

## MEL-Tech Case Studies: Lessons Learned from Technology-Supported Remote Trainings in Five Countries During the Pandemic



Photo credits: Uganda SHRP (left), ABC+ Philippines (right)

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# **MEL-Tech Case Studies: Lessons Learned from Technology-Supported Remote Trainings in Five Countries During the Pandemic**

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Cover photo: Left, a Pre-service tutor practices with a tablet-based classroom observation tool in Uganda. Right, gallery view of over 50 teachers and education officials participating in a zoom-based remote training in the Philippines.

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## Table of Contents

<b>Acknowledgments .....</b>	<b>iii</b>
<b>List of Figures .....</b>	<b>v</b>
<b>List of Tables.....</b>	<b>v</b>
<b>List of Abbreviations .....</b>	<b>vi</b>
<b>1. Introduction .....</b>	<b>1</b>
<b>2. Background .....</b>	<b>2</b>
2.1 Shifts in Teacher Learning .....	2
2.2 Teacher Professional Development Under RTI Programs .....	2
2.3 MEL Framework for Technology-Supported Remote Training (MEL-Tech Framework) .....	3
2.4 Organization of Report.....	4
<b>3. Literature Review .....</b>	<b>5</b>
3.1 Methodology.....	5
3.2 Characteristics of High-Quality Teacher Professional Development .....	5
3.3 Characteristics of High-Quality oTPD .....	6
3.4 oTPD Results .....	8
3.5 Limitations to oTPD .....	8
<b>4. Methods.....</b>	<b>9</b>
4.1 Research Questions .....	9
4.2 Research Design and Procedure .....	9
4.3 Sampling .....	10
<b>5. Challenges and Limitations.....</b>	<b>12</b>
<b>6. Case Studies and Findings .....</b>	<b>13</b>
6.1 Overview .....	13
6.2 Results .....	15
<b>7. Discussion and Conclusions .....</b>	<b>24</b>
<b>References .....</b>	<b>1</b>
<b>Annex A. Additional Case Studies .....</b>	<b>5</b>
<b>Annex B. Survey Instruments .....</b>	<b>23</b>

**List of Figures**

Figure 1. Overview of RTI’s MEL-Tech Framework.....3

**List of Tables**

Table 1. Quantitative survey sample ..... 11

Table 2. Qualitative interview sample ..... 12

Table 3. Summary of program features..... 14

Table 4. Cross-tabulations of participant responses ..... 17

## List of Abbreviations

ABC+	Advancing Basic Education in the Philippines (USAID program)
COVID-19	coronavirus disease 2019 (SARS-CoV-2)
DepEd	Department of Education (Philippines, national level)
EGR	early grade reading
ICT	information and communication technology
IVR	interactive voice response
K–3	kindergarten through grade 3
LARA	Uganda Literacy Achievement and Retention Activity (USAID program)
LMICs	low- and middle-income countries
MEL	monitoring, evaluation, and learning
MERIT	Malawi Early Grade Reading Improvement Activity (USAID program)
MTB-MLE	mother-tongue-based multilingual education
oTPD	online teacher professional development
PDIS	Professional Development Information System (Philippines)
RIATT	Republican Institute for Advanced Training and Retraining (Kyrgyz Republic)
RTI	RTI International (registered trademark and trade name of Research Triangle Institute)
SMS	short message service (text messaging)
T4TPD	Technology for Teacher Professional Development (World Bank framework)
TLC	teacher learning circle
TPACK	technological, pedagogical, and content knowledge
TPD	teacher professional development
USAID	United States Agency for International Development

## 1. INTRODUCTION

Although some early evidence on the remote, technology-supported trainings catalyzed by COVID-19 disruptions can increasingly inform potential long-term shifts in early grade learning programs (USAID, 2020), more data—and a more nuanced approach to analyzing the data—are needed.

Much of our evaluation-based understanding of what works in remote training comes from Western contexts (Bakia et al., 2009; Kraft & Hill, 2019; Means et al., 2004; National Center for Education Statistics, 2002; National Research Council, 2006) and from higher education (Abidi et al., 2017; Anstey & Watson, 2018; Bond et al., 2019; Phillips et al., 2000; Zhu & Liu, 2020). However, research and reviews from South Africa (Kotze et al., 2019), Bangladesh (Pouzevara & Khan, 2007), and Brazil (Bruns et al., 2018), suggest that technology-mediated training can indeed create the necessary conditions for professional learning. Because the already rapid changes in the digital landscape have been further fueled by COVID-19 stay-at-home orders and demand for distance learning, “digital dilemmas” pertinent to low- and middle-income countries (LMICs) need to be addressed. Among the challenges for LMICs are tensions between access and quality (GSMA, 2010), along with cost, time-frame pressure, equity, private sector engagement, and scaling (Wagner, 2018). This substantial number of obstacles highlights the need for more formative, process-oriented, and contextually specific product evaluations and assessments (Pouzevara, 2015).

However, a major shortcoming in many available education technology evaluations is employing an oversimplified “with/without” comparison, followed by judging the effectiveness of the technology based on an equally oversimplified outcome measurement of “learning.” Often, insufficient attention is paid to factors such as whether the technology was designed based on a solid theory of learning; whether it was piloted, and had time to mature in functionality and user design, before being evaluated; how much actual time was spent using the technology; and whether built-in features of the technology generated the metrics for evaluation, as opposed to reliance on external measures.

Ever since the first education programs funded by the United States Agency for International Development (USAID) shifted to technology as a main mode of training delivery in mid-2020, RTI has used internal funds to work with program monitoring, evaluation, and learning (MEL) and teacher professional development (TPD) teams across projects to select, compare, and test guiding questions and standardized indicators. We used the results to develop our recently released *MEL Framework for Technology-Supported Remote Training* (Strigel et al., 2021). The purpose of this “MEL-Tech Framework” is to help programs better understand whether they are reaching teachers and other school-level actors remotely through technology and to address the shortcomings discussed above.



This report presents case studies of five remote training activities conducted by USAID-funded and RTI-implemented programs: the Advancing Basic Education Project (ABC+) in the Philippines, the Malawi Early Grade Reading Improvement Activity (MERIT), Read Liberia, *Okuu Keremet!* in the Kyrgyz Republic, and the Uganda Literacy Achievement and Retention Activity (LARA). Findings from follow-up mixed-methods research conducted after the trainings are presented for ABC+, Read Liberia, and Malawi MERIT. The case studies—with additional details presented in **Annex A**—seek to apply a more process-based and learning-oriented approach, drawing from the MEL-Tech Framework, to understand technology-supported remote teacher training introduced in response to COVID-19.

## 2. BACKGROUND

### 2.1 Shifts in Teacher Learning

As noted in a Brookings Institution blog by Rebecca Winthrop (2020), the use of technology to support teachers is not new, but the disruptions created by COVID-19 have pushed educators to “to innovate and experiment with these online tools and [teachers] may want to continue online pedagogies as a result of all this.” Since March 2020, education programs and governments accustomed to traditional, face-to-face professional development activities have learned a lot about blended learning approaches.

### 2.2 Teacher Professional Development Under RTI Programs

Across RTI’s programs, pivots to remote training approaches have varied—from the distribution of home study guides and administration of weekly one-on-one phone calls to interactive voice response (IVR)-based trainings, to the rollout of self-directed learning modules on various learning-management platforms. Largely, the selection of approach and technology platforms has been driven by the infrastructure available, the experiences of the target participants, the scale of the training, and the scope of material to be covered.

Due to timing issues, our follow-up research for these case studies was limited to Read Liberia, Malawi MERIT, and ABC+ Philippines.

- The Philippines ABC+ training targeted 8,000 primary school teachers over five days through a blended learning approach that used Zoom and Google Classrooms. The topic of this training was “Instructional Strategies for Language Learning and Transition.”

#### A note on terminology

We define **reach** to mean the portion of the target audience that engages with the digital content at least once. We define **effectiveness** as the degree to which the intended outcome of the initial intervention design is being met. We define **remote training** as a product we deliver, with inputs in the form of content, instructional design, facilitation, and materials. We understand **training** as a well-defined and time-bound event for participants to acquire new knowledge or skills, which might be one piece of a **teacher professional development** program. In contrast to the term **distance learning**, which implies a receptive act of engagement on the part of learners who seek opportunities to learn from a distance, we intentionally take the perspective of the training provider.



- The Malawi MERIT training targeted 18,000 head teachers and subject heads over seven days using IVR accompanied by electronic materials shared via WhatsApp. This training served to refresh target participants on how to use teacher learning circles (TLCs).<sup>1</sup>
- The Read Liberia training targeted over 1,200 teachers and 600 principals over 10 days using home-based study guides and daily phone calls from program coaches. The goal of this training was to familiarize and prepare teachers and principals to use the revised early grade reading (EGR) teaching and learning materials.

Profiles of remote training activities implemented by these and two additional USAID-funded programs—a five module Moodle course developed by *Okuu Keremet!* (Kyrgyz Republic) and a video- and audio-based training intervention piloted by Uganda LARA—are also featured in Annex A.

## 2.3 MEL Framework for Technology-Supported Remote Training (MEL-Tech Framework)

As noted in the introduction, the case studies presented in this report were developed in alignment with early drafts of RTI's *MEL Framework for Technology-Supported Remote Training*. This framework was designed to provide a consistent and nuanced lens through which to develop and measure different technology-supported remote training activities, according to five “essential considerations,” as outlined in **Figure 1**.

**Figure 1. Overview of RTI's MEL-Tech Framework<sup>2</sup>**

<i>Consideration 1. Fit to Purpose – Design and technology respond to gaps the training seeks to address and to the needs and resources of the target population</i>				
Purpose	Target Audience	Content Parameters	Instructional Design	Dosage/Duration
<i>Consideration 2. Access and Reach – All intended users are able to access technology, training activities, and resources</i>				
Access – User Needs	Reach			
<i>Consideration 3. Engagement – Training is implemented and received as intended, is relevant, and is captivating to users</i>				
Communication	User Testing	Participation Fidelity	Satisfaction/Perceived Value	(Relevance)
<i>Consideration 4. Outcomes – Technology-supported approaches result in learning and behavior change</i>				
Learning	Behavior Change	(Self-efficacy)		
<i>Consideration 5. Organizational Performance and Sustainability – Technology-supported approaches can be planned for, maintained, and improved on by government or other entities</i>				
Capacity	Cost	Resources		

<sup>1</sup> In Malawi, TLCs are a practitioner-driven method of professional development. Small groups of teachers and a facilitator meet regularly to share information on assessing students' mastery of content, to connect teaching practices with outcomes, to leverage others' classroom experiences, etc.

<sup>2</sup> The two sub-categories in parentheses will be added in the next

Research questions and survey items are largely based on framework indicators (see Strigel et al., 2021, for the full list). Lessons learned from applying this framework to the case studies were used to both revise and “ground-truth” framework questions and indicators.

The design of these case studies was further informed by two important documents: *A Roadmap for Measuring Distance Learning: A Review of Evidence and Emerging Practices* (Morris et al., 2021); and a forthcoming Technology for Teacher Professional Development (T4TPD) Framework, now in development by the World Bank. The three components of the USAID *Roadmap*—reach, engagement, and outcomes—were used as metrics in these case studies; and many of the topics included in each training overview were drawn from the *Roadmap*’s case studies template. The World Bank’s T4TPD Framework (a work in progress, not yet published), which takes a higher-level look at using technology for teacher behavior change, influenced the orientation of the research design in terms of the potential value added by the unique attributions of technology and their potential to enhance and improve training effectiveness.

## 2.4 Organization of Report

This report is organized into two parts. The first part presents the background, purpose, and approach to conducting the case studies. We begin with an extensive review of the literature, followed by an outline of the research methodology and a summary of the study challenges and limitations. Although our research approach for the three main case studies presented was uniform, differences in sample size, data collection technology, and tools are detailed and explained.

Part two breaks out the three main case studies: Read Liberia, Malawi MERIT, and ABC+ Philippines. Within each case study description, we first present an overview of the training, its fit to context, MEL approaches, equity considerations, and lessons learned from implementation. Next, we present findings from quantitative and qualitative follow-up research conducted six to 12 months after the training. A conclusion section synthesizes main findings across the case studies, in light of current literature and our research design.

As mentioned earlier, in addition to supplying more detail about these three programs that we examined closely, Annex A provides an overview of two additional trainings, conducted by *Okuu Keremet!* and Uganda LARA. Even though the timing of these activities did not enable follow-up research, because these trainings were distinct from the others in their approach, they yielded a great deal of important and useful information on developing trainings around learning management systems (*Okuu Keremet!*) and microlearning videos (Uganda LARA).

