

# REMOTE EDUCATION ACCESS IN MYANMAR

Start date: December 2019

Completion date: November 2020



FRONTIER  
TECHNOLOGY  
LIVESTREAMING



# **Can mobile learning boxes provide a means to access education for children in Myanmar's Internally Displaced Persons (IDP) Camps?**

# THE CONTEXT

## The Problem

The Rohingya emergency has caused widespread displacement in Myanmar since 2012, when an escalation in tensions re-emerged.

Most often reported is the displacement of 742,000 Rohingya refugees across the border to Bangladesh. However, internal displacement has also been a major issue. As of 2019, 600,000 Rohingya remained in Rakhine state, facing daily hardships with limited access to basic services and no freedom of movement. Over 128,000 Rohingya have been living in internally displaced persons (IDP) camps since 2012. This includes thousands of children.

For the majority of displaced children in Rakhine, their only learning option has been attending temporary learning spaces. These are run by volunteer teachers and follow the national curriculum, but only offer learning at primary level.

Restrictions of movement have prevented children travelling to attend post-primary schooling. This has been exacerbated by restrictions in movement during COVID-19 outbreaks.

These restrictions put education at stake, in two ways. One, secondary education is hard to access, and equitable outcomes will be nearly impossible for displaced children to attain. Two, any education received will not be formally recognised, meaning it cannot improve employment prospects in the same way a recognised certificate would.

## The Idea

The original idea for the pilot was to test whether providing low cost “mobile learning boxes” to out-of-school children and youths (OOSCYs) in IDP camps in Myanmar could allow multiple students to access educational content simultaneously either from their own devices or community-owned devices. Each mobile learning box would contain a raspberry pi, SD card and router to provide offline access to materials that could be downloaded onto any mobile phone or tablet.

This idea posed several questions to the team:

The pilot sought to test whether low cost technology could be deployed in remote settings where there is restricted access for delivery and restricted movement for children, to bring learning to life for many who have not had the opportunity to go to school.


“The idea and aspiration of providing access to education for OOSCYs is quite simple and it’s been with myME since day one, but realizing them with a nurturing partner and right technical solution is something that comes rarely.”

The pilot also sought to understand how useful this content would be. Could offline, student-directed learning be used to support better learning outcomes, and could education software help deliver adaptive learning and monitor progress?



Finally, the pilot intended to explore what it would take for the Myanmar government to respond positively to such initiatives, to encourage further uptake, and to validate this informal education so it could be used as a stepping stone for life beyond the camps. Could such an innovation help give a foothold into secure employment, and greater wellbeing for out-of-school children and youths?

**“I love being alone with a tablet. I will let other friends know about this myME learning platform and encourage them to learn.”**

*- Level 1 student Myat Noe*

The team:		The numbers:			
<p>The Pioneer:  <i>Khaing Phyu Hyut,</i>  <i>FCDO Myanmar</i></p> <p><i>Ian Macauslan,</i>  <i>FCDO Myanmar</i></p>				<p><b>70:1</b></p> <p>teacher ratios where education is available</p>	
		<p><b>20,000</b></p> <p>out-of-school children and youths unable to access informal or formal education within the Rakhine state</p>			
<p>The Partners:  <i>Myanmar Mobile Education (myME)</i></p>					
				<p> <b>45,000</b></p> <p>out-of-school children and youths (12-17 years) in IDP camps</p>	

# THE JOURNEY

The pilot started in January 2019 and ran sets of experiments - called Sprints - which tested key assumptions. For each chapter there is either a pivot point  or a significant event  which influenced the programme.

Here's a storyboard describing the main steps in this pilot's journey:

## 1. Getting to "yes, if" on camp access

Before starting, the pilot team needed to understand whether there would be students in need of education access.

It was found that there were over 20,000 students without consistent access to education, which validated the need for additional access.

Additionally, the myME team noted that across the 190 camps there was a diverse range of humanitarian organisations holding Camp Coordination and Camp Management responsibilities.

The team learnt that providers and "clusters" of suppliers needed to be approached individually to agree how and when IDP camps could be accessed.

The response from providers was positive but led to different potential models for how the idea could be implemented, and what content might be prioritised.



Take a more decentralised approach with partners, and move away from government collaboration to begin with

## 2. Build an integrated straight away a small group

The mobile learning box contains a programmable raspberry pi, provides offline access to materials downloaded onto any mobile device for learning.

To build education modules for the mobile learning box to run a learning management system, the team initially tried to use an existing platform but found that the existing application was too constrained for the content they wanted to include.

