

Call for proposals 5

Can technology accelerate learning and skills?

Appendix

ID	Country	Sector	Institution
2	Vietnam	Health	World Bank
5	Georgia	Education	World Bank
6	Somalia	Education	World Bank
7	Ecuador	Education	World Bank
8	Nepal	Education	World Bank
10	Niger	Education	World Bank
11	Pakistan, Punjab province	Education	World Bank
12	Afghanistan	Adult literacy or skills	World Bank
13	India	Adult literacy or skills	World Bank
15	Dominican Republic	Adult literacy or skills	World Bank
16	Guyana	Education	World Bank
17	India (Bihar state)	Education	World Bank
18	Pakistan	Education	World Bank
24	Zimbabwe	Education	DFID
25	South Sudan	Education	DFID
27	Ethiopia	Education	DFID
28	Pakistan	Education	DFID
31	Tunisia	Education	DFID
32	Bangladesh	Education	DFID
33	Sudan	Education	World Bank
34	Algeria	Education	DFID
35	Morocco	Education	DFID

ID: 2_Vietnam_World Bank

Country: Vietnam

Ministry or department: Administration of science-technology-training (ASTT) under the Ministry of Health (MOH)

What specific problem is the country trying to solve that could benefit from rigorous evidence of a technology-based intervention?

Vietnam has an adequate number of healthcare personnel at very decentralized levels : 99.9% of communes have a commune health station, and among those, 80% are served by a physician. However, primary healthcare teams often lack the competencies to perform designated services and deal with emerging health problems - to identify, manage, refer and coordinate patients. They also have limited decision rights to prescribe and do medical interventions. Recent studies shows that primary healthcare teams are unable to provide most primary healthcare services such as early detection of risk factors and management of most common non-communicable diseases, provision of prevention and counseling services, organization of medical care for the elderly with chronic conditions, mother and child health services, etc. An evaluation of professional competency at commune level found that physicians and assistant physicians gave the wrong answer to more than 50% of the questions on cardiovascular and internal medicine problems. To tackle these skills deficits, the country is reforming the health professionals education system through the introduction of competency based education in medical, dental, nursing and public health schools.

Are there particular interventions that are already open for discussion or in progress?

Since 2015, the World Bank has been supporting the "Health Professionals Education and Training" (HPET) Project, which is managed by ASTT/MOH (see project website www.hpet.vn). The project supports medical, dental, nursing and public health schools as they improve their performance and delivery of pre-service and in-service training programs for primary healthcare teams in 15 provinces. This includes the intensive application of various information and communication technologies: e-learning, e-portfolio, e-library, smart-class, and blended training. It is expected that by the end of the project, at least 12 health schools will implement competency-based curricula successfully and that 80% of primary healthcare teams in 15 provinces would have improved their competencies.

When would the country need evaluation results? What is the latest date that evaluation results would be useful for decision-making?

The project has been implemented for 5 years and the closing date is December 31, 2020. The MOH and World Bank task teams want to evaluate the impacts of ICTs (e-learning, smart-classes, flipped classes) on the learning process and outcomes of health professionals, especially primary healthcare teams who are working at the grassroots level with limited opportunities for continuous training. The latest date for evaluation results is April 30, 2021.

What kind of data access could be facilitated for research purposes?

We can facilitate access to data at the MOH and health professionals education institutions. As usual practice, the health training institutions have been using pre-tests and post-tests to track competencies of their trainees. The primary data can be collected by researchers if they by visits to schools, local health authorities, and primary healthcare facilities. As World Bank is financing the HPET project, we expect the MOH and education institutions will be supportive. In 2018, the HPET project task team carried out a rapid assessment of ICT applications in project schools and did not see any major challenges in data collection.

ID: 5_Georgia_World Bank

Country: Georgia

Ministry or department: Ministry of Education and EMIS Department

What specific problem is the country trying to solve that could benefit from rigorous evidence of a technology-based intervention?

The country wants to better use its existing education information management system to help identify and address the skill needs of its students and teachers, as well as use its financial resources more efficiently. Towards this goal, the country aims to solve two key technology-related problems: 1. Lack of an integrated education data infrastructure that includes input-level data, learning assessment and financial data in the existing general education EMIS; 2. Limited reporting and data utilization for monitoring and decision making at classroom, school, and ministry levels.

Rigorous evidence generated by using an iterative and nimble approach during the implementation of the technology-based interventions in the project design will be critical to enable uptake by and success of teachers, principals, middle management and ministry level staff in utilizing the data to monitor and make decisions that can positively impact learning.

Are there particular interventions that are already open for discussion or in progress?

Currently in its first year of implementation, the Georgia I2Q project will support interventions to address the above stated problems. The project became effective in December 2019. The Ministry leadership is strongly invested in data-driven decision making and wants to reduce 'flying blind' and hence has consistently invested significant time, resources and effort in this area. The EMIS team under the MOES has a strong technology team and will be the main implementer of the related project components.

Ongoing interventions include an assessment of the current EMIS system, development of a data integration strategy and action plan as well as development and operationalization of a data monitoring dashboard with quality monitoring indicators (i) at ministry level, to monitor the entire education system for policy action and, (ii) at school-level, for evidence-based school improvement actions to support and strengthen learning (ex. covering pedagogical methods, learning assessments, learning environment, school inputs such as school infrastructure, resources/materials, etc.).

The overall design and implementation of this dashboard must ensure uptake and utilization of the data (including reporting, dissemination, consultations, adjustment etc.) for improved monitoring and decision making. For this, an iterative, human-centered impact evaluation design will be beneficial, particularly the use of experimental methods in the design and dissemination of the dashboard to test what approaches encourage sustained use of data for decision-making. Open questions about the dashboard (its design, choice of technology platform, visualizations, capacity building, dissemination, data flow, frequency, ease of collection etc.) and behavioral nudges to encourage use would benefit from an impact evaluation researcher with experience in behavioral sciences and technology-based interventions.

When would the country need evaluation results? What is the latest date that evaluation results would be useful for decision-making?

By Year 2 or maximum Year 3 for the General Education EMIS system – December 2022. The evaluation and effectiveness of the dashboard design and implementation can enable expansion into other education sub-sectors (preschool and higher education).

What kind of data access could be facilitated for research purposes?

Data access permissions will be required and can be facilitated. We expect the government to be supportive in this effort.

There are various identified sources of data - the eSchool general education database, the vocational and higher education databases and other sources of education data, such as those from the National Assessment and Examination Center, Teacher Professional Development Center, and other ministries (such as the Labor Market Information System (LMIS) of the Ministry of Labor and Innovation and Technology Agency data).

The coverage, reliability and validity of input data in eSchool is considered high whereas in higher education it is relatively low. A School GIS system is currently being adopted which will also be supported by the project.

Georgia has specific legislation on data privacy and personal data protection since 2011 and revised in 2017, which is in line with EU standards. Like most countries, common challenges are likely to be related to data exchange and integration across sectoral ministries.

ID: 6_Somalia_World Bank

Country: Somalia

Ministry or department: Ministry of Education, Culture and Higher Education

What specific problem is the country trying to solve that could benefit from rigorous evidence of a technology-based intervention?

Equipping teachers in government primary schools with a foundation of teaching skills and content knowledge is a priority for Somalia. Findings from a recent teacher proficiency test revealed that only 16.8% of primary and 22.6% of secondary school teachers in Banadir region possess basic teaching proficiencies. While developing in-service teacher capacity is a priority, the logistics are complex. Approximately 30,000 teachers require training and development to be elevated to an adequate standard. Face-to-face training is impractical due to the large numbers to be trained and the need for teachers to be in schools teaching. This is compounded by a lack of safe transportation through conflict-affected areas. An innovative approach to train teachers in a way that is aligned to the Somali context is required. Technology-based solutions could be feasible because connectivity is high in Somalia. Approximately 90 percent of Somalis above the age of 16 have a phone. These strengths can perhaps be leveraged through a blended learning approach which trains teachers while minimising class disruptions and avoiding dangerous travel.