Finally, **Annex B** presents the survey and interview tools used in the three main case studies.

### 3. LITERATURE REVIEW

#### 3.1 Methodology

This literature review began with searches of databases including ERIC, EBSCOhost, ProQuest, and Scopus. Keywords searched include *Developing Nations* and related terms *Third World Countries*, *Emerging Nations*, and *Underdeveloped Nations*; *In-Service Teacher Training* and related terms *Teacher Education*, *Teacher Professional Development*, *Teacher Workshops*, *Professional Training*, and *Faculty Development*; and *Educational Technology* and related terms *Instructional Design*, *Educational Equipment*, *Technology Uses in Education*, *Computer Uses in Education*, *Blended Learning*, *Education*, and *Technology Integration*; and *Design*. Resources were organized using Microsoft Excel and sorted by country. Peer-reviewed articles were identified by applying database filters or by reviewing each journal's guidelines. Additional sources were found within article results of the original search and were explored. All sources and reviews were pertinent to online teacher professional development (oTPD; elaborated in Section 3.3) and relied heavily, sometimes exclusively, on the use of technology for TPD.

#### 3.2 Characteristics of High-Quality Teacher Professional Development

From this review, Barber and Mourshed's (2007) international study indicated that among the world's top-performing schools, teacher quality, instructional improvement, and instruction that promotes success are the most important factors in student achievement. A follow-up study found that teacher quality, instructional practice, teacher collaboration, context, structure, and resources were key factors in school systems' improvement strategies (Barber et al., 2010). Similarly, professional development activities that increase teachers' knowledge of *how students learn* is more effective than those focused on increasing content knowledge (Kennedy, 1998). Yoon and colleagues (2007) estimated that 49 hours of participation in high-quality professional development can increase student achievement by up to 21 percentage points.

High-quality teacher professional development (TPD) is characterized by relevant content, engaging learning communities, and coherence with other professional development activities (Garet et al., 2001). Learning Forward (2012) added leadership, resources, data, and learning design as important elements of effective TPD. Job-embedded TPD is preferable (Ross, 2011; Yendol-Hoppey & Dana, 2010; Zepeda 2015) and defined by routine follow-up, ongoing reflection, collaboration, and support for teachers. According to Yendol-Hoppey and Dana (2010), four building blocks for job-embedded TPD are knowledge sources, knowledge types, orientation, and learning needs, which supports the notion of teachers as adult learners. Although traditional TPD and online TPD (oTPD) are not synonymous, the principles of designing space for collaboration, forming learning communities, and organizing partnered meaning-making activities apply to both (Lay et al.,

2020). Powell and Bodur (2019) suggested an oTPD “design and implementation framework based on teachers’ perceptions of relevancy, authenticity, usefulness, interaction and collaboration, reflection, and context” (p. 28).

### **3.3 Characteristics of High-Quality oTPD**

oTPD refers to courses, learning modules, and instructional coaching administered online and includes massive open online course formats. Within this review of the literature, online platforms successfully used for oTPD included Moodle (Orleans, 2010), Canvas (Rizzuto, 2017), Skype (Bruns et al., 2018), online surveys (Mailizar et al., 2021), and Computer-Assisted Language Learning (Vu et al., 2014). oTPD occurred both asynchronously and synchronously, with training content being posted on learning platforms for teachers to access, plus online discussion boards and video calls.

oTPD brings benefits of flexible scheduling (Dede et al., 2009), personalized learning, and geographically limitless collaboration (Mailizar et al., 2021). oTPD enables schools to draw upon resources not available locally or nationally, services teachers in rural locations and, during COVID-19, promotes public health (Lay et al., 2020). Additionally, it can be cost-effective. Combining in-classroom teacher feedback with virtual instructional coaching improved teachers’ classroom practice and student learning for only US \$2.40/student over one year in one study (Bruns et al., 2018) and students showed improved oral language development when their teachers received instructional coaching, with little difference between in-person and virtual coaching (Kotze et al., 2019).

The length of oTPD covered by this review ranged widely: one example involved three asynchronous modules; other courses were designed to last four weeks, six weeks, one school year, or two semesters. No clear pattern emerged for either the most effective length of OPD or the best online learning platform. Instead, oTPD that had clear learning goals, was relevant to teacher practice and easily transferrable to teachers’ classrooms, and provided support was more likely to succeed. High-quality TPD should suit the needs of the institution and the faculty being served, given that there is “no one-size-fits-all approach” (Rizzuto, 2017, p. 1). Graham et al. (2014; as cited in Lay et al., 2020) proposed that oTPD designers consider two layers: the physical—meaning the technology being used to deliver instruction; and the pedagogical—the strategies and pedagogy leading to the achievement of learning outcomes.

Bragg and colleagues (2021) conducted an extensive systematic review of the literature and found that good oTPD should have: inclusive learning strategies, participant engagement, learner supports, focus on the development of pedagogical content knowledge, practical learning activities, easy application of learning, flexible scheduling, and goal-oriented focus. Heuristic adult learning strategies are key for successful oTPD (Bragg et al., 2021; Orleans, 2010). Further, training content should be practical, relevant, and easily implemented

(Dede et al., 2009; Orleans, 2010; Reeves & Pedulla, 2013). High-quality training materials and effective delivery and management are both necessary for favorable outcomes (Orleans, 2010; Rutherford-Quach et al., 2021).

Sociocultural learning theories undergird the importance of learning communities and built-in support in oTPD. Teachers are more likely to complete oTPD when paired with peer-learning buddies (Lay et al., 2020) and nearly twice as likely to complete oTPD when participating with colleagues (Rutherford-Quach et al., 2021). Hebert (2007) merged existing research to develop a framework for the design of oTPD that supports the development of learning communities. Components specific to communities of practice include:

- Stakeholder alignment, where time is spent on building common understanding and purpose among the community;
- Value, where participation is valued by the larger organization in the form of time and resources devoted to the community, participation in the decision-making process, and public recognition of work;
- Open dialogue, where communities interact not only inside themselves, but also among other communities of practice;
- Rhythm, where a schedule of regularly occurring events (socializing, assessing progress, reflection) keeps members engaged in the community;
- Public and private avenues for sharing work;
- Varied levels of participation, where the input of members with personal styles ranging from quiet newcomers to veteran mentors is valued;
- Familiarity with novel components, where new problems and challenges build on existing knowledge to keep members engaged; and
- Evolution, where change both within and beyond the learning community is expected, encouraged, and supported.

Creating learning communities where participants learn and develop professional skills naturally relies on a trained facilitator, technology support, and appropriate resources (Hebert, 2007). Bragg et al. (2021) echoed the importance of technical support, including program orientation, in aiding successful completion. These findings can be particularly important for teachers in under-resourced contexts where external incentives to complete oTPD, such as stipends, are not feasible. They also indicate that creating learning communities is a cost-effective investment (Rutherford-Quach et al., 2021).

Online teacher collaboration has shown success in terms of both teacher practice and student achievement. Students of teachers who spend time in the discussion forum of an online TPD class score higher on high-stakes standardized tests (in this case, Advanced Placement exams; Lay et al., 2020). Similar to the importance of facilitators in the previous research, Bruns et al. (2018) found school-level coordinators to be crucial to the success of

oTPD. In their hybrid approach, coordinators served as intermediaries between trainers and teachers by observing classrooms and organizing teacher-training sessions using the tools provided to them. Increasing the number and volume of both structural and social supports correlated significantly with higher completion rates.

### **3.4 oTPD Results**

oTPD spanning three training modules on Moodle in the Philippines gave teachers improved knowledge of curriculum, improved subject-matter mastery, appropriate teaching strategies, improved lesson planning, and better knowledge of students' understanding (Orleans, 2010). In Brazil, four two-hour virtual instructional coaching sessions, three one-day in-person training sessions, and at least one live classroom observation per teacher increased teachers' pedagogical knowledge, instructional time, student engagement, and student performance on math and Portuguese standardized tests (Bruns et al., 2018). In the United States, approximately 100 hours of oTPD, including follow-up workshops, used classroom implementation and teacher collaboration, and resulted in improved teacher content knowledge and student reading comprehension (Magedin deKramer et al., 2012).

### **3.5 Limitations to oTPD**

Not altogether surprisingly, however, oTPD may have drawbacks as well as benefits, such that planners should proceed with caution. For example, Powell and Bodur (2019) warned that oTPD "may create a false sense of effectiveness if technology is used merely as a delivery tool void of effective design or implementation principles" (p. 20). Moreover, teachers with higher technological, pedagogical, and content knowledge (TPACK) are more likely than others with lesser knowledge to accept, participate in, and volunteer for oTPD, which could lead to inequities (Mailizar et al., 2021). Further, according to teacher surveys, the most decisive factors in successful online professional training are self-discipline, school administrator's expectations, and "ability to learn with limited support" (Vu et al., 2014)—factors that may vary widely among potential trainees. To further illustrate the importance of teacher engagement, teacher participants who earned 80% and above in the professional development course logged in more than twice as often as learners with the lowest grades and viewed the course learning resources most frequently. In contrast, lower-achieving learners viewed the "technical problems" resources and the frequently asked questions section most frequently (Vu et al., 2014). These examples imply that both technical and pedagogical support are essential for the success of oTPD. Additionally, they establish that instructional planners should consider teachers' TPACK when designing oTPD (Mailizar et al., 2021).

Especially in the wake of COVID-19, "the popularity and explosive growth of oTPD still outpaces rigorous empirical research" (Lay et al. 2020, p. 8). oTPD is a new research field in mathematics education (Mailizar et al., 2021) as well as in many other subjects such as

language arts, science, and social studies. Moreover, the literature is still highly focused on high-income and Western countries; the effect of cultural norms on participants' readiness to engage in and learn from oTPD is an under-researched field. This work attempts to contribute to filling that gap.

## 4. METHODS

### 4.1 Research Questions

The overarching question that these case studies aim to address is:

1. *What are the characteristics of technology-supported remote trainings that were effective in achieving expected results?*

To determine these characteristics, the follow-up research was designed to answer the following sub-questions:

2. Did teachers retain the key training content messages upon returning to the classroom?
  - Did training content retention differ by mode and design of training content delivery?
3. What effect did trainings have on teachers' confidence with new content areas?
4. How do teachers perceive the value and efficacy of these trainings?
  - How do these perceptions compare with their views from more traditional face-to-face trainings?

### 4.2 Research Design and Procedure

To answer these research questions, it was first necessary to articulate the various approaches used by the trainings undertaken by these programs, and why these technology and design choices were made, relative to the implementation context.

Because of COVID-19-related school closures, it was not possible to measure the effectiveness of trainings in terms of teacher behavior change and other changes in teaching and learning. As such, we developed a quantitative survey tool to measure training outcomes in terms of the evolution (or not) of teachers' knowledge and attitudes. Specifically, survey tools (see Annex B) were designed to measure the following four constructs: (1) participants' confidence implementing the target skills, relative to the training activity; (2) participants' retention of key content presented in the training, six to 12 months later; (3) participant satisfaction; and (4) participants' perceived value of the training and application of what was learned. Two additional areas were also measured, to compare and consider alongside these training outcomes: (1) the duration of time each participant spent on the training, and (2) opportunities to practice and apply skills since the time of the training.



Because we wanted to gain a deeper understanding of the design and delivery components of each training, and to look for ways these aspects may be linked to achieving or not achieving expected results, qualitative interviews were conducted in Malawi and Liberia. These qualitative interviews asked respondents to give more detail on specific training components, including independent, self-guided activities; collaboration through calls or chat groups; application and practice; and any adaptations to the training for teachers in remote/out-of-network areas or other disadvantaged groups.

Data collection for these case studies occurred in two phases:

1. Interviews with program staff, coupled with a key document review, were conducted with five programs between October and November 2020. These were followed by a review of monitoring data, analyzed in line with indicators from the draft *MEL Framework for Technology-Supported Remote Training*.
2. Administration of “follow-up” quantitative and qualitative surveys with training participants eight to 12 months after the training activity.

A simple, eight-item survey was administered to a consenting sample of training participants in Liberia, Malawi, and the Philippines between June and July 2021. Due to infrastructure challenges to setting up SMS-based surveys, as well as indications that participants would be unfamiliar with the SMS survey format, this tool was administered via phone call by trained data collectors in Liberia and Malawi. In the Philippines, this tool was administered as an SMS survey, as part of an SMS campaign supported by ABC+ program staff. In Malawi and Liberia, phone interviews were conducted in English, with real-time Chichewa translations in Malawi as needed. In the Philippines, the SMS survey was conducted in Filipino.

