Checklist of what to consider throughout a lo-tech mobile learning project

Review this checklist before you begin a lo-tech mobile learning project, share it with the project team, and return to it at each stage of the mobile learning journey.

- ✓ **Analyse** your learner and their needs. Lo-tech mobile learning is as close to a universal technology there is - so you will reach people who might be excluded from other types of face-to-face, online or mobile learning.
- ✓ **Sensitise** the learner to using their mobile for learning. Many people won't associate a mobile phone with learning, and use it for socialising or associate it with getting spam and sales calls! Prepare your learner for the experience.
- ✓ **Scope** the connectivity in the real world - ask real people about which networks work well and where for SMS and/or data coverage.
- ✓ **Adapt** your learning content for the device, for language, for the learners, and for the context. This will take time.
- ✓ **Budget** so that no learner has to pay an unrealistic amount for the learning, and so that the project is staffed and resourced at each stage
- ✓ **Test**, test and test. Use a template for feedback so that it is concise and organised.
- ✓ **Schedule** time for each stage to be done fully: the scoping, planning, adapting, and testing. Once you have established a learning flow, a platform and line connectivity, your mobile learning project will be easy to adapt or scale for new learners, new topics or new situations, or to roll out quickly in response to an emergency situation.
- ✓ Create a project team including a **technical expert** for platform and connectivity scoping. Build sustainability into your project by involving non-technical staff in the scoping, testing, and design of the learning and training, with the vision for non-technical staff to maintain the platform or course eventually.
- ✓ **Plan and prepare for things to go wrong**. Treat your first course as a pilot. Be ready with mitigation plans when errors do arise, and be ready to learn and adapt from them.
- ✓ Make it **creative and social** - Do not use mobile learning for broadcasting information. You can use the radio for that! Lo-tech mobile learning has the potential to be creative, social, and discursive. Design for conversation and two-way learning.

14. Contact us

We'd love to hear from you.

Would you like to know more about how to develop a similar course?

Do you have feedback about this toolkit?

Have you designed a mobile course for learners with the toolkit?

Contact The Humanitarian Leadership Academy or On Our Radar through the following channels



info@humanitarian.academy

info@onourradar.org



[@AcademyHum](https://twitter.com/AcademyHum)

[@OnOurRadar](https://twitter.com/OnOurRadar)



HumanitarianLeadershipAcademy.org/innovation

onourradar.org



Humanitarian-Leadership-Academy

[/on-our-radar/](https://on-our-radar/)



HumanitarianLeadershipAcademy

[/OnOurRadar/](https://OnOurRadar/)

15. Downloadable documents to use

We have made templates and documents we used in the pilot programme available for you to download and use yourselves.

- 1 [‘Four critical areas for questioning if mobile phone learning is right for you’ Template](#). Based on the table on page 6 - It enables you to explore a list of things you need to analyse and answer to decide if it is the right fit for your project.
- 2 [Example survey questions](#) - This is based on a survey that the team used in Bangladesh that you could use in a workshop, dialogue or survey to help understand the needs of your learners
- 3 [Example SMS messages](#) - The file contains SMS messages from three of the modules in the pilot project in South Sudan. They will give you a clear idea of how to write your own messages and how to structure your modules if you are using SMS messages.
- 4 Example Audio - If you want ideas or inspiration, why not listen to some of the audio content below that was produced for the HLA/On Our Radar projects
 -  This is the [welcome module from South Sudan](#) (In english)
 -  This is [module 4 from South Yemen](#) (in Arabic)
 -  This is [module 6 from Bangladesh](#) (In Bangla)
- 5 [Testing Report template](#) - A template to help you track the testing phase of your project.