Are there particular interventions that are already open for discussion or in progress?

The World Bank is working with the MoECHE to improve the quality of instruction in primary schools. One element of the project is a focus on teacher training and development. This intervention plans to leverage an initiative developed by MoECHE to create a robust blended teacher training approach aligned to the Somali context.

The main elements of the proposed blended teacher training approach are as follows:

- Target group: Primary school teachers already in service.
- Duration: Two years, part-time.
- Program composition: Online courses (see below), two face to face sessions, one teaching practicum and passing a written paper examination.
- Online courses: Part A - Subject knowledge (e.g. Somali, Math, etc.), Part B - Professional Courses (e.g. pedagogy), and Part C - Practical teaching.
- Qualification: Upon completion, a diploma will be decreed by Somalia National University and the teacher will be licensed by MoECHE.
- Entrance requirements: Completion of secondary school and proof of current employment as a teacher.
- Systems building: The initiative intends to develop country capacity to build and manage an e-Learning system/courses.

The first phase of this project aims for 10% coverage of the 30,000 in service teachers. The MOECHE intends to expand the approach across additional regions following the first pilot. An independent

evaluation should be conducted at the end of the second year to identify successes in the design of the pilot and amendments where required. There are currently no agreed timelines on the deployment of the blended training approach, though work has commenced in the design of content for the platform. Timelines will be more clearly defined in the coming months.

When would the country need evaluation results? What is the latest date that evaluation results would be useful for decision-making?

While the MoECHE suggested it would like to undertake an evaluation at the end of the first phase of the pilot, the project team is discussing whether it may also be possible to use an action research approach that rapidly feeds findings back into intervention planning/management. As such, there are two types of evaluation results that would be useful for decision-making:

1. Ongoing evaluation results to improve implementation. These would be useful on a regular basis (e.g. quarterly) following the roll-out of the intervention.
2. An evaluation at the end of the first phase of the pilot to inform further roll-out and scale-up. These would be useful as soon as possible after completion of the first two-year cycle.

What kind of data access could be facilitated for research purposes?

Administrative data can prove challenging to collect in the Somalian context. Basic enrollment, attendance and completion statistics are largely unavailable or significantly out of date. The World Bank has not collected gross enrollment statistics since 2007 and net enrollment statistics since 1980, while the UNESCO Institute of Statistics also does not have any up-to-date statistics. Unsurprisingly, there is very limited data on learning achievement. Where available, this data will be shared.

Access to data to facilitate research may include:

1. Input data that identifies the characteristics of teachers and students affected by the intervention. This may include number of teachers invited, number of students in catchment schools, demographic data, geographical data, etc.
2. Intervention data which provides insight into implementation. This may include data generated from the online platform including rate of completion of online courses, speed of completion, difficult questions on exams, etc. This could also include links to data gathered during the face-to-face sessions, which can then be cross-matched with data from the tool to identify behavioral patterns.

ID: 7_Ecuador_World Bank

Country: Ecuador

Ministry or department: Ministry of Higher Education

What specific problem is the country trying to solve that could benefit from rigorous evidence of a technology-based intervention?

In some educational fields, the development of adequate cognitive, technical, and socio-emotional skills remains a challenge for trainees and their tutors, partly because of the limited availability of hands-on training or access to proper content and learning situations. As a response, educators are starting to rely on VR simulations to develop learning experiences that would otherwise not be easily accessible to students. VR simulations can provide students with opportunities for practical training without pressure, danger, and allowing repeated interventions. Also, VR simulations can provide students access to situations and learning environments (such as traveling within a cell, simulated scenarios for public speaking, among others) that would otherwise be very difficult or impossible to access. Such opportunities have the potential of accelerating students learning curve in a simulated environment, reproducing real-life conditions and situations without time or space limitations, and with much fewer risks and at lower cost.

Are there particular interventions that are already open for discussion or in progress?

A pilot training on motor repair using a VR training curricula is being developed and expected to be rolled out in the fall semester. The idea would be to evaluate skills development of students using the VR training vs traditional training (lecture).

When would the country need evaluation results? What is the latest date that evaluation results would be useful for decision-making?

This is an experimental pilot. Deadlines are flexible.

What kind of data access could be facilitated for research purposes?

The government is open to implement an RCT and to provide any available administrative data necessary to assess the impacts of the intervention on student progression, class drop-outs, and class failure. Additionally, data on student learning would need to be collected. For this purpose, the idea would be to develop pre and post test (cognitive and practical) for students in treatment (VR) vs control (traditional) groups. Other outcomes such as motivation, collaboration, and presence could be also measured (using self-reported tests).

ID: 8_Nepal_World Bank

Country: Nepal

Ministry or department: Ministry of Education

What specific problem is the country trying to solve that could benefit from rigorous evidence of a technology-based intervention?

Student proficiency in Math is extremely low, causing students to drop out early. The most likely explanation for this is that classroom instruction happens at a level that most students cannot follow. Classrooms often have high pupil-teacher ratios and there is a wide heterogeneity of learning levels in classes and student support at home. The curriculum is also over-ambitious. Teachers do not have the time, skills, or motivation to address these different learning needs. Teachers also do not have the pedagogical tools to identify learning levels and then calibrate their teaching accordingly. Consequently, over-worked and under-equipped teachers are unable to offer struggling students a chance to catch up. These problems are more pronounced for students with disabilities.

Are there particular interventions that are already open for discussion or in progress?

The World Bank team has been developing an adaptive learning application that uses technology-enabled algorithms to modify the presentation of material in response to student performance. It customizes the presentation of lessons to suit each individual student's needs. The core idea is to use technology-enabled continuous formative assessments, then, based on these insights dynamically create individual learning paths to guide the student through foundational concepts. This can be done in an engaging and interactive way, through the use of games.

The Beta version of the application is ready. A version of the application that caters to students with disabilities is at advanced stages of construction. Both of these will be pretested with students in May-June 2020.

These versions focus on foundational math, using the innovative Jodo Gyaan curriculum pioneered in India.

When would the country need evaluation results? What is the latest date that evaluation results would be useful for decision-making?

By June 2021

What kind of data access could be facilitated for research purposes?

We can facilitate targeted baseline and endline surveys.

Government has fairly reliable EMIS data.

We expect the government to be supportive.

Data will need to be anonymized for any research use.

ID: 10_Niger_World Bank

Country: Niger

Ministry or department: Ministry of Primary Education, Ministry of Secondary Education

What specific problem is the country trying to solve that could benefit from rigorous evidence of a technology-based intervention?

The Government of Niger is committed to solve the issue of poor teaching quality in the country, which is largely due to the low-quality of teaching practices. In Niger, in-service training is hampered by the lack of skilled trainers, absence of mechanisms to identify training needs, and the low base of content and pedagogical competencies of both trainers and teachers. Only occasional professional development opportunities are provided to some 94,000 basic education teachers, and those trainings are often ad-hoc and general rather than focused around a specific pedagogical technique. In addition to limited capacities, the environment is particularly challenging: Niger has a vast Sahelian territory in the heart of a turbulent region, with deteriorating security conditions. In this context, technology may have a role to play in improving the delivery of training and enhancing teacher practices and performance.

Are there particular interventions that are already open for discussion or in progress?