Also in Malawi and Liberia, qualitative interviews with a targeted sample of training facilitators and participants were conducted via phone, by experienced research consultants. Interviews were conducted in English, with real-time Chichewa translations provided in Malawi as needed.

Survey and interview instruments for all countries can be found in Annex B.

### **4.3 Sampling**

Due to limitations on reach during phone-based data collection, a nonrepresentative convenience sample of training participants was drawn for follow-up research in Liberia and Malawi. In the Philippines, as noted above, all target participants were sent the survey via SMS.

In Liberia, 534 out of 1,269 total teacher participants and 266 out of 633 total principal participants were sampled, for a total sample size of 800. The sample was randomly drawn from six counties, and the number of training participants sampled was proportional to the number of schools in each county: Bong (15%), Grand Bassa (9%), Lofa (14%), Margibi

(11%), Montserrado (21%), and Nimba (30%). For the qualitative interview component, researchers reached out to a sample of 16 program coaches who acted as training facilitators; 12 agreed to interviews. Of these, seven coaches supported training participants living outside of regular phone and internet network coverage areas. Researchers in Liberia then conducted interviews with 16 teachers from both rural and urban schools.

As noted above, due to the ability to use SMS campaigns in the Philippines, all 8,400 kindergarten through grade 3 teachers were included in the sample. This sample included teachers targeted with different modes of training, including those with little or no internet or phone access.

In Malawi, a random sample of 924 participants was selected from a sample frame of 15,819 section heads and head teachers who completed at least one key message of the training in the June 2020 remote training (out of the initially targeted 18,000+ participants). Also in Malawi, 21 head teachers and section heads targeted for qualitative interviews were reached.

A breakdown of samples and response rates for the quantitative survey is presented in **Table 1**, and for the qualitative interviews in **Table 2**.

**Table 1. Quantitative survey sample**

Country	Initial/target sample	Response rate	Final sample for analysis (no. of participants)
Liberia	800 participants (principals and teachers) <ul style="list-style-type: none"> <li>▪ 187 women</li> <li>▪ 612 men</li> </ul>	39%	315
Malawi	924 participants (section heads and head teachers)	66%	608
Philippines	8,400 teachers, kindergarten through grade 3	32%	2,657

**Table 2. Qualitative interview sample**

<b>Country</b>	<b>Initial/target sample</b>	<b>Response rate</b>	<b>Final sample for analysis (no. of participants)</b>
Liberia	<ul style="list-style-type: none"><li>▪ 20 teachers<ul style="list-style-type: none"><li>– 10 urban/peri-urban</li><li>– 10 rural</li></ul></li><li>▪ 16 program coaches/facilitators</li><li>▪ 8 coaches supporting remote/out-of-network teachers and principals</li></ul>	50%	35 total: <ul style="list-style-type: none"><li>▪ 16 teachers<ul style="list-style-type: none"><li>– 9 urban</li><li>– 7 rural</li></ul></li><li>▪ 12 program coaches/facilitators</li><li>▪ 7 coaches supporting out-of-network teachers</li></ul>
Malawi	Section heads and head teachers	100%	21 total: <ul style="list-style-type: none"><li>▪ 16 section heads</li><li>▪ 5 head teachers</li></ul>

## 5. CHALLENGES AND LIMITATIONS

In conducting follow-up research for these case studies, the research team confronted several limitations and challenges that readers should keep in mind when interpreting reported findings. First, the use of phone calls and SMS messaging for data collection likely biased responses toward participants who used one of the training technologies (phones) more frequently, were more comfortable using one of the training technologies, had access to electrical power and phone/internet networks, and were in less remote or hard-to-reach areas. Second, the samples drawn for this research are not statistically representative of any program, region, or country. Third, due to ongoing school closures and other COVID-19-related challenges, no data were collected on teacher application or behavior change, or change observed in the classroom—which are important expected results of all the training activities included in these case studies. To learn as much as possible given these constraints, the team focused on outcomes in terms of teacher knowledge and attitude change. Fifth, due to challenges in the early phases of setting up survey technology, follow-up surveys and interviews were conducted further out from the training than initially planned. The original research design called for surveys and interviews to be conducted six months after the training activities but data instead were collected nine to 12 months later. While this timing change did add weight to some findings—e.g., teachers’ ability to recall key concepts one year later is encouraging—it may also have diluted some respondent’s memories and ability to respond in detail. Lastly, the findings are lacking demographic information—no disaggregation by age, gender, or similar characteristics was possible. Because of the nature of the survey and the known risk of participants dropping off (intentionally or not) if kept on the phone too long, the number of questions was limited and excluded demographic information. This approach ensured that more respondents answered all questions, but also limited the ability to get more nuanced information.

## 6. CASE STUDIES AND FINDINGS

### 6.1 Overview

*In what ways did technology-supported remote training for similar target audiences vary across countries?*

**Table 3** summarizes some of the key characteristics of the technology-enabled TPD that were part of each program. The unique design of each training program is evidence of the principle of “tailoring” in practice. There is no one-size-fits-all approach; each program was designed in consideration of both the physical and the pedagogical needs (Graham et al., 2014) of each country. What all countries had in common was inclusion of audio or visual direct instruction and the ability to access this content on demand (asynchronously) rather than only at a scheduled time (synchronously). Uganda’s program was entirely on-demand. Not all the programs, even if they were on-demand rather than synchronous, were planned to be available to access in the future. Where the programs differed was in the extent to which the TPD involved more standard training elements such as quizzes, practice, feedback, peer exchange, or summative evaluation.

This level of variation makes it impossible to compare professional development models across contexts and thereby determine which model “works best.” Indeed, that was not the intent of the research, given the importance of tailoring training to the context rather than adopting models from one place and implanting them wholesale in another. Instead, this study tries to compare *the components* of programs and their instructional design, to know which elements of tech-enabled TPD can be effective for which audiences. These components are the “negotiables” of any TPD program that can be customized according to the context. Our study also captures approaches to the “nonnegotiables,” which are the project management aspects that will need attention for successful implementation, regardless of the final design.

Table 3. Summary of program features by Country	Format	Technology/Functionality orientation	Reading	Test recall (quizzes)	Practice (microteaching)	Assignments (task production)	Feedback	Audio or video lecture (instructor talking)	Video explainer (animation or model)	Share video	Summative evaluation	Synchronous session(s)	Asynchronous on demand	Peer exchange	Persistent (available to revisit indefinitely)
Kyrgyz Republic	Blended (face-to-face, self-study, online)	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Read Liberia	Blended (self-study, IVR, call, SMS)	●	●	●	●	●	●	●	●	●	●	●	●	●	●
ABC+ Philippines	Blended (self-study, online)	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Malawi MERIT	Viamo IVR	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Uganda LARA	Video animations	●	●	●	●	●	●	●	●	●	●	●	●	●	●

● = present; ● = absent; ● = somewhat present.

### *What contextual factors drove these variations?*

In most cases, program design was based on the available technology that training participants could be expected to use. Considered were access, affordability, and familiarity with the remote methods. For example, in the Philippines, the project surveyed the target participants to learn which delivery modalities were most accessible to most participants; 4,475 respondents submitted information on their access to and preferences for online technology. In Malawi, technology access was also a consideration in training design; IVR was attractive because it required only a basic cell phone and would allow for several different types of audio content (e.g., dialogues, role-plays, games). IVR does not allow for visual supports, however, or opportunities for discussion and interaction with the content and with peers—for those functions, MERIT used WhatsApp. SMS was used to issue reminders about upcoming training, to try to increase participation. Before the training, the organizers conducted a quick survey of instructional leaders in a nationally representative sample of 86 schools to determine the percentage of those in the target group that had a smart or feature phone with WhatsApp capabilities. The responses helped determine which technology to use. In Liberia, before the training, coaches conducted a survey of target participants; most reported that they had feature phones (i.e., non-smartphones) and did not have regular access to the internet. As such, the training approach had to be deliverable

without computers, tablets, or smartphones. Some participants were stationed in remote schools that did not receive any internet or phone services. To ensure their inclusion in the training, staff uploaded IVR messages onto digital recorder devices and MP3 players and distributed them to the most remote and hard-to-reach schools. Every day, participants at these schools were instructed to listen to a different day's recording, in line with their home study guide.

*Okuu Keremet!* in the Kyrgyz Republic and, to some extent, ABC+ in the Philippines, also chose platforms already in use for e-learning in the national system of TPD (Moodle and Google Classrooms, respectively). *Okuu Keremet!* kept its platform design as close to the existing national system design as possible. To a lesser extent than technology availability, the needs of the target audience also helped select the training modality; in Uganda and Malawi, the trainings were refreshers on relatively straightforward informational topics. For this reason, the largely one-way nature of training delivery through IVR or video explainers was considered sufficient. This situation was unlike in Liberia and the Philippines, where teachers were expected to learn skills they lacked, and therefore their ability to demonstrate, practice, and receive feedback was considered much more important.

Finally, in some cases, the design also depended upon program timelines and budget. In Uganda and Malawi, the projects were nearing the end of the contract period, so the training activities had to be limited in duration and rapidly set up and deployed. Considerations were made for handover so that the instructional materials could be available perpetually, but in most cases, decisions to distribute or embed the materials in future activities were outside the control of the projects.

## 6.2 Results

### 6.2.1 Quantitative survey results

Results described here come from our qualitative and quantitative analysis from Liberia, Malawi, and Philippines only. For more extensive training descriptions, see Annex A. The outcome variables selected for this analysis were limited to satisfaction (would they take this kind of training again?); relevance (did they find value in it and have they had an opportunity to apply the learning?) and learning (did they remember anything from the training and do they feel more confident in the subject matter?). As a reminder, participants in Malawi were answering questions related to a training that took place approximately one year prior, using IVR and WhatsApp groups; whereas in Liberia, they had completed the training approximately 10 months prior, using a combination of modalities.

**Learning.** For the two programs that collected pre-and post-training confidence measurements—in Malawi and Liberia—we saw increases of 30 to 35 percentage points in the proportions of individuals who reported feeling “very confident” in the subject area of the training. Among the 53% of the Malawians who were only “not at all” or “somewhat”

comfortable (326 people), 35% (215 people) were “very comfortable” on the day that they responded to the questionnaire. The Liberian participants were already more comfortable with the training content before the program, but among the 38% of participants (119 people) who felt “not at all” or “somewhat” comfortable with the content before, 29% (91 people) became “very comfortable” after the training. In both countries, less than 2% of participants remained in the “not at all” comfortable category.

For Liberia and Malawi, we looked at the data combined to see if individuals who were not “very confident” (i.e., answered any of the two lower responses on the three-point scale) before the training improved their confidence after the training:

- 26% of people who said “not at all” or “somewhat confident” reported the same level of confidence on the day of the survey.
- 59% reported an increased level of confidence by one “degree” (i.e., from “not at all” to “somewhat”, or from “somewhat” to “very confident”).
- 14% of people reported two degrees of increase (i.e., “not at all” to “very confident”).

Therefore, it is encouraging that approximately three quarters of participants felt they improved their self-efficacy as a result of the training, but it would be important to know more about the experience of the 26% who did not improve.

On the two content retention questions asked during the survey, in Liberia, 55% and 96% of participants answered correctly. The corresponding figures for Malawi were 83% and 93%. The Philippines asked only one content question, and 98% answered it correctly. We cannot know if the questions were of equivalent difficulty across the countries, but these results show that all modalities resulted in content retention, with the exception of one question in Liberia that could have had a higher rate of accurate responses.

**Relevance.** Less than half of the respondents in Liberia (36%) and Malawi (46%) had had a chance to practice applying the content since the time of their training. In the Philippines, 98% of respondents did say they had practiced the skills since the training took place over one year prior. On the other hand, much larger percentages (94% in Liberia and 79% in Malawi) had discussed the training content with other colleagues, which may be an indication of the perceived value.

**Satisfaction.** Although most of those who participated in the multimodal training in Liberia (76%) said they would like to have this type of training again, only 30% said the same in Malawi about the IVR training.

In addition to analyzing the frequency of responses to each question, as summarized in the preceding paragraph, we cross-tabulated the results of combinations of questions to determine whether there were any trends in terms of which subpopulations reacted in a certain way to the training program. For example, were the people who valued the training (as measured by those who said they had shared or discussed the training content with



other colleagues since the training) the same ones who had also practiced the content since? Or who had expressed satisfaction with the format? Although it is not easy to draw conclusions based on these associations, **Table 4** and the narrative that follows describe some of the findings. Qualitative results, presented next, provide additional insights.