After testing, they decided to build a customisation on the front end with a very simple menu that could be used by children and youths as young as 10.

Three box designs were tested with out-of-school children and youth through another of the team's programmes. The myME team conducted tests to check the functionality of the boxes in different scenarios, including whether the platform could be accessed via browsers on both smartphones and tablets.





## 4. Think "outside of the learning box"

As the team began to establish a partnership with Plan International, one of the IDP camp service provider's, they began to uncover a need to think beyond the educational content and instead about how a learning box could be installed and maintained within a camp.

With minimal access, the pilot team would be only able to support remotely, with COVID-19 restrictions furthering this problem.

The myME team began to pursue the idea of setting up "Learning Centres" in the camps - a space where out-of-school children and youths could go to to access the learning box. They also developed some "how to" guides for facilitators in the camp, to help deal with technical issues.

This involved developing clear error code messaging on the user interface which a facilitator less familiar with the technology could respond to.



Partnership established with Plan International



The eventual design of the low cost box



## 6. Take the offline back online

As COVID-19 cases spread in Myanmar, the team had to quickly change their approach to testing the tech, with the IDP camps now inaccessible.

The team took two different approaches. First, they moved their learning management system online, and began testing the content with students who could access via their own mobile devices.

This presented challenges due to the vast range of devices used by students in Myanmar, across old and new versions of operating systems.

Secondly, the pilot team pivoted to explore the idea of “virtual onboarding” for IDP camp facilitators who were due to look after and maintain the boxes.

With data coverage in the IDP camps being poor, this was challenging, and slow progress, and it was also difficult to find a way of sending the boxes to the camps to be set up.



Due to COVID-19 restrictions, the team decided to pivot away from opening a learning centre in an IDP camp as access became harder. Instead, they moved content online to test through students' own devices

# SPOTLIGHT 1: BUILDING CUSTOM TECH WITH RESOURCE SCARCITY AND HIGH DEVICE VARIABILITY

IDP camps in Myanmar present application developers with a series of challenges.

Although Myanmar itself has good data coverage, this coverage is not equitable. In states like Rakhine, it is usually 2G. This led to many students experiencing long download times for educational content when myME sought to test an online version of their idea.

Beyond this, device usage in IDP camps has high variance. This meant that the myME team needed to develop “non-native” apps which would work on now unsupported versions of Android.

Finally, Myanmar itself is home to many custom developer frameworks and non-unicode digital fonts, which means that further customisation is needed to make sure script renders correctly on every device.

This means that most off-the-shelf software is not fit for purpose in Myanmar, and getting the design right requires a lot of customisation.

## **SPOTLIGHT 2: EXPLORING DIFFERENT USE CASES FOR MOBILE LEARNING BOXES TO PROVIDE DYNAMIC EDUCATIONAL**




As well as testing the use of mobile learning boxes in an IDP camp setting, myME is currently assisting the Ministry of Education (MoE) in developing a “Department of Basic Education (DBE) Box”, a stand-alone content server based on the core myME mobile learning box technology, which can be deployed in government schools in remote and rural areas where internet access is unavailable.

The DBE box will contain lessons from the formal school curriculum and supplementary teaching/learning materials in a digital format for teachers and students to access through their mobile devices.

Through the pilot, myME has also been able to provisionally test the value of mobile learning boxes in a non-formal educational setting with out-of-school children and youths in townships in Yangon and Myingyan. Each use case presents different challenges.

Testing the value of mobile learning boxes in non-formal educational environments (whether that may be IDP camps or teashops in Yangon) can require additional incentives for out-of-school children and youths to participate. To tackle this,

myME has also introduced a monthly nutrition stipend program for both out-of-school students and parents to promote the importance of education and encourage parents to let their children attend NFE classes. The stipend amount is directly linked to each child’s monthly attendance, assessment outcomes and classroom performance.

All of the critical assumptions behind this idea were tested and proved   
or disproved  We gained insight on all the assumptions, but some had  
questions remaining 

## Value

### Did potential users engage with the tech?

Post-assessment results show encouraging signs with children's response so far, with 82% completing at least one level on the learning platform. Qualitative feedback confirms that children find the content useful and they enjoy self-directed learning on mobile devices/tablets.

Level 3 student Kyaw Zin Phyo said - "I needed to ask the facilitator which button to press when I completed one lesson on the myME learning platform. But, the courses are helpful and practical, and I like to learn more through online."