The Bank education team is preparing a new project to improve the learning and teaching conditions in Niger. One component includes the establishment of a technology-enabled coaching and supervision model to improve in-service teacher training and the quality of classroom instruction with a focus on literacy and mathematics. Coaches would utilize facilitator manuals and be trained to provide constructive feedback based on utilization of a classroom observation tool to assess teacher practices, as well as through the development of a technology-based platform for regular check-ins and face to face mentoring during group meetings. Various teaching materials (simplified curriculum, structured lessons, standardized exercises and assessments) will be developed in conjunction with the coaching program, digitized and made available via an online platform. ICT tools will also be used at the inspectorate level to strengthen bottom-up data collection on quality and teachers' practices. The project is expected to receive Board approval in March 2020 and will become effective in July 2020. The sequencing of activities during project implementation is proposed as follow: Y1 development of coaching material, teaching practices observation tools and technology-enabled platform; Y2 recruitment and training of coaches; Y3-6: implementation of coaching program and observation tools.

When would the country need evaluation results? What is the latest date that evaluation results would be useful for decision-making?

January 2026

What kind of data access could be facilitated for research purposes?

Administrative data is often of low quality in Niger.

The project team can facilitate access to project data on the design, implementation status, costs and intermediate results of project activities linked to technology-enabled coaching interventions.

ID: 11_Pakistan, Punjab province_World Bank**Location:** Pakistan, Punjab province**Main ministry or department:** School Education Department**What specific problem is the country trying to solve that could benefit from rigorous evidence of a technology-based intervention?**

Teaching practices in the classroom are the only teacher factors that are shown to be correlated with student learning in Punjab. Yet, less than 10% of teachers in Punjab follow basic instructional good practices, such as providing useful feedback, modelling the content, or checking for understanding. The underlying issue is that teachers are not given clear expectations for classroom behavior, nor do teachers practice teaching techniques in pre-service training. The government is looking for rigorous evidence on how to help teachers improve their classroom practices through interventions such as classroom observation, mentoring, and practice sessions.

Are there particular interventions that are already open for discussion or in progress?

The Punjab government is currently implementing a classroom observation instrument (an adaptation of the World Bank's Teach tool) in all primary schools in Punjab through an app on mobile phones, which collects data on 15,000 classrooms per week. The app is used by approximately 3,500 teacher mentors, who are recent university graduates and have been certified on the use of the observation instrument. The data is collected centrally and is fed back to teachers and schools after each observation. We are currently discussing with the government how to extend this feedback in various ways, e.g. randomizing the way that teachers receive feedback, or using videos from the teacher's classroom to discuss teachers' actual practices. A first pilot of such material will be piloted in a convenience sample of 100 from April 2020 onwards, and a more rigorous evaluation strategy is being discussed for future implementation.

When would the country need evaluation results? What is the latest date that evaluation results would be useful for decision-making?

There is no specific deadline by which results are needed, although this has to be a reasonable timeframe, e.g. 1-2 years.

What kind of data access could be facilitated for research purposes?

Data is being collected on classroom practices and on student learning (on a monthly basis for Grade 3 students). There is data on the schools. Data quality has steadily improved in recent years, although matching between administrative data sources has been challenging. There is capacity to conduct school surveys to verify administrative data sources. Data access will be conditional on government approvals and privacy guarantees, which have been straightforward to obtain in the past.

ID: 12_Afghanistan_World Bank**Country:** Afghanistan**Ministry or department:** Ministry of Rural Rehabilitation and Development (MRRD) and the Training and Vocational Education and Training (TVET) Authority**What specific problem is the country trying to solve that could benefit from rigorous evidence of a technology-based intervention?**

Almost 10 million Afghans aged 15 and above (or 65 percent of the population) cannot read and write (ALCS 2016-2017). Of the 10 million, over 6 million are women and 8 million live in rural areas.. Most illiterate Afghans are unschooled but others are illiterate because of early dropout or inefficient schooling. The number of adult illiterates was much larger than the number of Afghans attending any type of education in 2016 who amounted to roughly 6 million. The lack of basic literacy skills hinders the acquisition of technical skills and the employability of youth and adults. The use of technology, with a youth-led focus, coupled with complementary interventions (for example, linking literacy with ongoing microcredit initiatives, rural development, agribusiness initiatives, savings groups, mobile technologies, or other income-generating activities), could be an innovative approach to promoting reading capacity in this population.

Are there particular interventions that are already open for discussion or in progress?

We are seeking a partner to help us design and test an innovative literacy intervention using digital tools that could be added into our ongoing youth programming. We are particularly interested in digital tools to promote functional literacy in Dari and Pashto among rural youth (age 15 to 29), women, and marginalized groups, in the context of setting up micro-enterprises. The use of digital tools is critical in Afghanistan because of limited mobility, high transport costs, and limited availability of trainers in rural areas. We are experienced and enthusiastic about impact evaluation, and we do not have a specific intervention identified yet.

There are a limited number of activities from donors and the Government related to literacy in Afghanistan, mostly small-scale. For example, the Better Education Systems for Afghanistan (UNESCO, funded by SIDA, 2018-2022) idoes have a component on adult literacy and non-formal education. Second, the “Skills development and literacy education through Community Learning Centers (CLCs)” – (UNESCO, 2003-Ongoing) project aims to combine literacy education with vocational training programs. So far, 17 CLCS have been established that link literacy with life skills. To our knowledge, none of these interventions have been evaluated.

When would the country need evaluation results? What is the latest date that evaluation results would be useful for decision-making?

Results from a technology-based intervention could be instrumental in paving the way for renewed investment by the Government and development partners in the literacy agenda in Afghanistan. The

results could serve as the basis for a scaled-up literacy intervention as part of a planned Youth Project to build economic inclusion through micro-entrepreneurship and civic engagement.

What kind of data access could be facilitated for research purposes?

We would need to generate primary data through the piloting of a literacy intervention through this project. Access to national surveys (NRVA, ALCS, etc) and other Bank-collected literacy data can be facilitated. The Government has expressed interest regarding literacy and digital skilling interventions in multiple occasions. No challenges in terms of privacy and data protection is to be expected.

ID: 13_India_World Bank

Country: India

Ministry or department: Department of Women and Child Development and Social Services (DWCDSS) in Jharkhand

What specific problem is the country trying to solve that could benefit from rigorous evidence of a technology-based intervention?

Low female labor force participation in India slows the socioeconomic advancement of women and reduces overall economic growth. A 2015 World Bank household survey in Jharkhand found that 62 percent of young women (ages 16 to 24) were not in training, education, or employment, compared to 14 percent of young men in the same households. Only 16 percent of married girls ages 18-24 are employed and only 1 percent are in regular wage employment. One reason for this is a lack of access to skills training, especially for rural women. Government and NGO programs have tried to bridge this gap via targeted skills training. The first-order policy question of interest is, does vocational or entrepreneurial training generate meaningful changes in women's skill sets, employment outcomes, and income? Randomized controlled trials over the past decade have produced evidence on this question, and results have varied considerably by context. One reason why training programs may generate small treatment effects is related to selection into program participation. For example, many programs promote enrollment by providing monetary incentives to participants. This strategy might be inefficient because:

1. Candidates who are not motivated to take-up a job or start a business attend the program solely due to the monetary incentive.
2. Candidates may not be allocated to the program they value most.

Hence, the policy questions we aim to answer here are twofold. First, what are the impacts of training in vocational and technical skills on program participants? Second, what strategies can generate more efficient selection and allocation of candidates to the programs? These questions are relevant for policy and programming in India and around the world. The second question lends itself to technology-based solutions for efficient matching of candidates to training courses from which they are most likely to benefit.

Are there particular interventions that are already open for discussion or in progress?

The ongoing Tejaswini project serves adolescent girls and young women (AGYW) aged 14 to 24. The project builds village-level clubs which act as a safe space for participants to assemble. The project aims to enroll 680,000 AGYW in these clubs across in 17 districts and deliver 3 months of life skills training. Club formation and life skills training is currently in progress in all 17 districts. The project will also conduct psychometric assessments and group information sessions.