**Table 4. Cross-tabulations of participant responses**

	Association ("Percentage of respondents who...")	Liberia	Malawi	Philippines
1	<b>Value + Learning</b> ... DID talk to others about the content of the training: <ul style="list-style-type: none"> <li>▪ And who answered the first content question correctly</li> <li>▪ And who answered the first content question incorrectly</li> </ul>	57% 43%	83% 17%	63% 37%
2	<b>Value + Satisfaction</b> ... DID talk to others about the content of the training: <ul style="list-style-type: none"> <li>▪ And who would prefer another training in the same modality</li> <li>▪ And who would NOT prefer another training in the same modality</li> </ul>	77% 23%	34% 66%	Not applicable
3	<b>Value + Practice</b> ... DID talk to others about the content of the training: <ul style="list-style-type: none"> <li>▪ And who have had a chance to practice since</li> <li>▪ And who have NOT had a chance to practice since</li> </ul>	91% 8%		98% 2%
4	<b>Practice + Confidence</b> ... DID have a chance to practice since the training: <ul style="list-style-type: none"> <li>▪ And who reported improved confidence "today"</li> <li>▪ And who reported NO CHANGE (or a negative change) in confidence "today"</li> </ul>	75% 25%		Not applicable

**Value and learning.** On the first association, between value of the training and content retention, no clear interpretation emerged. The data in Table 4 above do show that people who talked to others about the training (a proxy for positive perceived value) more often answered the content retention question correctly. However, for Malawi, where 83% of participants overall answered the question correctly; and the Philippines, where the proportion was 63% (neither figure shown in table), equal proportions among them did and did not talk to others about the training. In other words, although there appears to have been a positive association between valuing the training and having learned something, the opposite was not true except in Liberia. In that case, most people who DID talk to others about the training answered the question correctly (57%), and most people who DID NOT talk to others about the training answered the question incorrectly (63%, not included in the table). One could hypothesize that among Liberian teachers, this finding indicates some level of confidence from having learned the training content, but this suggestion is purely speculation.

**Value and satisfaction.** For some questions, we combined the Malawi and Liberia responses to see whether we could draw any broader conclusions about the relationship between, for example, teachers' satisfaction with the training ("Would you participate in this type of training again") and their perceived value of it ("Have you talked about or shared the content with others since the training") when the sample was larger. We found that the combined responses split equally among teachers who valued the training—half did not want the same type of training again, and half did. Again, the opposite was not necessarily true; among teachers who did not value the training according to this metric, 74% said they would not prefer this type of training in the future, but 26% would. However, when separated by country (see row 2 in Table 4 above), we see that 77% of participants in Liberia valued the training and would want to repeat the same format again, but the opposite was true in Malawi—among participants who valued the training, 66% would NOT want to repeat the same modality of training again. Therefore, it may be that preference for the training modality was associated more with factors that we did not measure, such as gender, age, occupation, comfort with the technology, or training design.

**Value and practice.** It is slightly more intuitive to note that the people who talked with others about the content of the training were by and large the same ones who had had a chance to practice the content since the training (Table 4, row 3). However, in the Philippines, nearly all teachers had a chance to practice and it appears that they practiced whether or not they talked with others about the content. In Liberia and Malawi, as shown in Table 4, of teachers who said they had talked to others about the content, 91% had practiced the content since; on the other hand, among teachers who said they had NOT talked to others about the content, 73% had practiced the content (not shown in the table). Therefore, teachers may have talked to others in the course of practicing the content, but it very much depended on the situation with COVID-19-related social distancing and whether schools were in session. In the Philippines, the school year took place entirely remotely, but many teachers had the opportunity to meet with other teachers either in socially distanced, in-person groups, or through social media messaging apps, which are widespread in that country.

As mentioned above, in Liberia and Malawi, less than half of teachers had a chance to practice although schools did reopen. In Liberia and Malawi, about one third of teachers seem to have been isolated for some reason—not sharing, not practicing the content. We cannot know from these data who those teachers were and how this finding relates to the training content or quality. However, we did check and it is not *the same* individuals. Although 26% of participants reported no change in confidence, among these, 19% said they both practiced and talked to someone else about the content.<sup>3</sup> In theory and TPD best

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<sup>3</sup> In fact, regardless of the reported change in confidence, the largest share of individuals said "yes", they had practiced and "yes" they had talked to someone else about the training. So this may show some positive response bias rather than indicating any association with confidence level.

practice (see literature review), teachers should participate in training that is relevant because they are expected to practice the skills in the short term following the training. Thus, oTPD-enabled, job-embedded training is considered good practice. However, given the situation in these countries during the pandemic, and given project-imposed requirements, some teachers may have attended the training even if they were in a situation in which they were not expected to practice the content immediately afterward.

**Practice and confidence.** As mentioned above, 26% of teachers who were not already “very confident” (i.e., who had room to improve) reported no change in confidence with the content after the training. Across teachers who *did* practice, 25% reported no change in confidence, and for those who *did not* practice, 37% reported no change in confidence. Overall, of teachers who did practice since, 75% reported improved confidence (Table 4, row 4); and of teachers who did not practice since, 59% reported improved confidence (not included in table). These data refer only to Liberia and Malawi, combined. The question “How confident were you before the training?” was not asked in the Philippines; only “How confident are you after the training?” This finding supports the notion that improved self-efficacy results from both being trained and putting training into practice. In particular, 59 of 63 individuals who reported the largest increase in confidence (from “not at all” to “very”) were those who had practiced since. Interestingly, satisfaction with the training format (willingness to do it again) was not clearly associated with change in confidence level; the number of individuals who expressed *not* being satisfied with the training despite having improved their confidence equaled the number who expressed being satisfied with the training *and* having improved their confidence. Again, this finding supports the notion that there was more behind the preference for training modality than simply whether one was able to learn effectively.

**Effect of training modality.** Ultimately, this research aimed to shed light on whether the format of online or distance teacher professional development would make a difference in training satisfaction, perceived value, and learning outcomes. This type of detection was challenging in our comparison of three completely different training types across three different countries. However, in the Philippines, teachers participated in different modalities, allowing us to compare survey results within a more homogenous population. The data show that teachers valued the training equally (shared the training content with others) regardless of training format: between 85% and 90% in each training modality subgroup shared the content. Similarly, regardless of mode of training, between 63% and 70% of teachers answered the content question correctly as a measure of learning retention. It is important to note that 59% of teachers who did not participate in the training at all got the content question correct. Finally, response rates were also within three percentage points of each other for teachers who indicated that they valued the training (because they shared the content with others) or did not value it, based on mode of participation. Therefore, the Philippines data did not lead us to believe that any mode of training stood out as more

desirable than any other, but instead implied that teachers could adapt to any kind of training format. Importantly, though, the measurement of whether teachers learned something must be stronger than just one self-reported content recall question.

### **6.2.2 Qualitative interview results**

Qualitative findings are available from Liberia and Malawi. From the quantitative data above, little can be said definitively about what kinds of remote training designs are most effective. These two training programs were very different: Malawi was shorter and consisted mostly of IVR content with the opportunity to participate in a WhatsApp discussion groups with a facilitator. Liberia included a similar model, but also access to printed materials for self-study. Consequently, Liberian trainees spent more time with the training content, over a longer period of time. Participants reported spending on average 406 minutes on the content in Liberia, compared to 128 minutes in Malawi. In both countries, participants reported positive content retention, and improved confidence with the content. On the other hand, many more participants in Liberia said they would like to do this type of training again, whereas only one third of participants in Malawi would opt for a similar training again.

The quantitative follow-up interviews focused on getting more details to answer the following questions:

- Did teachers retain key training content messages upon returning to the classroom?
- What effect did trainings have on teachers' confidence with new content areas?
- How do teachers perceive the value and efficacy of these trainings?
  - How do these perceptions compare with their views from more traditional face-to-face trainings?
- Did teachers use, practice, or apply key aspects of the training content messages upon returning to the classroom?

In addition to asking about what content the interviewee could remember, the interviewers asked if they could remember how that content was presented. The intention was to learn whether certain instructional design strategies led to content that “stuck.” The strategies used in the IVR content in both countries included scenarios, direct instruction, and quizzes. Both countries arranged opportunities for discussion, through either group messaging (Malawi) or phone calls (Liberia). In Malawi, we also had anecdotal reports of teachers coming together in the school to discuss the reflection questions put in the WhatsApp group. As noted above, Liberia also had print content for self-review.

#### **Malawi**

In Malawi, 21 individuals were asked whether they remembered any content from the training (and if yes, specifically what, and how it was presented); whether they had completed any activities on their own (and if yes, was it useful, and why); whether they had

participated in the zonal WhatsApp groups (and if yes, was it useful, and why); how they felt about the training content before and after the training; and whether they had used the content since. Participants were also asked to compare the format of the training to previous face-to-face trainings and to differentiate which parts were better or worse.

Of the 21, three people (all head teachers) immediately said they could not remember any content and did not complete any activities. They all said they did participate in zonal WhatsApp meetings, but they could not recall anything specific about what took place. These three had different views on the content (i.e., TLCs) before the training, but the head teachers seemed to agree that it was relevant only to section heads. They did not feel that the training had changed their attitudes toward the content at all. Only one of three claimed to have experienced applying the new TLC agenda since, but still could not say anything specific about what had changed.

The remainder of the analysis, with the exception of the question comparing perspectives on face-to-face training versus the remote modality using IVR, uses only the results from the 18 individuals who could remember the content and who provided more complete answers.

**Learning (content retention).** The questions on content retention were “Can you recall any of the content or skills that were covered on TLC steps, continuous assessment, and remediation?” and then “What do you remember about changes to the TLC steps?” and “What do you remember about classroom assessment and remediation?” On the first question about TLC steps, the answers varied widely in specificity, but among these 18 respondents, six could not cite anything specific, and two cited something incorrect. Therefore, less than half of all 21 respondents correctly recalled something about the training content. When asked “What do you remember about classroom assessment and remediation?”, most individuals cited something they had learned in a different training. Four (two were from the same subset of six above) still could not say anything specific. According to program staff, the IVR training mentioned generally that section heads should model and practice every step of the classroom assessment and remediation activity; the answers given were all valid tasks associated with classroom assessment and remediation, but they were not specifically mentioned during the IVR training. Regardless of the accuracy of what they cited from the training, most (10) recalled specifically that the content had been presented with questions to answer; specifically, six people recalled that it was a dialogue, compared to four who remembered that it was an explanation. Only one person could not recall any details about how the content was presented. All 18 people said that they had used the revised TLC steps in their work since the training, and 15 of them accurately described the change(s) they had made in TLC steps. At this point in the interview (Question 5), the level of content retention appeared to be much higher than was indicated by the first set of recall responses.

**Learning (confidence).** All 18 participants answered the question about their confidence levels before and after the training. Four people felt confident implementing TLCs before the training. Only one person said they did not change their attitude as a result of the training (this was a school head who had felt very confident about the topic already). Eight people said that they lacked confidence before the training or otherwise had challenges implementing; six explained that they previously “had less knowledge” or were somehow implementing TLCs incorrectly before. “Having less knowledge” is similar to lack of confidence in that it expresses room for growth, but a key difference is that the respondents were confident before but did not realize they were doing TLCs wrong or incompletely. Of the 17 who did change their attitudes after the training, the reasons they gave were varied. Seven described broadly feeling more confident from learning the steps of the TLC (as in a refresher training, or learning for the first time). Six people specifically mentioned a new method or new content that they learned that helped them feel more confident—for example, discussing classroom challenges or putting teachers in groups to reflect and share. Three people said their attitude improved because they had become more collaborative or inclusive of other teachers.

**Engagement.** Most interview participants (11) said they did complete activities on their own, but of these, two could not specify what they did. Of the remaining nine, the activity(ies) they completed included discussing with other teachers, preparing activities or action plans, answering questions, or participating in the WhatsApp groups. These nine individuals agreed that the training activities were useful, and seven of them stated that the training activities were useful because they allowed teachers to share knowledge with others and to work together or improve collaboration. Two others noted that the IVR training usefully served as a refresher training.