The simple design of the learning platform proved to be relatively easy to use, although the team did experience some challenges such as children forgetting/mistyping their login details. The role of the facilitator in supporting the children both with understanding the content and navigating the platform is key to successful engagement with the technology.

Level 1 student BB Jang said - "Learning on my own phone is very good. But, sometimes I ask for help from my facilitator to help me explain some of the questions that I don't understand clearly (they are in Burmese and English languages). I like to learn life-skills and parts of the body in English."

However, questions remain as the team are yet to use an offline learning box, and to have sustained engagement with out-of-school children and youths in IDP camps.

## Tech

### Did the tech deployment work?

The technical design is working as planned. Additional technical requirements have been uncovered which are yet to be tested. These include providing content in additional languages and exploring the option to add a solar system to the mobile learning box, as electricity access in the IDP camps can be unreliable. However, the core Learning Management System + remote box has been tested successfully with students.

## Growth

### What is the likelihood for scale up 🤔

There are positive indications with Plan International and other local NGOs showing interest in installing boxes. This includes a observed need for similar interventions in rural areas, which has presented another pathway to scale beyond IDP camps.

Funding from the Myanmar Non Formal Education (NFE) Consortium will also enable the mobile learning boxes to be tested at 30 further community centers and NFE classrooms in rural areas of Myanmar for both OOSCYs and IDPs.

Nonetheless, there will be challenges in scaling across different locations which have very different needs and, in the case of IDP camps, operational setups.

## Impact

### What level positive social impact or influence has been achieved? 🤔

Pre and post assessment scores show a positive trend across a small pilot group with 26% overall student learning improvement (from 65% to 91%).

The most significant learning improvement of 33% was in the IDP Camp in Rakhine State where out-of-school children and youths increased their scores from 36% to 69% despite significant challenges; lack of mobile devices, poor internet connectivity, and language barriers. This preliminary quantitative data highlights the potential for remote learning to support those who need it the most.

There is much more to learn in the long term as the pilot broadens out and begins to include locally relevant courses. There are certainly challenges too, with time constraints and data constraints presenting a barrier to access for rural children in some cases.

## Has it attracted any co-funding or follow on investment?

Plan International will provide co-funding for mobile phones and other mobile devices for students in Rakhine State (Say Tha Ma Gyi IDP Camp) to continue learning through the online platform.

The Myanmar Non Formal Education (NFE) Consortium will also provide funding to install mobile learning boxes at 30 community centers and NFE classrooms in rural areas of Myanmar for both OOSCYs and IDPs.

myME is currently working closely with a number of Education in Emergencies (EiE) partner organizations (UNICEF, SAVE, ADRA, NRC, etc.) in Myanmar to convert their face-to-face educational courses into digital courses