Subsequently, participants can apply to one of three tracks:

1. Out-of-school club members aged 14 to 20 can pursue secondary education through open schooling or bridge education. They will receive a periodic cash incentive totaling Rs 10,000 (\$147).
2. Members aged 17 to 24 can receive business and livelihood skills training (2-8 weeks). No incentive to the participants will be provided.
3. Members aged 17 to 24 can opt for vocational training in various pre-selected trades, receive a periodic monetary incentive totaling Rs 10,000 (\$147), and support for six months to find a job.

All training will be delivered by trainers in community centers nearby to girls' homes. The project plans to reach a total of 200,000 participants across the three tracks. This limited availability will likely lead to oversubscription.

For the experiment, we will design a two-sided rank-choice matching algorithm to be embedded in the project's Management Information System (MIS). Eligible candidates will rank their preferences for various skills courses in a smartphone-based application. Training providers will also submit their ranked preferences among the candidates. The algorithm will then find the optimal allocation of candidates into training courses based on their psychometric characteristics (e.g., entrepreneurial orientation) and the ranked preferences of candidates and providers. Such ranked-choice matching would not be feasible on such a large decentralized scale without the use of technology.

When would the country need evaluation results? What is the latest date that evaluation results would be useful for decision-making?

The State Government would benefit from evaluation results on a periodic basis, including during the first year of implementation (2020), and at project closing (2021/2022).

What kind of data access could be facilitated for research purposes?

The Government is developing a web-based Management Information System (MIS) which will house all administrative data for the project. The research team will need to work closely with the developers to ensure that the system contains individual level data on all project beneficiaries, including socio-economic characteristics from registration forms, performance in the psychometric tests and life skills training, enrollment, attendance, ranked preferences, the assigned training course, completion of training, and their employment status after completing the training. All data will be recorded in real time via smartphone applications that have already been provided to community-based personnel in the project. The permission to access the data and to embed the two-sided rank-choice matching algorithm has already been granted by the Government team.

By embedding the matching algorithm within the project's MIS, the team can explore various hypotheses on how to improve the selection of candidates into skills training courses. For example, candidates with better attendance in preceding life skills training can be given preferential choice in

the matching. Candidates from marginalized backgrounds can be given preference. Ties between candidates can be settled via random allocation. The research team can explore the outcomes of candidates who received their top choice of course versus those who did not.

To complement the MIS data, we also have a keen interest in collecting and analyzing limited survey data one year after the participants complete their skills and education courses, as well as data on the costs of the skilling interventions offered under the project. The survey data would collect longer-term outcomes on employment and education, including information about job search, earnings, satisfaction with job, control over earnings, and spillovers within the community. These third-party data collection activities would be financed under the grant from SIEF.

ID: 15_Dominican Republic_World Bank

Country: Dominican Republic

Ministry or department: Gabinete Social (Social Cabinet), Progresando con Solidaridad, Gabinete de Coordinación de la Política Social de la Vicepresidencia de la República

What specific problem is the country trying to solve that could benefit from rigorous evidence of a technology-based intervention?

Unemployment in the Dominican Republic is persistent and concentrated among youth that account for over a quarter of the population. While youth unemployment is 13.4%, it is much higher for the poorest quintiles of Dominicans and females (ILO ILOSTAT, 2019; WB DR SCD, 2018).

The Bank is working with the Cabinet for the Coordination of Social Policies to implement the Youth Employment Training program which provides intensive skills training and internships or apprenticeships to youth. The project is part of the Integrated Social Protection and Promotion Project (P147213) and focuses on increasing access for 30,000 eligible Progresando con Solidaridad (PROSOLI) conditional cash transfer youth beneficiaries to productive opportunities.

In recent years, there has been increasing recognition of the importance of soft skills in improving labor market outcomes such as employment and wages. Employers devote considerable resources in developing assessing the socioemotional skills of new recruits, but these are typically based on self-reported answers that may correlate poorly with actual performance in the workplace. With improved measurement, employers could better match recruits to specific jobs, increasing productivity and job satisfaction.

While the Youth Employment Training provides a module to improve socioemotional skills, there is no way for students to understand their strengths and how to improve weaknesses. The team is testing how students will react to receiving information on their skills, but the process of generating reports is time-intensive and manual. As such, the government partners are interested in improving the measurement and development of the soft skills of training participants using an app. This technology-based solution will be used by the training facilitators and will continuously measure the presence of behaviors related to the relevant soft skills, thus improving on traditional, self-reported paper-based assessments.

The team has short-listed potential apps which have already been developed by PhD-level researchers. While there are other apps that measure soft skills (Knack app, for example), the app we propose testing is the only one that (i) defines each soft skill in terms of a set of specific and observable behaviors, (ii) measures these behaviors using role-playing situations and other strategies and (iii) provides feedback to participants so they can improve their soft skills. Students have begun using technologies in the current round measuring their skills in a survey-based format, so we anticipate that they will have the ability to use this technology.

Are there particular interventions that are already open for discussion or in progress?

Under the Integrated Social Protection and Promotion Project, two batches of training courses have already been implemented (with a combined 771 courses and 14,068 youth beneficiaries). In the second half of 2019, PROSOLI started a third batch of the 225 training courses (and around 4,500 youth beneficiaries). Participants finished the courses in January 2020 and are now concluding the internships. A fourth competitive process was launched in late 2019 to award 460 training courses (for around 8,600 beneficiaries) that will start in May 2020.

Preliminary analysis of the first two rounds show lower attendance and graduation rates among females that impact negatively their participation in the labor force. Only around 30% of participants were employed after these rounds, with fewer than 9% remaining in the firm after their internship, with labor market outcomes being worse for female participants than for males. As such, we believe that the improvement of socioemotional skills will lead to better employment both through improved learning and graduation, as well as through better skills to utilize in the workplace.

We are in the process of integrating the app into the training courses, and partners have agreed to randomize its usage in order to assess impacts.

When would the country need evaluation results? What is the latest date that evaluation results would be useful for decision-making?

The government counterparts need the evaluation results by late 2021. The team plans to disseminate results of the impact evaluation and strategy assessment, and to develop a final report and slides with results. The government would use the findings in the report to improve the design of the youth productive inclusion component. We expect that the government could ask for additional financing to the on-going loan.

What kind of data access could be facilitated for research purposes?

The team has access to data on the PROSOLI beneficiary families and has begun tracking data from students as they enter the Youth Employment Training program with a registration sheet. This sheet is now being captured as part of the program and records the education level and employment status of the youth. Endline surveys related to skills, learning, graduation, attendance, and employment outcomes after the training and potential internship would be financed as part of the evaluation.

In addition, the team will improve upon the current phone survey that the government uses to track labor force participation of the beneficiaries.

Other datasets to help inform the design of the new components include the following:

- a) SIUBEN dataset
- b) ENIGH 2007 Encuesta Nacional de Ingresos y Gastos de los Hogares – National Household Income and Expenditure Survey, a household budget survey. <http://enigh.one.gob.do/>

- c) ENHOGAR 2015 Encuesta Nacional de Hogares de Propósitos Múltiples – National Household Survey (MICS), for decision-making, social and economic planning as well as scientific production. <http://www.one.gob.do/Estadisticas/416/Enhogar-2015>
- d) Encuesta Nacional de Fuerza de Trabajo (ENFT) [April and October, 2000-2016] – National Labor Force Survey was conducted twice a year in the period, for labor and income statistics. Official poverty numbers are based on the ENFT.
http://www.bancentral.gov.do/estadisticas_economicas/mercado_trabajo/

ID: 16_Guyana_World Bank

Country: Guyana

Ministry or department: Ministry of Education

What specific problem is the country trying to solve that could benefit from rigorous evidence of a technology-based intervention?