**Satisfaction.** Of the full set of 21 interview participants, 17 felt that some elements of the IVR training were better than traditional face-to-face trainings. The most consistent response—from four people—was that it was home-based, so it was safer during the pandemic and it allowed them to interweave other tasks as needed. Somewhat related to this opinion was that there was no cost (one respondent). Compared to face-to-face training, it was also more efficient and less time consuming, according to three people. Some of the specific features of the IVR design were also appreciated by the participants (although we cannot assume that something similar did not happen in face-to-face trainings)—interacting via questions and answers, getting the correct answers after the exercise, and being able to repeat content were all mentioned by at least two people. One person described the format this way: “I was forced to be attentive as I was told that questions would be asked at the end.” For several people, the content was described as “clear” (three respondents), “not time consuming” (three), or “easy to follow” (two), which suggests that sometimes “less is more,” especially for people who feel they need only a refresher training. Among the people who did not find anything positive about the training,

two were head teachers and two were section heads. No specific reason was given other than that face-to-face training is best. However, when all participants were asked whether there was anything about the IVR training that was not good, all 21 participants had something to say. Four people felt that the training time was not enough (presumably, the overall duration), and two others also mentioned that the speed of the audio was too fast and consequently it was either too hard to understand or too fast to take notes. Otherwise, the main concerns related to the lack of discussion and the lack of opportunities to practice (eight respondents) or to issues with technology (seven)—especially battery life, or just not having the right kind of phone and data. Two people mentioned the lack of an allowance, and one said that the timing was not good. Finally, two people mentioned not having a record of what they had missed and not being able to go back and review. Although the system did allow recipients to listen to messages a second time, this feature was limited to one day after the first message was sent. Also, the training included some reference materials sent by WhatsApp. It is possible that not all teachers received the training and reference materials that were distributed via WhatsApp. This situation presents an interesting contrast to Liberia, where printed resources were made available to review on demand, indefinitely.

To summarize, the experience of training participants in Malawi was overall very positive, and suggests that refresher training of straightforward, informational concepts can be done effectively through this modality. The format of dialogue plus question/answer was an engaging way for participants to learn the content and could be strengthened if every participant also had printed reference materials to refer to at the same time. Participants of the zonal WhatsApp groups unanimously agreed that it was useful, again citing the elements of knowledge sharing or revision/reinforcement of content.

### *Liberia*

Coaches and teachers in Liberia were also selected for interviews about the experience. They were not asked to compare the blended learning format to traditional face-to-face training, or to state whether they found some elements of blended learning to be better or worse. However, participants were asked if they remembered the content, how that content was presented, whether they had participated in any independent or self-guided activities, if they had participated in phone calls and messenger groups, how useful these activities were, and if their attitudes had changed before and after the training. The analysis below concerns only 9 teachers.

**Learning (content retention) and training design.** All 9 teachers recalled something about the training content, including how to use the teachers guide, summative and formative assessment and elements of reading instruction (i.e., phonics, comprehension, etc.). The question “Do you remember how the content was presented” was aimed to understand specific instructional design strategies within the overall training modality. For



example, was it a dialogue, or a conversation with the coach, etc. All teachers in these interviews answered that the training was delivered by phone calls, so the specificity intended by this question was likely not conveyed correctly during the interview. However, it is interesting that no participants mentioned the printed self-study guides. All of the interviewees had completed independent, self-study activities and most recalled that this was answering questions from the book. All teachers interviewed felt the activities were useful (although most answers indicate they are referring to the whole training, not just the independent activities) for learning new things or as a refresher. Similarly, all teachers participated in phone calls, but not messenger groups, and indicated that these were useful. Again, comments on usefulness seemed to refer to the whole training, not just the utility of the phone and messenger elements of the training. Answers give additional indication that the content could be recalled.

**Learning (confidence).** The question on confidence was “How did you feel about using the revised teaching and learning materials in your work before participating in this training?”. However, the answers from these 9 participants indicate that they are all referring again to the training and their attitude afterwards: “felt amazing”, “he felt impressed by the training”, “it was a wonderful experience”, etc. All participants answered “yes”, their attitude changed.

Seven out of network teachers were also interviewed. The answers were similar to those in the network. Given the very small sample size, the apparent mis-understanding of the questions’ intent, and lack of standardization of questions with Malawi, it is really very difficult to draw any conclusion from the Liberia qualitative interviews with teachers except that this training modality is feasible, especially for refresher trainings. Teachers did make use of the printed modules to answer questions in the study guide along with listening to the phone content.

## 7. DISCUSSION AND CONCLUSIONS

As introduced in Section 4.1, the overarching question that these case studies aim to address is:

1. *What are the characteristics of technology-supported remote trainings that were effective in achieving expected results?*

To determine these characteristics, the follow-up research was designed to answer the following sub-questions:

2. Did teachers retain the key training content messages upon returning to the classroom?
  - Did training content retention differ by mode and design of training content delivery?

3. What effect did trainings have on teachers' confidence with new content areas?
4. How do teachers perceive the value and efficacy of these trainings?
  - How do these perceptions compare with their views from more traditional face-to-face trainings?

Before answering these questions, it is useful to recall that in these countries, during the pandemic, the training design was largely based on what was possible in the context and would reach the largest number of people. This means mostly phone-based, one-way content. Therefore, we recognize that the training design during the pandemic has necessary limitations and does not, on its own, provide evidence for or against remote learning in general. *Findings are only reflective of this particular training design at this time, in these contexts.* Nonetheless, for this study to result in recommendations that can be of use after the pandemic we look at the elements of each training design that show promise, and therefore could be included in a future activity. Findings are therefore related to specific design strategies as well as broad principles that create enabling conditions. One could think of the design strategies as building blocks, like LEGO bricks, that can be combined in nearly infinite ways depending on what you want to accomplish, for whom. Yet all LEGO structures should be built on a strong, level surface, large enough to expand if needed—that is the equivalent of the broader principles that guide all activities.

**Instructional strategies.** While remaining mindful of the tendency towards a positive bias in post-training surveys (participants often tell us what we want to hear) this research indicates that the remotely-delivered trainings were feasible and appreciated despite limitations. We can be confident that refresher training of straightforward, informational concepts can be done effectively through modalities like IVR. Specifically, the format of dialogue plus question/answer was an engaging way for participants to learn the content. This could be strengthened if every participant also had printed reference materials to refer to at the same time or for review later—another 'building block' of instructional design. The printed reference materials can also serve as the question/answer component, requiring learners to seek answers in the text, but there still needs to be an opportunity to verify the correctness. Calls and messenger groups with a trainer or peers can serve this purpose as well as being an opportunity to share knowledge. Although in-depth follow-up surveys of the Uganda animated videos was not possible, the pilot also indicated that these animated video explainers can be fun, engaging and memorable complements to training design. In the Philippines, all training modalities showed promise, and the most important thing was finding the building blocks that trainees could access given limitations to internet connectivity for live sessions.

**Training principles.** The literature review included in section 3 reminded readers that effective TPD includes relevant training content that fits within (is coherent with) a larger professional development portfolio. TPD opportunities should also include opportunities for follow-up and engagement with peers in learning communities that enable reflection and

meaning-making. All of these aspects contribute to the most important principle of job-embedded training, allowing for easy application of learning and goal orientation, among other things. This is why online or remote technology-enabled TPD was considered good practice even outside of times of crisis when face-to-face is not possible. However, the situation in these countries during the pandemic and given project-imposed requirements may have meant that some teachers attended the training despite being in a situation where the content would not be practiced immediately. Nonetheless, the remote designs, regardless of modality, did give opportunities for engagement with peers and coaches. Another important principle is that teachers enjoy the experience, so training design and modalities do need to consider participants' willingness and preferences. We could not make a direct link between satisfaction and learning outcomes or subsequent practice. From our surveys, there seems to be more behind the preference for training modality than simply whether one is able to learn effectively. In the Philippines, where teachers could have participated in one of several types of training modality, there was not lead us to believe that any mode of training stands out as more desirable than any other, but rather that teachers can adapt to any kind of training format so willingness (or incentives) to participate remain an important principle underlying training design. Finally an additional principle related to the building blocks is perhaps that one LEGO brick on its own does not make a "creation" any more than one instructional design strategy makes a training. For example, although the animated videos used in Uganda were interesting to the pilot participants, they seemed unclear on why they should be watching one video without more explanation. All training needs to be scaffolded with at least communication that prepares the learners for what and how they will learn and follow up afterwards that reminds them what they learned and how to apply it. Changing from traditional face-to-face, instructor led workshops to alternative forms of remote learning necessarily requires new learning behaviors on the part of teachers. Remote learning requires more self-direction and motivation than instructor-led trainings, and building the skills and confidence for this type of professional development model.

**Evaluating TPD.** Importantly, though, the measurement of whether teachers learned something must be stronger than just one self-reported content recall question. Content recall questions also need to isolate responses that could have only come from the training, rather than a previous or follow up training, but this can be difficult to predict. Qualitative interviews also proved to be difficult for getting specificity related to training design and effects. Even the qualitative interviews required people very familiar with the training so that they could probe the nuances about the answers and recognize when (in Malawi for example), the individuals were referring to a different training, or not answering the question.

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## ANNEX A. ADDITIONAL CASE STUDIES

### Case Study 1: Philippines Advancing Basic Education Project (ABC+)

<b>Country:</b>	Philippines
<b>Implementation timeline:</b>	July 2019–June 2024
<b>Expected program result:</b>	Using innovative and research-based approaches, improve early reading, math, and social and emotional skills for children in the early grades (K–3)
<b>Distance-learning modalities:</b>	Facebook; Facebook Messenger; Google Classroom; Zoom; Google Suite (Docs, Sheets, Forms, Drive, Data Studio); WhatsApp
<b>Technology for collecting data:</b>	Web-based Professional Development Information System (PDIS)

#### *Background*

The USAID Philippines Advancing Basic Education Project (ABC+) is a five-year project designed to improve early grade learning basic skills, with an explicit focus on improving literacy outcomes for learners in kindergarten through grade 3 (K–3). In its first year of implementation (June to August 2020), the project delivered online training to 530 regional trainers and 5,000 teachers in Regions V and VI of the Philippines during the pandemic. An additional 300 regional trainers and 3,700 teachers were trained through a blended online and modular approach from February to April 2021.

#### *Content of the training*

The ABC+ baseline showed that very few teachers demonstrated the array of desired instructional methods that correspond to best practices for mother-tongue-based multilingual education (MTB-MLE). Further, the most effective literacy instructional practices were the most consistently underperformed. In response, ABC+ designed an initial teacher training on “Instructional Strategies for Language Learning and Transition.” The training highlighted:

1. Understanding the core domains of literacy instruction
2. Applying bridging strategies from mother tongue to second language (Filipino) and then to third language (English)
3. Facilitating oral language discussion and practicing language domains to improve literacy skills
4. Applying principles of effective feedback and support to learners.

The content of the training was designed in collaboration with the national Department of Education (DepEd) and based on evidence of best practices related to MTB-MLE, which is the official curricular policy of the Philippines for K–3 learning.

In preparing the training, the designers carried out extensive research to ensure that the content would respond to the needs of the teachers and learners and would be delivered by the most effective means possible. This process included a review of DepEd’s existing policies and modules for teacher training on early literacy, qualitative observations of existing classroom practices, focus group discussions with key stakeholders, and analysis of baseline data on observations and learning outcomes. Research also included a panel review of K–3 videos in three areas: (1) use of supplementary materials, (2) teachers’ bridging strategies, and (3) pedagogical approaches in linguistically diverse classes. A follow-up focus group discussion was conducted to clarify points regarding the teachers’ practices.

### **Design of the online training delivery modality**

Due to the pandemic, ABC+ had to pivot its initial training to a fully online modality. The delivery modality was designed based on extensive research on available technology of target participants, best practices for online adult learning, and review of best available platforms for scale. To get accurate data, the project team designed an online technology access survey, rolled it out using the Kobo Collect online data collection platform, and administered it to school heads and K–3 teachers in Regions V and VI from April to May 2020. More than 4,475 respondents participated in the survey. Key results from the survey informed the technical approach and operational considerations for implementing online training, including the type of technology and equipment, as well as the target users’ experience with various technology platforms, exposure to online training, access to the internet, and available bandwidth. Multiple factors were considered, but one of the most considerable obstacles was access to a stable internet signal, a significant deterrent in the overall online learning experience.

A three-day learning session was organized to assist ABC+ and key DepEd personnel in preparing for the shift to online and blended learning. Thirteen consultants who had served as master trainers were rehired to review the training content—including a 10-day workshop to redesign the training (see workshop

**Figure A-1. Slide from 10-day redesign workshop**

**2 Redesign and Re-Strategize**

<ul style="list-style-type: none"> <li>❑ <b>Training content compressed and reorganized</b> <ul style="list-style-type: none"> <li>❑ From 18 sessions to 5 thematic topics focus on 2 Strategies</li> <li>❑ Mini-exercises embedded for modeling and practice</li> <li>❑ Self-paced work for application</li> <li>❑ Selected outputs curated and compiled – <b>Compilation of Learning Activity Sheets for K-3</b></li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>❑ <b>Training approach re-strategized</b> <ul style="list-style-type: none"> <li>❑ From 1 class: 40 ratio (F2F) to 1 class: 15 (RTOT); 1: 25 (TT)</li> <li>❑ From 2 Trainers/class to 2 Trainers* + 1 ICT Support Staff, 1 Training Manager</li> <li>❑ From Full 8-hour/day session to 3-hr synchronous learning + 4-hr asynchronous self-paced work</li> <li>❑ <b>Earn PD credits per module and portfolio completed</b> (approved by DepEd-NEAP)</li> </ul> </li> </ul>
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slide, **Figure A-1**). The aim was to shift to multimodal learning and explore how the

training's instructional strategies could be contextualized to cater to learning both at school and at home.