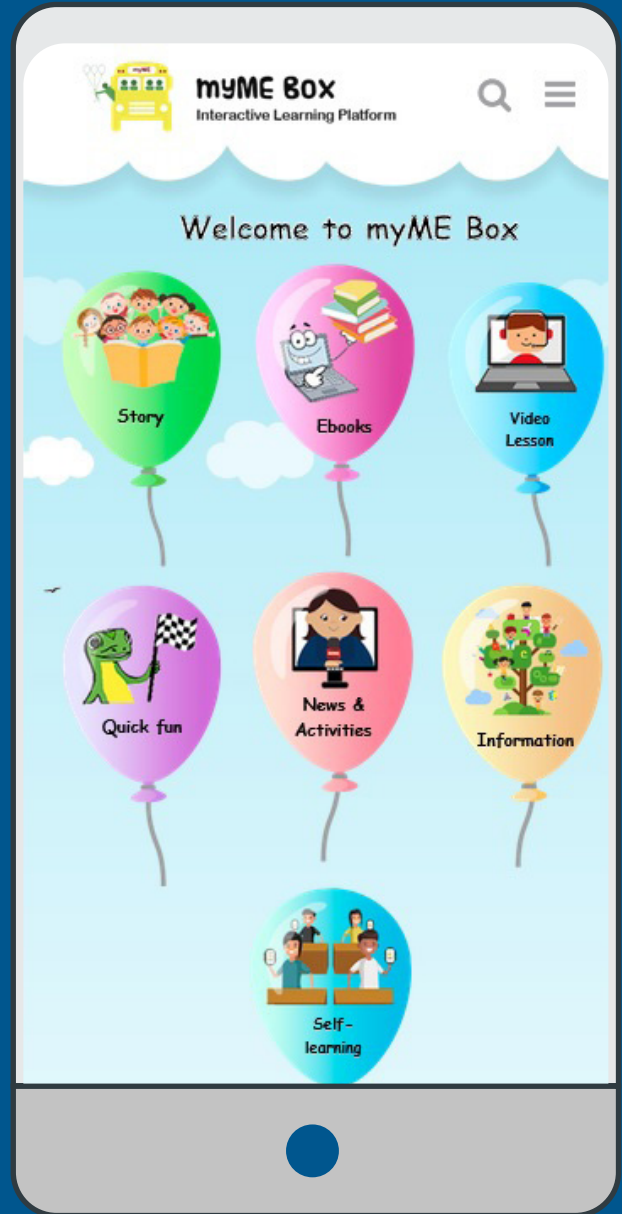
NFE LMS Course Option



NFE LMS log-in Page



NFE LMS - Level 3 Courses



myME Box Learning Platform

'The pilot is small scale so far with 57 participants but it is great to be able to provide learning opportunities for children in challenging circumstances. The MyME team has considered innovative ideas such as how to power the device where there is no electricity, how to ensure children from different linguistic backgrounds can use the device, and how to provide learning pathways and not one off learning.

It will be really interesting to observe how partners can take this up in IDP camps in a purposeful way so that children get some accreditation or can join regular programmes - be they NFE (Non Formal Education) or mainstream education provision by the Ministry Of Education.'

*- Khaing Phyu Htut, FCDO Pioneer - Myanmar*



# RESULTS IN NUMBERS

**82%**

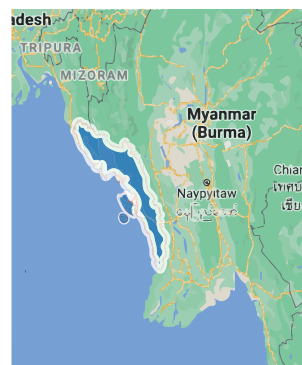
of out-of-school children and youths completed at least one level on the platform

**57**

out-of-school children and youths registered to participate in the pilot from Rakhine IDP Camp and Townships in Yangon and Myingyan.

**20%**

Overall score for student learning improvement. (from 62% to 82%)



Most significant learning improvement (33%) was in the IDP Camp in Rakhine State where out-of-school children and youths increased their scores from 36% to 69%.

# REFLECTIONS FROM THE HUB

## **A complex system can require very patient capital, or franchising**

IDP camps in Myanmar are managed by roughly 40 different service providers, all with different organisational structures and operating models. Access to one camp doesn't equal access to all, and there is no route to access them via the central government.

This presents challenges to scaling through one implementer: the most likely route to a scaled solution is by decentralising key aspects of educational delivery to partners.

## **When people are hard to reach, identify a “minimum viable persona” to build your runway**

The challenge with IDP camps is ease of frequent access. With this in mind, it was necessary to start testing the tech with a group of children who could be reached more easily, and whose feedback could be gained frequently. This is not without risk - findings may not be generalisable.

But when value and tech assumptions are unproven and very uncertain, it can help teams learn about the validity of an idea before making a bigger commitment to test in an IDP camp.

## **When major roadblocks strike, pivot what you're looking to learn**

The COVID-19 outbreaks in Myanmar presented big challenges to the pilot team as movement was restricted. Rather than stopping work, the team pivoted to testing an online, self-directed learning model.

This encountered its own problems, especially with data access and device compatibility, but the team were still able to learn a lot more about the content.

Additionally, it encouraged the team to explore even lower-fi content to support limited video streaming capability on student-owned devices. As the number of COVID-19 cases in Myanmar increased, the pilot team also decided to include engaging educational content on coronavirus, to raise awareness amongst out-of-school children and youths within the IDP camp.


## **A frugal approach to tech development can leave greater room for customisation**

A critical assumption the team aimed to prove was that low cost technology could be deployed in the most remote settings. Each mobile learning box cost approximately 119,000 Myanmar Kyat (or £70) to build. Hardware costs were intentionally kept to an absolute minimum.

However the raspberry pi, micro SD cards and mini routers had to be imported and the cost of shipping and custom taxes drove up the average price per box.

Spending as little as possible on hardware, enabled the pilot team to dedicate greater resources to customising the frontend of the learning management system. This ensured that the user interface was simple and fun for out-of-school children and youths to use.

What's more, the team was able to spend more time on developing engaging and relevant educational content tailored to the particular needs of their target users.



**“When we design these courses, we really need to understand the environment. For us to keep the momentum in the long term, we have to have more culturally relevant courses.”**

*- Tim Aye-Hardy, Founder and Director, myME*