Guyana is working to improve learning outcomes at the secondary level in core subjects, especially, Mathematics. In 2018, only 45 percent of Grade 11 students attained the top three grade levels in the Caribbean Secondary Education Certificate Examination (CSEC), a national examination conducted at the end of secondary school.

Multiple factors may affect student learning outcomes in the country, such as limited differentiated instruction in earlier grades and inadequate content knowledge and pedagogical skills among teachers. Technology-assisted teaching and learning may aid in overcoming these challenges. Adaptive learning software can help students learn at their own pace and fill in gaps in teacher knowledge at the school level. In addition, smart classrooms can assist teacher pedagogy and aide learning, including through connecting low performing schools (in particular, in the disadvantaged hinterland regions), to high performers to facilitate distance learning (for teachers and students).

Under the proposed evaluation, we aim to generate evidence on the impact of providing software and smart classrooms on learning outcomes in Mathematics at the secondary level. The intervention is tentatively designed with two treatment arms and one control group. Schools in the sample will be divided into three groups: (i) Schools receiving tablets uploaded with quality learning software (Kolibri, which includes Khan Academy Lite, is being considered) (ii) Schools receiving smart classrooms, equipped with a smartboard, Wi-Fi, tablets and learning software (iii) Control group (no tablets or smart classrooms).

Are there particular interventions that are already open for discussion or in progress?

The proposed intervention will be embedded in the Additional Financing for the Guyana Secondary Education Improvement Project (P170471). In the parent project, a technology assisted learning pilot was run in eight secondary schools in five regions of the country. Under the pilot, tablets with the Khan Academy software were provided to students in select schools. However, due to minimal hardware maintenance and inadequate teacher training and support during implementation, the pilot had low take-up at the school level.

Under the Additional Financing, lessons learnt from the pilot will be used to increase take-up and implementation fidelity of tablet intervention at the school level. To this end, schools will be selected based on specific criteria, including presence of IT staff for maintenance and school interest in the pilot. Training will also be increased, and follow-up (monitoring and coaching) will be provided, in the teachers own classrooms. In addition to the tablet intervention, smart classrooms equipped with smart boards, Wi-Fi and tablets will be provided to select schools. The intervention will benefit from

ongoing efforts undertaken by the Government of Guyana to establish internet connectivity in all schools in the country.

The intervention design is currently being finalized with the Ministry of Education, Guyana (including the number of schools in the sample) in line with the planned Board Date of June 15, 2020.

When would the country need evaluation results? What is the latest date that evaluation results would be useful for decision-making?

Guyana is currently moving towards investing in smart classrooms as a potential solution for learning deficits. The evaluation of this pilot would be very timely to inform the broader roll-out, both in terms of outcomes and process. There is no hard deadline by which the country would need the evaluation results, but a timeline of two years, with possibility of sharing intermediate results after the first year, would be the most appropriate.

What kind of data access could be facilitated for research purposes?

We have a good working relationship with the MOE as a result of many years collaboration through IDA and GPE projects, and would expect the government to be supportive (initial conversations have taken place and Government would be fully involved and consulted). We are currently undertaking a public expenditure review in the Education sector and have received substantive data on the sector as part of that process, which appear to be high quality. Under the evaluation we would work with the researcher to determine appropriate measurement, either through dedicated tests or results from national examinations.

ID: 17_India (Bihar state)_World Bank

Country: India (Bihar state)

Ministry or department: Department of Education

What specific problem is the country trying to solve that could benefit from rigorous evidence of a technology-based intervention?

A growing body of research has confirmed that teacher quality is the most influential factor in student achievement. Over the last two decades, the state of Bihar in India has witnessed a sharp increase in the size of its elementary school teacher workforce to more than 375,000 teachers. About one-fifth of these teachers were originally recruited without the required pre-service qualifications to teach in public schools. During 2014-19 with Bank's support, Bihar's State Council of Educational Research and Training (SCERT), the nodal agency for teacher training, roped in more than 200 teacher education institutions in the state for training of unqualified 'in-service teachers' on 'pre-service qualifications'. Presently, almost all teachers in the state have the required qualifications to teach.

However, providing the necessary in-service professional development programs has remained a challenge for the state. To improve quality of such programs, it's important to have practicality, specificity, and continuity as key features (WDR 2018) and a focus on deepening teachers' understanding of how students learn a certain content. Most states provide in-person training to teachers for 1-2 weeks during an entire school year. The SCERT in Bihar launched an innovative technology-based intervention to improve the quality, scale, and flexibility of delivery of these programs, and learning from a rigorous evaluation would help SCERT to improve and scale this model to its entire teaching workforce.

Are there particular interventions that are already open for discussion or in progress?

The SCERT has developed an online portal, called e-Shikshan, as an innovative technology-based intervention to improve the quality, scale, and flexibility of delivery of in-service teacher training programs for public elementary school teachers in the state. The portal, developed on the Moodle open-source learning platform, can facilitate e-learning through virtual classes, host web-based content, and facilitate digital collaboration and professional learning communities. The portal, launched in late 2019, has allowed the SCERT to experiment with various models of teacher training. The easiest approach is to upload course content onto the portal and invite teachers to enroll and complete the course online. In another approach, the SCERT has experimented with a blended model where a weekly contact session is organized at the district level to set the learning vision, provide mentoring to trainees, and resolve queries. The initiative has seen more than 3500 registrations experiencing growing demand from the teachers' community. The SCERT is also planning to start an online Professional Learning Community of teachers and invest its own resources on studying additional models of ICT-enabled professional development programs. The government is interested in understanding the overall impact of the e-Shikshan initiative and conditions/approaches which lead to a positive change. The government is also open to more than one nimble evaluation to test out the effectiveness of the various components/approaches of the intervention. These nimble evaluations may provide opportunities to test different combinations of treatment groups with technology and

alongside a control group. While e-Shikshan is a portal which is already launched, the government is still experimenting with various possibilities to use the portal towards its larger goals, and it is expected that these efforts will continue in the near- to medium-term.

When would the country need evaluation results? What is the latest date that evaluation results would be useful for decision-making?

Availability of preliminary results by June 2021 will be useful, which coincides with the proposed closing date of the ongoing World Bank operation in the state (P132665).

What kind of data access could be facilitated for research purposes?

There is an active World Bank operation in the state that has supported the development of e-Shikshan and several other technology systems. The Bank task team has been working with the government for more than 5 years, and is in a position to facilitate the data required for research purposes. The administrative data source includes a database of all teachers in the state on the Teacher Education Management Information System (TEMIS) that was recently developed using the Sunbird architecture. In addition, the Department of Research & Training, as well as the SCERT have additional data about training programs for teachers. Accessing these data sets within the contours of Bank's existing policies on handling client information should not be a major challenge.

ID: 18_Pakistan_World Bank

Country: Pakistan

Ministry or department: Sindh Education and Literacy Department

What specific problem is the country trying to solve that could benefit from rigorous evidence of a technology-based intervention?

Sindh Province in Pakistan is trying to improve literacy in the early years while working with constraints such as poorly trained and qualified teachers, issues with mother tongue language learning, and limited access to teaching and learning materials. It is estimated that 75 percent of Pakistani children in later primary ages are not proficient in reading. While there is no disaggregation for this figure in Sindh, evidence from the province suggests that only 23.5 percent of 3rd grade students could read a simple Urdu or Sindhi sentence and only 21.7 percent could perform two-digit subtraction. One of the key challenges to the poor learning outcomes is teachers' outdated pedagogical practices, teacher-centered, and passive student learning approaches with teachers covering significant amounts of content, irrespective of the comprehension and learning needs of students in their classrooms. Moreover, teachers receive almost no support from head teachers or district and taluka (sub-district) level supervisors as they too lack the capacity to provide needed for instructional guidance and ongoing professional development support, or they are rarely present enough at local schools to make a consistent difference.