### ***Delivery of the teacher training***

The delivery made use of five digital platforms:

1. Facebook, Facebook Messenger: for DepEd communication and coordination
2. Google Classroom: for synchronous training
3. Zoom: for master trainer and trainer synchronous training
4. Google Suite (Docs, Sheets, Forms, Drive, Data Studio): for training management
5. WhatsApp: for team coordination and communications

The challenges that teachers faced in participating in the online training were numerous. Foremost, as indicated earlier, unreliable internet access impeded their participation. Many teachers had to travel to a central location, share devices, and devote upward of four hours of their day to the training while also balancing their work responsibilities. Some participants used mobile phones to access online live sessions. Although mobile phones did not prevent them from listening, viewing, and participating in online activities such as Zoom, or from joining breakout rooms and chatting, participants could not fully and effectively participate in the Google Classrooms to complete their self-paced tasks and submit the required outputs. Pre-training orientation sessions were conducted to address the challenges of using various devices and web applications for training.

The team estimated that 3,700 teachers were unable to participate, primarily because of poor connectivity, COVID-19 concerns, and intermittent power outages. Many of these teachers came from a few divisions and districts that opted out of the training wholesale because of escalating cases of COVID-19 in their vicinity and their teachers' unreliable internet connections.

Based on this experience, ABC+ shifted the training modality to a blended online and modular approach. The content of the training was decompressed to extend the training period from five days to 10 days. Over the two-week training period, check-in sessions between trainers and participants occurred three times per week and lasted only 30 minutes each session. Teachers were given course packets to complete asynchronously through peer-based learning action cells that met at the school. An additional 300 regional trainers and 3,700 participants were trained using this online blended approach from February to April 2021. One district elected to conduct the blended training through face-to-face check-ins rather than use online check-ins. An additional 300 teachers were trained through this face-to-face blended approach.

During this time, ABC+ piloted the Professional Development Information System (PDIS), which is a web-based teacher-training management information system. The PDIS replaced

the suite of Google Sheets that were previously used to track all facets of teachers' participation in the training activities. The rollout of the PDIS required extensive involvement of additional DepEd school-based information and communication technology (ICT) coordinators to support its administration.

### **Monitoring and evaluation of regional training of trainers and teacher training**

ABC+ monitored and assessed the quality of the training at each stage through a combination of pre- and post-training assessments, facilitator evaluation forms, daily feedback forms, training evaluation forms, and tracking of portfolio assignments submitted by the participants. The data captured on a continuous basis were dynamically produced in graphic form through the ABC+ Teacher Training Summary Dashboard, which was used daily to track performance of training groups and to identify priority areas for improvements.

As part of the training accreditation process, ABC+ agreed with the National Educators' Academy of the Philippines to set forth clear criteria for completion. To complete the training and earn credit for participation, participants had to pass the post-training test with a score of at least 70%, attend at least 75% of the synchronous training, and complete and submit four assignments as part of their asynchronous requirements. Divisions ranged in completion rates from a high of 76% to a low of 50% (the lower rates were mostly the result of connectivity challenges). ABC+ planned to invite those who did not pass the post-training test or who failed to meet the full criteria to participate in the next round of teacher training activities targeting those teachers unable to attend to begin with.

**Table A-1. Summary of findings for ABC+**

Measured factor	Results
Number of participants and method	Quantitative: 2,657 K – G3 teacher respondents
Opportunity to practice/apply content	98.1%
Level of confidence with content	Not at all confident: 2.5% Somewhat confident: 41.6% Very confident: 55.9%
Recall (answer content q's correctly)	42.2%
Value	87.5%
Ranking of most useful literacy instructional strategies, to teachers practice	Language experience approach <b>54%</b> 5Ws and 1H <b>31%</b> Sketch to stretch <b>28%</b> Sandwiching approach <b>24%</b> Interactive writing <b>17%</b> Use of T-charts <b>12%</b> Elkonin boxes <b>12%</b> Concept sorts <b>9%</b> RIMSI-strategy for feedback <b>3.5%</b>

## Case Study 2: The Malawi Early Grade Reading Improvement Activity (MERIT)

<b>Country:</b>	Malawi
<b>Implementation timeline:</b>	September 2015–March 2021
<b>Expected program result:</b>	Provide technical assistance and resources to the government of Malawi to strengthen the reading performance of learners in standards (grades) 1–4
<b>Distance-learning modalities:</b>	IVR, WhatsApp, SMS
<b>Technology for collecting data:</b>	IVR, WhatsApp, SMS, phone surveys

### *Training description: Response to context*

In June 2020, MERIT used IVR, supplemented with WhatsApp and SMS, to provide online training on facilitating teacher learning circles for section heads and head teachers. It was considered regular in-service training for educators as part of the Malawi National Reading Program. It was originally planned as a face-to-face training, but pivoted to distance training because of the pandemic.

MERIT decided to use multiple modalities—IVR, SMS, and WhatsApp—to reach as many teachers as possible. IVR was attractive because it required only a basic cell phone and would allow for several different types of audio content (e.g., dialogues, role-plays, games). IVR does not allow for visual supports, however, or opportunities for discussion and interaction with the content and with peers—for those functions, MERIT used WhatsApp. SMS was used to issue reminders about upcoming training, to try to increase participation. The training lasted for two weeks and targeted 17,600 head teachers and section heads, with each week consisting of:

- an initial SMS message providing information about the upcoming training,
- an introductory phone call (Sunday),
- three content messages via IVR (Monday, Tuesday, Wednesday),
- WhatsApp Discussion (Thursday and Friday), and
- a weekly review via IVR (Saturday).

Teachers received a scheduled call on training days; the calls lasted about five minutes and were free to the teachers.

### *MEL approach*

Because this was MERIT's first time using this training modality, the program team monitored progress throughout the process using phone surveys, WhatsApp, and IVR. Before the training, the organizers conducted a quick survey of instructional leaders in a nationally representative sample of 86 schools to determine the percentage of those in the

target group that had a smart or feature phone with WhatsApp capabilities. The responses helped determine which technology to use. Before embarking on the IVR, the organizers asked a selection of MERIT staff and 100 beneficiaries to test system functionality.

During the training itself, MERIT used IVR to collect data from teachers regarding the content of the training and the training modality. At the end of each message, educators had to answer questions about the content of the message to make sure they understood it. During the review message, they responded to questions about the training methodology, such as whether they participated in WhatsApp groups; and what their opinion was about the value of IVR as a training modality. Finally, at the end of each week of training, MERIT conducted phone surveys with a randomly selected group of targeted beneficiaries. This selection approach captured not only those who participated in the trainings, but also those who did not.

### ***Equity and inclusion considerations***

The data did not show a significant gender difference in participation; however, teachers residing in urban areas had higher participation rates than rural teachers. The decision to use IVR that relied only on simple phones was made to ensure that the training reached a wide network of participants. To mitigate for the less reliable network coverage and power supply in rural areas, MERIT provided a callback number so that teachers who missed a scheduled call could call back to listen to a message. The program also provided the transcripts of the audio messages via WhatsApp, so that they could be shared with others who had no access to the audio recordings.

### ***Adaptation during training and for future trainings, based on lessons learned***

MERIT conducted two rounds of training using IVR. Between the two rounds, based on lessons learned, the following changes were made:

- Liaised with telecommunications companies ahead of time so that they could prepare their networks to handle large volumes of calls.
- Rather than calling everyone at once, staggered the call times across the various divisions.
- Ensured that listed phone numbers were current and active, because many teachers switch phones or have multiple phones.
- Used a hybrid model that involved IVR and a face-to-face workshop, since schools were preparing to reopen.

**Table A-2. Summary of findings for MERIT**

Measured factor	Results
Number of participants	Quantitative: 924 section heads and head teachers Qualitative: 21 section heads and head teachers
Average time spent with training content	2 hours
Pre-training level of confidence	"Very" – 39% "Somewhat" – 41% "Not at all" – 13%
Post-training level of confidence <sup>a</sup>	"Not at all" – 1.6% "Very" – 74.5% <sup>b</sup>
Satisfaction	30% would like to have more training in the same format
Value	79% had discussed the content with others Among participants discussed the content with others, 66% would not want to repeat same format again

<sup>a</sup> Question asked only of people who said they were "not at all" or "somewhat" comfortable before the training.

<sup>b</sup> Of the 326 individuals comprising the 54% who had felt "somewhat" or "not at all" comfortable previously, 215 reported being "very" confident after the training.



### Case Study 3: Read Liberia Activity

<b>Country:</b>	Liberia
<b>Implementation timeline:</b>	September 2017–September 2022
<b>Expected program results:</b>	Increase the Liberian government’s commitment to improve evidence-based reading instruction; provide teaching and learning materials; and improve EGR classroom instruction, service delivery, parent, community, and private sector support
<b>Distance-learning modalities:</b>	Home study guides, phone calls, SMS, IVR, Facebook Messenger
<b>Technology for collecting data:</b>	IVR analytics; coaches’ reports

#### *Training description: Response to context*

From September 14 to 25, 2021, the Read Liberia team, working closely with the Ministry of Education, conducted a 10-day training of 1,269 K–3 teachers and 633 principals. The aim of the training was to familiarize the teachers and principals with how to use revised EGR materials when they returned to the classroom. Teachers were aware of the revisions and had been trained on the previous versions of the EGR materials, so were coming into the training with some prior knowledge.

Before the training, coaches conducted a survey of target participants and most reported that they had feature phones (i.e., non-smartphones) and did not have regular access to the internet. As such, the training approach had to be deliverable without computers, tablets, or smartphones.

The training team adapted face-to-face training manuals into self-paced, hard-copy home study guides, which were printed and distributed. They then built a variety of communication avenues around the guides, including IVR, daily text messages, and one-on-one phone calls. Read Liberia’s subcontractor Viamo used IVR calls to introduce teachers and principals to the day’s training topic and activities aligned to the training modules in the self-study guides. In the afternoon, coaches followed up with phone calls with the eight participants they were assigned to support. The purpose of these calls was to go over content that was challenging for participants and to conduct a daily quiz to check for understanding. Additional IVR, WhatsApp, and SMS messages were sent to encourage, guide, and reinforce use of the study guides. Phone calls were made to follow up with nonresponsive participants. For schools that were out of the area of phone coverage, training messages were delivered locally using digital voice recorders with playback capability.

Overall, the training activity was designed around the following time estimates:

- Self-paced study guides – 3 hours per day
- IVR messages – 5 minutes per day
- Phone calls with coaches – 15–20 minutes per day
- Facebook/WhatsApp group “chats” – 15–20 minutes per day

### ***MEL approach***

To gather feedback to determine whether participants were actively engaging in the training, coaches asked review questions during their daily phone call. As an added incentive, reimbursements for airtime were tied to these questions—every question answered correctly earned participants a “verification point.” Almost all IVR messages also included questions for the teacher to respond to. Listening to messages and correctly answering questions via IVR messages also resulted in participants earning verification points. Based on these data, the program MEL team determined that 90% of target teachers and 68% of target principals engaged in the training.

### ***Equity and inclusion considerations***

In addition to airtime, all participants were given a flat-rate reimbursement to enable them to keep their phones charged throughout the training. Some participants were stationed in remote schools that did not receive any internet or phone services. To ensure their inclusion in the training, staff uploaded IVR messages onto digital recorder devices and MP3 players and distributed them to the most remote and hard-to-reach schools. Every day, participants at these schools were instructed to listen to a different day’s recording, in line with their home study guide. Additionally, coaches facilitating the training with these participants scheduled two phone calls in advance, on the participants’ schedule. This arrangement allowed participants to travel to where cell phone coverage was available, to “meet” with their coach.

### ***Adaptation of future trainings, based on lessons learned***

One perceived advantage of Read Liberia’s training approach was that home study guides had to be more explicit than the facilitators’ guides developed for face-to-face trainings. Although producing the more detailed guides created more work for the team in advance of the training, it took pressure off of facilitators and managers during implementation, creating more time and space to respond to participants’ questions and issues. Coaches also noted that the daily phone calls, while shorter than face-to-face training sessions, actually enabled more individualized attention for participants. Participants reported preferring the study guides to the IVR messages, mainly because they could revisit the guides anytime they needed to, but the IVR messages were one-use only.