Are there particular interventions that are already open for discussion or in progress?

The World Bank will help finance an Interactive Audio Instruction (IAI) intervention to support first-grade teachers develop improved instructional practices, and in turn, to improve learning outcomes for their students. IAI is an intervention that combines broadcast with active learning to improve educational quality and teaching practices. Instructions are broadcasted using cellphones, MP3 players, radio, etc., (content can be downloaded prior to the class meaning no internet connection in the school is needed), and serve as action prompts that students and teachers follow. The instruction provided will engage students and teachers in interactive activities such as sing-alongs, physical movement, questions and answers, story-telling, and can be applied to both literacy and numeracy content. Teacher guides and student materials will also be provided with the IAI to facilitate the instructional process and help students and teachers focus on the key learning objectives. Evidence from the successful implementation of IAIs in other country contexts demonstrates that students can become engaged in multiple ways (cognitively, emotionally, socially, and physically).

The intervention is in the early stages of design and will target both teachers and students. Initial design will be discussed with the government in order to move forward with planning and preparation. The intervention will be designed and pre-piloted in early 2021 to allow for refinement and adjustments to the content and implementation fidelity. The evaluation of the intervention will then occur end of 2021, with results ready by 2022.

When would the country need evaluation results? What is the latest date that evaluation results would be useful for decision-making?

Ideally results should be available by 2022.

What kind of data access could be facilitated for research purposes?

The government has been supportive of plans thus far, and the Sindh province is known for its past use of technology to improve service delivery (e.g. the use of bio-metrics to monitor teacher attendance). The team anticipates access to the education management information system of the SELD, administrative, and student learning outcomes data. The team will not only depend on the data from the SEMIS, but within the design of the IE plans to include measurements (e.g. for student literacy) in order to have reliable and timely data on intervention effects. The evaluation team will need to collect data on learning outcomes, to measure impact, cost effectiveness, as well as process data on how well the technology aided or hindered teacher practices and effort.

ID: 24_Zimbabwe_DFID

Country: Zimbabwe

Ministry or department: Ministry of Primary and Secondary Education (MOPSE)

What specific problem is the country trying to solve that could benefit from rigorous evidence of a technology-based intervention?

In the current context in Zimbabwe there are a shortage of teachers for maths and sciences and concerns about the level of foundational literacy and numeracy for the poorest children in the more remote parts of the country. The Teacher Effectiveness and Equitable Access to all Children (TEACH) programme is a DFID-funded programme that has been designed to address issues that motivate and support teachers to deliver in a difficult context. The intervention has yet to be finalized, but the Education Innovation component of TEACH will pilot Ed Tech as a potential solution to address the lack of teachers and their capacity. This pilot will need to be evaluated as part of the TEACH programme for policy development and potential scale up. The target group will be head teachers and teachers in remote rural schools as well students across rural districts in Zimbabwe. The intervention is aimed at both primary and secondary levels.

Are there particular interventions that are already open for discussion or in progress?

The Ed Tech component of the TEACH programme will have a pilot starting from the end of 2020 and running through to 2024. The exact Ed Tech interventions will be finalised during the inception period of the TEACH programme, but are expected to focus on improving teacher training and use of digital data to support teaching in maths, literacy and sciences for all learners. A particular challenge is also the constrained environment for use of technology, particularly given low electrification and connectivity in learning environments. There is an ICT policy now in Zimbabwe for the education sector which attempts to address this issue and this will guide the TEACH interventions that are highest priority to pilot. That discussion will take place during this inception period; beyond these initial ideas.

Doing a rigorous evaluation of the pilot would provide data and analysis of interventions on what Ed Tech solutions work for improving learning outcomes, particularly student performance in key subjects. This will be helpful for Government on sustainability and scale up potential.

When would the country need evaluation results? What is the latest date that evaluation results would be useful for decision-making?

August 2023

What kind of data access could be facilitated for research purposes?

The decision on the research questions will be made once the interventions are decided. It is planned to use school census data as part of the baseline process and use the the government's agreed key performance indicators. Those KPIs are in the process of being reset as part of the development of

the Education Sector Strategic Plan process but will be confirmed during the inception period between April and October 2020. It is likely that the KPIs will include metrics on teacher motivation, teacher effectiveness/improvements and student performance for maths, sciences and literacy. The Government is very supportive and keen to learn from the TEACH pilot in order to begin implementation of the ICT policy and to engage in digital teaching and learning.

Data is of reasonable quality in Zimbabwe but there is limited research data available in this space of low resourced areas (electrification and connectivity) in rural districts within the country. It is not expected at this time that there would be issues on privacy and data protection, but that will have to be explored further to clarify.

ID: 25_South Sudan_DFID

Country: South Sudan

Ministry or department: Ministry of General Education and Instruction (MoGEI)

What specific problem is the country trying to solve that could benefit from rigorous evidence of a technology-based intervention?

South Sudan, the newest country in the world is multi-ethnic and multi-lingual with a population of approximately 12 million, with vast and various natural resources, but marred by a long history of conflict. which has resulted in stagnation of its development. South Sudan has some of the lowest educational indicators in the world. Only 27% of the population aged 15 years and above is literate, with significant gender disparities: the literacy rate for males is 40% compared to 16% for females. One of the key issues behind this is low enrolment. The Girls Education South Sudan (GESS) Programme is therefore trying to tackle poor literacy rates through incentivizing enrolment, most notably through community mobilization and the provision of conditional cash transfers.

An important aspect of the programme is the South Sudan Attendance Monitoring System (SSAMS), which is an information system covering a range of disaggregated school, teacher, and student data. . The information is system is important but faces many challenges, because the education sector suffers from a lack of proper policies for data governance, inconsistency of data reported, and inefficiencies in data storage with little cohesion across data sources. The Ministry of General Education and Instruction (MoGEI) relies heavily on the SSAMS to validate schools and inform decisions about funding. However, the volume of data that each school produces is growing exponentially. Therefore, in order for the system to improve decision-making of the MoGEI, changes to the system are needed that can unlock the value of this data to enable a more effective data management. Ideally, we need an evaluation of the SSAMS functional modules to see how it can feed into these decisions.

Are there particular interventions that are already open for discussion or in progress?

Girls' Education South Sudan Phase 2 (GESS 2) is a programme that is aimed at breaking down barriers to education particularly for, but not exclusively, girls. The Programme aims to do so by implementing five key interventions concurrently:

1. Behaviour Change Communication to particularly tackle barriers linked to negative sociocultural attitudes toward education;
2. Cash Transfers to supplement household income to enable families to send their children to school;
3. Capitation Grants to schools to enable schools to provide a conducive learning environment for all learners;
4. Quality Education/Learning Groups working with education managers and learners to impact learning outcomes;

5. Knowledge, Evidence, Research and Learning to establish a knowledge base and learning of what works to support education in South Sudan including reporting on enrolment and attendance of learners and teachers and academic research.

GESS is a complex programme with many specialist areas, all of which need to be kept track of especially in relation to school data and ways of improving accountability through the use of existing technology.

When would the country need evaluation results? What is the latest date that evaluation results would be useful for decision-making?

Preliminary results will be useful by June-July 2021.

What kind of data access could be facilitated for research purposes?

School data(enrolment, number of students and teachers), validating the number of operational schools in the country.

South Sudan School Attendance Monitoring System(SSAMS) and Education Management Information System (EMIS).

Data quality is poor.

ID: 27_Ethiopia_DFID

Country: Ethiopia

Ministry or department: *Federal Ministry of Education and Regional Education Bureaus*

What specific problem is the country trying to solve that could benefit from rigorous evidence of a technology-based intervention?

The Education system in Ethiopia is rapidly expanding, with primary and secondary education enrollments increasing from 18m to 26m in less than 8 years. There have also been some improvements in learning outcomes.

The Government of Ethiopia (GoE) and donors have invested a significant amount of resources in Educational ICT, from plasma televised programmes to deliver secondary school lessons across the country to installation of e-cloud structures in secondary schools and universities to enhance access to educational resources and ultimately improve quality of learning. However, such investments are not translating to gains in learning, and poor learning outcomes and inequity remain challenges to the education sector.

Only 32.5% of Ethiopian students exhibit functional proficiency in early grade reading. Students are also performing badly in secondary schools. , percentage of students who achieved 50% and above on key subjects stands at 9.1% for grade 10 and 26.6% for grade 12, as opposed to the country's target of 50% (grade 10) and 70% (gr. 12).

Inequity in the education system remains a concern, especially for girls residing in remote areas and students with special needs education. The gender parity in primary education stands at 0.90 and secondary at 0.87. Gender in education is more acute in the remotest and pastoralist regions of Ethiopia. Moreover, the majority of children with Special Needs are not accessing education, with only 11.01% and 2.4% enrolled in primary and secondary education respectively.

ICT continues to be regarded as a panacea for the outstanding challenges the education system in Ethiopia is facing, and GoE and donors have made large investments in ICT in the education sector including developing infrastructure and educational content.

We seek a researcher who can help to assess the impacts of the ICT in education interventions made in the country over the past few years. While a quasi-experimental research approach would best suit this question, a randomized control trial can be used to evaluate future ICT interventions, depending on the availability of resources and the feasibility of proposed timelines.

Are there particular interventions that are already open for discussion or in progress?

Plasma mode of instruction has been implemented in Ethiopian secondary schools since 2004. Plasma is an e-learning video broadcast over internet protocol networks to wide plasma television screens installed in each classroom. Plasma technology is believed to address the lack of qualified teachers, to enable sharing the expertise of model teachers to wider groups of students, and to ameliorate the

serious shortage of science labs by supplementing lessons with simulated experiments. This technology is still in use in Ethiopian secondary schools.

The General Education Quality Improvement Programme (GEQIP) II was a package of education reforms implemented with the support of various donors including DFID and the World Bank. A component of this reform package supported GoE to improve teaching and learning through ICT. Among others, the project worked in selected secondary schools by establishing specification, procurement and distribution and management of ICT in target educational institutions and developing local capacity for producing digital learning content. It has introduced a zero-client shared resource computing access model for 300 secondary schools and 10 Universities called E-cloud. The implementation of this project was completed in December 2019.

When would the country need evaluation results? What is the latest date that evaluation results would be useful for decision-making?

As soon as possible.

What kind of data access could be facilitated for research purposes?

Data from the Educational Management Information System is available. This data source has information on enrollment rates, equity, gender parity, number of teachers and their qualifications, and the number of facilities in schools. Such an information is presented in the form of the Education Statistics Annual Abstract, which is available for several years.

National Learning Assessments (NLA) for grade 4, 8, 10 and 12 have been undertaken in Ethiopia every four years. The NLA assesses learners proficiency levels in various subjects and permits comparisons of student performance over time.

ID: 28_Pakistan_DFIG

Country: Pakistan

Ministry or department: Department for International Development

What specific problem is the country trying to solve that could benefit from rigorous evidence of a technology-based intervention?

Schools in marginalized settings of Pakistan find it difficult to source quality teachers or to train the existing ones. Monitoring the classroom practice of these teachers is also weak. There are limited continuing professional development programs, and female teachers in particular find it difficult to travel for attending trainings. The magnitude of the problem calls for an extraordinary change in focus and strategy, driven by use of technology and innovation.

Are there particular interventions that are already open for discussion or in progress?

TeleTaleem (TT) has been designing and implementing ICT assisted teacher training programs and providing remote access to education services over the last seven years. It has designed an ICT based solution, namely the project 'ILMunate - Bridging Learning Gaps in Girls' Community Schools (GCS) Using Technology and Innovation'. The project objective is to provide remote access to students attending GCSs in marginalized communities across Khyber Pakhtunkhwa (KP). Currently, the project is deployed in 142 Girls Community Schools spread across 14 districts of KP province. The program also functions in 5 government primary schools in Sheikhpura, Punjab.

Typical challenges in implementing this program have included the following, which are being addressed through different strategies:

- Weak governance structure – specially between provincial, district, and local school managements.
- Integrating technology in education in a context where students and local teachers were unfamiliar with use of technology.
- Frequent power outages and connectivity signal variations

The project interventions comprise online remote teaching and teacher training services. Every project school is equipped with a digital classroom, comprising of a laptop, LCD TV, mic/camera and uninterrupted power supply. Using wireless internet, these digital classrooms are connected live to specialist teachers/teacher trainers, sitting in remote facilities to deliver online teaching and training sessions. A specialist teacher uses the online facility to directly teach primary grade students, interacting remotely through the technology enabled classroom. Teaching covers English, Math and Science for Grade 4 & 5 students, with online classes conducted on a daily basis. Multiple classrooms are virtually aggregated to be served by a single online teacher. Homework and assessments are conducted on weekly/monthly basis, uploaded online for review/grading by the remote teacher. Local GCS teacher provides limited facilitation where required.

When would the country need evaluation results? What is the latest date that evaluation results would be useful for decision-making?

By 2022 or 2023

What kind of data access could be facilitated for research purposes?

The following types of datasets will be collected for this research from ongoing interventions, during the next 2 years;

- Standardized Assessments and curriculum aligned standardized tests in English, Math and Science for primary grade children.
- Content knowledge and pedagogical skills assessment of target teachers.
- Likert-scale surveys to measure satisfaction of stakeholders including parents, teachers, and school administratorstion, etc.
- Data from in-depth interviews and focus group discussions.

In addition, historical intervention data of a similar nature is also available for the past 2-3 years, which can be made available to the research team.

TeleTaleem interventions are ongoing in government owned public schools, as such access to student and evaluation data is not a major challenge. Data collection is managed by the program, not the school. For the purpose of evaluation, the collected data is anonymized and names and identities of children and teachers are removed for analysis.

ID: 31_Tunisia_Dfid

Country: Tunisia

Ministry or department: Ministry of Education

What specific problem is the country trying to solve that could benefit from rigorous evidence of a technology-based intervention?

Improving learning outcomes which are extremely low. EdTech could help address the following contributory factors:

- **Access to higher quality education in remote, rural and marginalised communities** – it is difficult to attract [good] teachers to these areas, and education can feel irrelevant and be both a real and opportunity cost.
- **Teacher performance** – a number of teachers have not received adequate training, so they take a didactic approach. EdTech could help introduce greater interactivity and group work in the classroom.
- **Measurement**– there are few mechanisms for measuring learning or teacher/school performance which mitigates against efforts to improve learning outcomes – EdTech, through making it easier to carry out formative and summative assessment, could help.

Are there particular interventions that are already open for discussion or in progress?

The Tunisian education strategic plan 2016-2020 comes to an end this year, coinciding with the appointment of a new government, including a new Minister for Education who has spoken about the need to reform the education system. It is not yet clear what these plans would include but, if they include Ed Tech, it would be helpful for them to build on learning from previous interventions in this area (see: <https://blogs.worldbank.org/arabvoices/tunisia-technology-support-school-improvement>) and to ensure that they address the issues set out above.

The Ministry of Education is also working with the Francophone University Association on a possible new national e-learning institute to train teachers in remote teaching and using ICT training. In addition, the British Embassy Tunis has just started working with the World Bank to provide technical assistance on the \$100 million loan to support the Tunisian government's efforts to improve the quality of primary education and expand access to preschool in disadvantaged regions (the Strengthening Foundations for Learning Project).