One major challenge was around modeling skills. Coaches did ask teachers to try to model a lesson orally during the phone calls, but not being in the same room with the teachers

limited the coaches' ability to give feedback, and the modeling could not be done every day because of time limitations.

**Table A-3. Summary of findings for Read Liberia**

Measured factor	Results
Number of participants	Quantitative: 534 teachers; 266 principals (800 total) Qualitative: 16 teachers, 12 program coaches/facilitators, 7 coaches in remote areas (35 total)
Average time spent with training content	6 hours
Pre-training level of confidence	"Very" – 61% "Somewhat" – 34% "Not at all" – 4%
Post-training level of confidence	"Very" – 90% <sup>a</sup>
Satisfaction	76% would like to have more training in the same format
Value	94% had discussed the content with others 77% had discussed the content with others and would want to repeat the same format again

<sup>a</sup> Of the 119 individuals comprising the 38% who had felt "somewhat" or "not at all" comfortable previously, 91 reported being "very" confident after the training.

## Case Study 4: *Okuu Keremet!*

<b>Country:</b>	Kyrgyz Republic
<b>Implementation timeline:</b>	November 2019–October 2024
<b>Expected program results:</b>	With the Ministry of Education and Science, strengthen the government’s ability to deliver high-quality education to every child; supply students with high-quality supplementary learning materials; improve learning outcomes in reading and math among 300,000 students in grades 1–4 in 1,687 target schools
<b>Distance-learning modality:</b>	Moodle
<b>Technology for collecting data:</b>	Back-end analytics (IVR); online teacher survey (contracted to external partner); online evaluation survey (Moodle); classroom observations via a coaching app (on Tangerine®)

### *Training description: Response to context*

The *Okuu Keremet!* team started its distance-learning program in January 2021 with redesigning in-person print-based training modules as a blended course for coaches and teachers: (1) How to Use Children’s Literature in the Classroom, (2) The Writing Process, and (3) Everyday Writing. In August 2021, two additional modules were launched: (4) Differentiated Learning and Universal Design for Learning, and (5) Context and Language-Integrated Learning.

The original rationale for virtual learning was COVID-19 safety restrictions. However, an inventory of the number of teachers in the target schools conducted early in the project had revealed a count of nearly 17,700 teachers, compared with the 13,500 teachers expected when the proposal was prepared and submitted in 2019. Shifting to distance education would make it feasible to reach this larger population of teachers without substantial extra cost.

*Okuu Keremet!*’s distance training aimed to reach around 18,000 teachers plus 1,300 librarians, around 3,500 school administrators and MOES methodologists at the district level, as well as mentors—all of whom are part of the teacher support framework in the Kyrgyz Republic. Their integration into the virtual training was seen as critical to sustainability.

The national system of TPD was offering Moodle for e-learning in certain regions, so some teachers had already engaged with it. However, teachers in remote locations had reported having difficulty using it, according to a survey of more than 16,000 primary teachers in 1,687 target schools conducted in October 2020 about distance education (see additional information under “MEL approach”). Teachers were using mainly telephones (95%) to access Moodle. Digital literacy was relatively high, but teachers said they did not use laptops frequently.

The large-scale teacher survey revealed, as expected, that a significant number of teachers had some knowledge of the Moodle platform, and although they said they preferred face-to-face training, their skill base to train remotely was relatively good despite problems with infrastructure and access to hardware.

COVID-19 pushed teachers to use technology faster than before, and many teachers said they had saved time and energy by training at a distance. The Republican Institute for Advanced Training and Retraining (RIATT)—the entity responsible for overseeing educator instruction in the Kyrgyz Republic—agreed to count the five basic reading modules developed under USAID’s previous reading program and redesigned into a blended course by *Okuu Keremet!* toward the 72 hours of in-service training that teachers are required to complete every five years. As of mid-2020, RIATT itself was still structuring distance training according to a fixed schedule and some other norms, so some of the advantages of its virtual approach had not yet been optimized. Although the project team originally had hoped that RIATT would participate more in the design of the blended modules, they were consumed instead with keeping the workforce functioning at a time when many teachers and their families were affected by the coronavirus. The project did conduct two sessions with RIATT in the first quarter of FY2021 to solicit feedback about the five printed modules.

Due to continuing pandemic restrictions toward the end of 2020, *Okuu Keremet!* decided to redesign its own training modules into a blended format for distance training of teachers. Initially, three of the five modules were constructed on Moodle in collaboration with a local production company and US-based Brattle Publishing Group. Project staff presented the blended modules to RIATT and to regional teacher training institutions to collect feedback. The three modules were revised and finalized on Moodle before the training in January 2021. Print versions of the modules were also made available at the same time.

The project took a mixed online–offline approach. First, 360 national trainers received face-to-face training. They, in turn, trained almost 18,000 reading teachers and school librarians remotely through the Moodle platform, as well as conducting in-person mentoring visits to schools.

As noted above, RIATT uses Moodle for some of its own training courses, so *Okuu Keremet!* kept its platform as close to that design as possible. The online architecture of the Moodle modules followed the same structure (chapters or sections) as the print modules. However, Moodle allowed for interactivity such as video clips, audio files, discussion forums, formative check-ins, summative exams, and video conferencing. For variety and interest, animation also was introduced.

The project chose to offer a blended training format in January 2021 because teachers were able to learn module content either online via self-study (interactive) or offline via the print module. Then they would apply one or more instructional routines in their classrooms. On Saturdays, clusters of teachers would join an eight-hour Zoom-based session with trainers,

who gathered feedback about implementation and reflections, presented new content, solved problems, and planned forward. Between the Saturday sessions, coaches visited schools on a regular schedule to scaffold teachers as they gained new skills. The project team also added a survey to the Moodle platform for users to evaluate the training, incorporating some of the questions from the original teacher survey so that answers could be compared over time. This feature was widely used.

In June 2021, the project decided to conduct the next round of teacher training—i.e., on the remaining two modules—at a distance, too, due to the COVID-19 trends in the country. In the previous cascade, 18,400 teachers and librarians had active accounts on Moodle, and nearly 15,300 of them successfully completed (i.e., passed summative assessments) all three reading modules. Similar numbers are expected to engage in modules 4 and 5.

By August 2021, partner Sanarip Dolboor had helped redesign modules 4 and 5 into Moodle, thus creating a complete set of *Okuu Keremet!*'s Reading Modules 1–5 in a blended format. RIATT and pre-service institutions that may want to have both offline and online training options can offer these modules in their program. Assessments are built into the modules to enable teachers to earn the “credits” they need from RIATT to fulfill TPD requirements. RIATT has recognized these assessments for this purpose.

### **MEL approach**

To monitor distance learning, *Okuu Keremet!* uses a mixed approach—a combination of online and face-to-face tools—to capture both quantitative and qualitative data.

*Moodle dashboard:* Training data are automatically collected on the Moodle dashboard. In real time on the dashboard, project staff can monitor data such as number of registered users, number of users online, the progress of users through the modules, and the rate of pass/fail among those who have taken the summative test after each module. The data can be filtered according to language, region, trainer, sex, educator type, etc. The data also expose regions or trainers who are falling behind and need support, or those who can help others. For example, the team can see regions, groups, or even schools where the rate of passage on summative assessments is low. Regional teams go out to those locations to discover reasons and offer additional support if needed. Those who fail the assessments are allowed additional preparation and attempts to retake the exam. The dashboard is extremely valuable as a monitoring mechanism to track the progress of teachers. By June 30, 2021, 16,606 teachers and 1,379 librarians had completed the first three modules and 15,273 had passed the final exams.

*Pre-training teacher survey:* As indicated earlier, in October 2020, *Okuu Keremet!* conducted a large-scale online survey among its target teachers to find out about teacher capacity, obtain user feedback on RIATT's distant learning model, and assess further needs, among other topics. The survey questions were formulated with RIATT because the

government was planning to strengthen teachers' capacity in using technology, given the changing instructional environment and demands. Around 16,000 teachers responded. Although lack of technology and poor internet connection were among the stated problems, teachers confirmed relatively good skills and agreed that distance learning saved time and effort. The project took these findings into account while designing its remote training.

*Classroom observations:* Between trainings, mentors/trainers visited schools to see whether teachers were using improved instructional methodologies in the classroom. Every project school had been visited at least once by June 2021, with multiple classes observed per visit. By the end of the school year in May 2021, 8,366 reading classroom observations had taken place. Mentors documented these visits through an online classroom observation tool (Coach App) on their tablets. The data were then analyzed with the Tangerine software; using the linked dashboard, mentors could see where teachers needed to focus their attention and provide feedback on the spot—with suggestions generated by Tangerine. The MEL team also was able to follow the progress of mentors' classroom visits via the Moodle dashboard.

*Evaluation of distance learning:* In May 2021, the MEL team developed a brief evaluation form to be completed by teachers and librarians. The form was integrated on Moodle so that users could give their feedback about the use of this platform for training. The form incorporated some items from the teacher survey so that the project, and RIATT, could track changes over time in terms of digital literacy skills and the challenges teachers were experiencing. Teachers filled in evaluations after both module 4 and module 5, and the results (in the dashboard) showed some improvement in teachers becoming comfortable with the platform.

### ***Equity and inclusion considerations***

To engage everyone in the distance learning, the *Okuu Keremet!* team helped teachers and trainers register on Moodle before the distance training began. It also familiarized them with the training plan. Support was made readily available to teachers and trainers as they learned how to use the platform. The project team and local partner Sanarip Dolboor provided intensive support to users in the first weeks and solved technical challenges. The team was available every Saturday, during conference calls, to act as a Help Desk and troubleshoot technical issues. However, as trainers and teachers became more competent, the amount of provided support by June 2021 was minimal.

Users learned to access project resources, *Okuu Keremet!* social media pages, guides and tools, links to supplementary reading materials, etc. in four languages; Moodle incorporated most of what users needed. The modules' interactive features such as audio, video clips, discussion board, check-ins, summative assessments, and assignments allowed users to increase their engagement as they learned through self-study.



In addition, the project distributed hard copies of training modules and manuals to all target teachers. All the trainers were given tablets uploaded with the reading modules in four languages (including Uzbek and Tajik); training manuals; PowerPoint presentations; apps such as the Coach App and Yapp, which serves as a communication channel among trainers; and other resources.

### ***Adaptation of future trainings, based on lessons learned***

The project made some adjustments to the training based on experience and feedback. For instance, trainer–teacher conferences began to take place on workdays and during school breaks rather than on Saturdays. The organizers located additional server capacity to ensure consistent online outreach during these conferences and obtained quotes for the costs of that service. The training process is expected to increase in efficiency because trainers and teachers have become familiar with the use of Moodle for learning.

Also, the ICT team began working with Sanarip Dolboor to make a detailed inventory of everything that the company did in creating the modules and the dashboard. This is a handover process so that national staff can take over tasks such as coding, programming, design, etc. The team will identify areas where they need to learn skills to create and manage this platform. This process will equip the project to hand over the Moodle platform to RIATT and support them with future rollouts.

## Case Study 5: Uganda Literacy Achievement and Retention Activity (LARA)

<b>Country:</b>	Uganda
<b>Implementation timeline:</b>	April 2015–April 2021
<b>Expected program results:</b>	Support the Uganda Ministry of Education and Sports (MoES) to achieve improved reading abilities for young children and improved primary-level retention.
<b>Distance-learning modality:</b>	Powtoon-based animation clips (microlearning videos), IVR
<b>Technology for collecting data:</b>	SMS and IVR survey (using Gooseberry platform), focus group discussion (face to face), WhatsApp

### *Training description: Response to context*

Due to COVID-19, the LARA program had to cancel all planned in-person trainings in 2020 and 2021. Because these were refresher trainings, the team chose to pivot to developing short (3- to 5-minute) animation clips using Powtoon software to reinforce and remind teachers of important concepts. Seven animations were developed and field tested (click on a link to view):

- **alphabetic principle** – <https://www.youtube.com/watch?v=Db2TvyKncy0>
- **phonemic awareness** – <https://www.youtube.com/watch?v=a1tgjZnavL4>
- **fluency** – <https://www.youtube.com/watch?v=GwqTeDh2Req>
- **reading comprehension** – <https://www.youtube.com/watch?v=lWPqoanOspU&t=2s>
- **vocabulary** – <https://www.youtube.com/watch?v=ntfgXuMAjik&t=65s>
- **differentiation** – <https://www.youtube.com/watch?v=dgsjV3S0VEY>
- **I do, we do, you do** (gradual-release instructional model) – <https://www.youtube.com/watch?v=BnKZRfFoz5zk>

The general idea behind these animations was “microlearning”—small bits of content presented via audio and visuals that were social-media friendly and shareable, and that reinforced key concepts or encouraged action on a topic. Each piece of content focused on one main message, with no more than three subpoints.

In recognition of the many variations in technology access and awareness among Ugandan teachers, these videos were adapted into three formats: short video (90 seconds), long video (3 to 5 minutes), and audio recording.

### *MEL approach*

These animations underwent two rounds of field-testing before the program closed in April 2021: (1) focus group discussions and questionnaires with tutors, pre-service

administrators, and pre-service student teachers at two teacher's colleges; and (2) a survey of 150 teachers.

The aim of the focus group discussions was to gather feedback on the design of the animations, specifically:

- Within the animations themselves, what “sticks”? What messages do teachers recall, and are there elements of the animation that assist this recall? Are there elements of the animations that are more confusing/distracting than helpful?
- Do these animations generate enthusiasm among teachers for the topics covered? Are they seen as relevant?
- Are short videos as effective as long videos? Are audio-only training bites as effective as video?

In general, focus group discussion participants could easily recall the core messages of the videos. Multiple respondents said that seeing the visual representation of ideas on the videos helped them retain content. Others felt that the combination of visual and audio information would be helpful to people with different learning styles. It was important to respondents that the voiceover match well with the animations. Some respondents did feel that the pace of talking for such a short video was too fast, and that the length of videos should be extended to allow for deeper understanding. Additionally, they found the inclusion of charts or other detailed visuals to be too much for this format. Overall, respondents appreciated the way the videos connected concepts to reality; the bright colors; and their friendly, positive tone. Respondents liked animations that showed teachers demonstrating a teaching approach most of all.

The aim of the survey was to better understand the fidelity with which the different formats of microlearning—short video, long video, and audio file—would be received and engaged with. Specifically:

- What was the feasibility, reach, and level of engagement for each design/delivery combination (see **Table A-4**)?

**Table A-4. Design and delivery options for LARA's recorded messages**

Design	Delivery
Audio only	IVR
60- to 90-second (short) video	WhatsApp
3- to 5-minute (long) video	WhatsApp

This study engaged a nonrepresentative sample of 150 grade 1 through grade 3 teachers in randomly selected schools surrounding Kampala who received the LARA intervention. Teachers were given a full introduction to the study, followed by an informed consent request via WhatsApp (for teachers with smartphones) or a phone call (for feature

phones/non-smartphones). All teachers received airtime for their participation. Teachers who agreed to participate were directed to view a short animation (60 or 90 seconds), view a longer animation (3 to 5 minutes), or listen to an audio recording via IVR (3 to 5 minutes) on two EGR topics: differentiated instruction and phonemic awareness. After watching the video or listening to the audio, teachers were sent a short, quantitative SMS-based survey. Because it is not possible to generate data on downloads through WhatsApp, participation in the short survey served as a proxy for “engaging” with the short and long videos.

### ***Lessons learned: Equity and access considerations***

Despite the program having introduced teachers to the videos and audio beforehand through WhatsApp chat groups and phone calls, and having arranged for head teachers to communicate the purpose and function of the study, engagement with the video and audio files, when shared over WhatsApp (video) or IVR (audio), was low.

Out of 53 teachers with no smartphone who received the audio via IVR calls:

- 10 teachers stayed on the call for at least 4 minutes.
- 27 teachers hung up after the introduction (about 30 seconds).
- 16 teachers hung up immediately, did not answer, or had a busy signal.

Of the 91 teachers with a smartphone who received a short or long video:

- 41 teachers (45%) engaged with at least one video and participated in the survey.
- 18 teachers (20%) engaged with both videos and participated in the survey.

Follow-up discussions over WhatsApp indicated that even in the peri-urban areas around Kampala, teachers had poor network connections. Teachers with smartphones still needed help to download the videos and did not know how to take the survey. Additionally, even though teachers had a WhatsApp registered number, they may not have kept the app downloaded on their phone or used it regularly, in part because of the high volume of “spam” messages on different groups. Teachers would have liked more time before each video was sent, a longer explanation of why these videos were important, and clarification of how they would help their work. They noted that these videos were very different from the face-to-face trainings they were used to, and they wanted to discuss why the change was implemented. Teachers also said they would have wanted many more reminders to view the videos.

## Annex B. Survey Instruments

### B1. Liberia Study Tools

#### Survey

1. Read Liberia implemented an at-home training using study guides, phone calls and messenger groups in September 2020. Did you participate in this training? (yes/no)

> If Yes, Question 2

> If no, why didn't you participate?

- I was not invited / did not receive information
- I could not access the platform
- I did not have time
- I did not have funds for data or other requirements
- I didn't think it would help me
- Other

2. How much time did you dedicate to this this training? (Enter time in minutes)

3. One year ago (before the training), how confident were you in using the revised teaching and learning materials for reading?

0: Not at all confident    1: Somewhat confident    2: Very confident

4. Have you had a chance to practice using the revised teaching and learning materials since September 2020? (yes/no)

> If yes, go to Question 5

> If no, go to Question 6

5. How confident do you feel using the revised teaching and learning materials today?

0: Not at all confident    1: Somewhat confident    2: Very confident

6. Which of these is more an example of a summative assessment?

1: The period tests    2: The weekly quizzes

7. True or False: Fluency is being able to read quickly, with accuracy and expression.

1: True    2: False

8. Would you prefer to have more training via at-home study, with phone calls and Facebook Messenger groups organized by coaches?

9. Have you shared or discussed the training content with other colleagues since? (yes/no)

**Phone interview (coaches)**

1. Thinking back to the *(enter name of training)* held by *(project name)* in *(date of training)*, can you recall any of the content or skills that were covered?

> If no, skip to Question 2

> If yes:

1a. What do you remember teaching at this training?

1b. Can you recall how this information was presented (please describe)?

2. During the training, did you remember asking teachers to complete any independent or self-guided activities?

> If no, skip to Question 3

> If yes:

2a. Please describe these activities.

2b. Did you feel these activities were useful to the learning objectives?

2c. If yes, why? *(If unsure, prompt "compared to other activities in this or other trainings?" )*

3. During the training activities, did you utilize any phone calls, group calls, or messenger/chat groups?

> If no, skip to Question 4

> If yes:

3a. Please describe these activities.

3b. Did you feel these activities were useful for learning?

3c. If yes, why? *(If unsure, prompt "compared to other activities in this or other trainings?" )*

4. How did you feel about using *[topic/content of training]* in your work before delivering this training?

> If cannot recall, skip to Question 5

4a. Did your attitude towards *[topic/content of training]* change at all during this training?

### **Phone interview (teachers)**

1. Thinking back to the *(enter name of training)* held by *(project name)* in *(date of training)*, can you recall any of the content or skills that were covered?

> If no, skip to Question 2

> If yes:

1a. What do you remember learning at this training?

1b. Can you recall how this information was presented (please describe)?

2. During the training, did you complete any independent or self-guided activities?

> If no, skip to Question 3

> If yes:

2a. Please describe these activities

2b. Did you feel these activities were useful to you / your learning?

2c. If yes, why? *(If unsure, prompt "compared to other activities in this or other trainings?" )*

3. During the training, did you participate in any phone calls, group calls, or messenger/chat groups?

> If no, skip to Question 4

> If yes:



3a. Please describe these activities.

3b. Did you feel these activities were useful to you / your learning?

3c. If yes, why? (*If unsure, prompt "compared to other activities in this or other trainings?"*)

4. How did you feel about using *[topic/content of training]* in your work before participating in this training?

> If cannot recall, skip to Question 5

4a. Did your attitude towards *[topic/content of training]* change at all during this training?

## B2. Malawi Study Tools

### Survey

1. RTI implemented an automated telephone call training on TLC Steps: Continuous Assessment and Remediation in June 2020. Did you participate in this training? (yes/no)

> If yes, Question 2

> If no, why?

- I was not invited / did not receive information
- I could not access the platform
- I did not have time
- I did not have funds for data or other requirements
- I didn't think it would help me
- I did not have network / network was too weak
- Other

2. Did you find it easy doing the training by automated phone call? (yes/no)

3. Do you still remember what was covered in the June 2020 automated training?

> If yes:

3b. What is one thing you remember about implementing TLCs?

3c. What is one thing you remember about implementing continuous assessment and remediation?

4. How confident did you feel implementing TLCs before the training last year?

0: Not at all confident    1: Somewhat confident    2: Very confident

5. How confident would you feel implementing a TLC today?

0: Not at all confident    1: Somewhat confident    2: Very confident

6. Have you had a chance to practice using the continuous assessment and remediation approaches covered in the training last June (2020)? (yes/no)

7. In your opinion, is remote training a good substitute or alternative for a face-to-face training? (yes/no)

8. Did you share or discuss the content covered in the June 2020 IVR training with other teachers? (yes/no)

9. On average, much time each day did you dedicate to this automated telephone call training?

### **Phone interview**

1. Thinking back to the *(enter name of training)* held by *(project name)* in *(date of training)*, can you recall any of the content or skills that were covered?

> If no, skip to Question 2

> If yes:

1a. What do you remember learning at this training?

1b. Can you recall how this information was presented (please describe)?

2. During the training, did you complete any independent or self-guided activities?

> If no, skip to Question 3

> If yes:

2a. Please describe these activities.

2b. Did you feel these activities were useful to you / your learning?

2c. If yes, why? *(If unsure, prompt "compared to other activities in this or other trainings?")*

3. During the training, did you participate in any phone calls, group calls, or messenger/chat groups?

> If no, skip to Question 4

> If yes:

3a. Please describe these activities.

3b. Did you feel these activities were useful to you / your learning? (yes/no)

3c. If yes, why? (If unsure, prompt “compared to other activities in this or other trainings?”)

4. How did you feel about using *[topic/content of training]* in your work before participating in this training?

> If cannot recall, skip to Question 5

> If yes:

4a. Did your attitude towards *[topic/content of training]* change at all during this training?

4b. Why?

5. Have you used *[topic/content of training]* in your work since the training was first held?

5a. If yes, please describe.

6. Comparing the *[title of training]* to in-person, face-to-face trainings you’ve participated in, was there any part of the *[title of training]* that you feel was better?

> If no, skip to Question 7

> If yes:

6a. What was better? Why? Please describe/explain.

7. Comparing the *[title of training]* to in-person, face-to-face trainings you’ve participated in, was there any part of the *[title of training]* that you feel was worse?

> If no, skip to Question 8

> If yes:

7a. What was worse? Why? Please describe/explain.

8. Were there any parts of the *[title of training]* that you didn’t receive, weren’t able to participate in, or that got interrupted?

> If no, end interview

> If yes:

8a. Please explain.

8b. Were you able to access this content another way? (yes/no)

8c. If yes, how?

## B3. Philippines Study Tools

### *SMS survey*

1. How did you participate in this training? Reply:

- 1 => RTOT
- 2 => Modular
- 3 => Online
- 4 => Did not participate

2. How often do you apply the literacy strategies from this training as part of your teaching practices? Reply:

- 1 => Every day
- 2 => Once a week
- 3 => Once a month
- 4 => Less than once a month

3. Of the following literacy instructional strategies, identify the top 3 most useful to your current teaching practice. (Submit the NUMBERS associated with the BEST three (3) response options)

- 1 => Language experience approach
- 2 => Sketch to stretch
- 3 => Interactive writing
- 4 => Elkonin boxes
- 5 => Concept sorts
- 6 => Use of T-charts for bridging
- 7 => RIMSI-strategy for feedback

4. How confident are you in applying these strategies to your learning delivery modalities? Reply:

- 1 => Very confident
- 2 => Somewhat confident
- 3 => Not confident

5. Choose ONE strategy which is the most effective way of teaching bridging. Reply the NUMBER of the best response option.

- 1 => Translating grammar as well as words and sentences in the MoTL
- 2 => Comparing the agreement of subjects and verbs in the MoTL
- 3 => Scaffolding grammar in mother tongue
- 4 => Explicit instruction in sounds and words that are similar and different in the MoTL

6. Since completing the training, have you participated in any LAC sessions that covered or reinforced these strategies? Reply:

- 1 => Yes
- 2 => No

7. Have you shared or discussed the training content with other colleagues since? Reply:

- 1 => Yes
- 2 => No

8. Grade level currently teaching? Reply with appropriate number:

- 0 => Kinder
- 1=> G1
- 2=> G2
- 3=> G3
- 4=> G4
- 5=> Other grades
- 6=> On extended leave
- 7=> Not teaching anymore

9. Would you recommend this training to other co-workers / teachers? Reply:

- 1 => Yes
- 2 => No