When would the country need evaluation results? What is the latest date that evaluation results would be useful for decision-making?

The timeline for any new education reforms is unclear, but ideally results would be available within the next year.

ID: 32_Bangladesh_DFID

Country: Bangladesh

Ministry or department: Ministry of Primary and Mass Education

What specific problem is the country trying to solve that could benefit from rigorous evidence of a technology-based intervention?

The problem that the government is trying to solve is low levels of learning in schools. One of the ways it is trying to do this is by improving the quality of teaching by providing training. It has started to use web-based courses (MOOC style) to train teachers and provide a platform where teachers can interact and share ideas.

Are there particular interventions that are already open for discussion or in progress?

The government has launched the Muktopaath online learning platform through its innovation hub. It is being used by several thousand teachers. Nimble evaluations and a/b testing can help increase usage, improve the way the platform is used and improve learning outcomes of teachers.

When would the country need evaluation results? What is the latest date that evaluation results would be useful for decision-making?

There is no hard deadline but there is momentum on the platform at the moment which can be used positively.

What kind of data access could be facilitated for research purposes?

The platform is being run by the government's innovation hub called the Access to Information team. They are very supportive of experimentation and the use of data and evidence to improve its services. The online platform collects user and usage data which can be used. And the platform can be easily adapted for a/b testing.

ID: 33_Sudan_World Bank

Country: Sudan

Ministry or department: Ministry of Education

What specific problem is the country trying to solve that could benefit from rigorous evidence of a technology-based intervention?

Low levels of learning, high drop-out, and student absenteeism.

Are there particular interventions that are already open for discussion or in progress? Please describe and include dates if known.

A new project, funded through a GPE grant, will continue aims to enhance reading proficiency of primary school students by introducing extra-curriculum reading and formative classroom assessment. Teachers will be provided tablets to conduct the assessment and receive feedback. School administrators and school supervisors will be provided tablets to monitor teacher and student absenteeism as it is one of the key factors of student non-learning and dropping out from school.

When would the country need evaluation results? What is the latest date that evaluation results would be useful for decision-making?

The new project is expected to start in June 2020. Evaluation results will be needed throughout the project implementation process (until 2025) for fine-tuning of interventions.

What kind of data access could be facilitated for research purposes?

School-level data collection under the Annual School Census is on track. The data is being collected using mobile technologies. In addition, school coordinates of 16 thousand preschools, 20 thousand basic schools, 5 thousand secondary schools have been recorded.

Sudan has implemented an Annual School Census using mobile technologies for the second time (2018/19 and 2019/20). The project supported the procurement of tablets for EMIS officers in all states and localities. In addition, data from two rounds of the National Learning Assessment is available. The databases, however, are not properly merged. The new project will be collecting data from student assessments in reading. Also, information on student and teacher absenteeism will be available.

ID: 34_Algeria_DFID

Country: Algeria

Ministry or department: Ministry of National Education

What specific problem is the country trying to solve that could benefit from rigorous evidence of a technology-based intervention?

Expanding English language teaching (there is a tremendous appetite for this but insufficient resources, and a risk that a focus on this, or getting it wrong, could impact negatively on quality of education) and improving learning outcomes (these are very low).

On the latter, EdTech could help address the following contributory factors:

- **Access to higher quality education in remote, rural and marginalised communities** – it is difficult to attract [good] teachers to these areas, and education can feel irrelevant and be both a real and opportunity cost.
- **Linguistic issues** – children are taught to read and write in Modern Standard Arabic, but it is the Arabic dialect that around 72% of them speak (27% of them have a Berber language as their mother tongue) - the resulting disconnect between oral and written language is at least partly responsible for low levels of functional literacy by age 10 and high drop-out rates from university.
- **Teacher performance** – due to demographic pressures, a large number of teachers had to be employed without receiving adequate training, so take a didactic approach. EdTech could help introduce greater interactivity and group work in the classroom.
- **Measurement** – there are few mechanisms for measuring learning or teacher/school performance which mitigates against efforts to improve learning outcomes – EdTech, through making it easier to carry out formative and summative assessment, could help.

The Algerian Ministry of Higher Education is also keen to move towards using English as a medium of instruction in universities. Again, the scale of this is large, so Ed Tech could help make progress on this in an affordable way.

Are there particular interventions that are already open for discussion or in progress?

The UK is supporting the Ministry of National Education (MoNE) in their educational system reform through a project called Supporting School Reform in Algeria (SSRA), delivered by the British Council. It is delivered under a bilateral Algeria-UK government education cooperation agreement signed in November 2017, and aims to improve the quality of teaching and learning in schools by building the capability of Algeria's school inspectors and school leaders to develop new approaches to administration, leadership and pedagogy (including English language teaching and 21st century skills). The project aims to create effective frameworks that are drivers for improved learning in the classroom, with a long-term goal of improving the Algerian scores in the PISA tests. It could be interesting to examine whether Ed Tech could help scale up the effective reach of this project – at the moment it uses a cascade model of training, but evidence shows that this model reduces its impact as it goes down each level.

On higher education, British Embassy Algiers is funding a project on skilling youth for work implemented by International Labour Organization (ILO), and aims to set up a joint Commission on Higher Education, which will have a focus on employability and expanding English language teaching.

There are plans to move to tablet teaching across thousands of schools in the coming years, given large class sizes, outdated textbooks and the sheer size of Algeria.

When would the country need evaluation results? What is the latest date that evaluation results would be useful for decision-making?

The current contract for the British Council project is running until March 2022.

What kind of data access could be facilitated for research purposes?

Our programmatic and technical assistance work has allowed the Embassy to build good relationships with the Ministries responsible for education. Each education authority collects data from every school in its district, including exam results, and this information is held in a database.

ID: 35_Morocco_DFID

Country: Morocco

Ministry or department: Ministry of Education

What specific problem is the country trying to solve that could benefit from rigorous evidence of a technology-based intervention?

Expanding English language teaching (there is a tremendous appetite for this but insufficient resources, and a risk that a focus on this, or getting it wrong, could impact negatively on quality of education) and improving learning outcomes (these are very low).

On the latter, EdTech could help address the following contributory factors:

- **Access to higher quality education in remote, rural and marginalised communities** – it is difficult to attract [good] teachers to these areas, and education can feel irrelevant and be both a real and opportunity cost.
- **Linguistic issues** – children are taught to read and write in Modern Standard Arabic, but it is the Arabic dialect that around 70% of them speak (30% of them have a Berber language as their mother tongue), and then tertiary education is largely delivered through the medium of French – the resulting disconnect between oral and written language is at least partly responsible for low levels of functional literacy by age 10 and high drop-out rates from university.
- **Teacher performance** – a number of teachers have not received adequate training, so take a didactic approach. EdTech could help introduce greater interactivity and group work in the classroom.
- **Measurement**– there are few mechanisms for measuring learning or teacher/school performance which mitigates against efforts to improve learning outcomes – EdTech, through making it easier to carry out formative and summative assessment, could help.
-

Are there particular interventions that are already open for discussion or in progress?

The Moroccan Government is 5 yrs into a [15-yr education reform strategy](#), and ICT runs throughout the Ministry's project plan for the reform programme, e.g.

In order to ensure a better anchoring of equity in the learning and schooling, it is necessary to resolutely pursue the efforts and programs aimed at the rehabilitation of establishments, especially those located in remote, rural and peri-urban areas. For this you will need to:

- *equip all the teaching rooms of these establishments with audio-visual means and information and communication technologies;*

British Embassy Rabat has just started working with the World Bank on the reform strategy – we are funding the technical assistance component.

The Minister of Education has recently formally requested the UK's help to scale up English language teaching in schools across the country, offering match funding – we are investigating options with the British Council.

Interestingly, [Morocco's GENIE programme won a UNESCO prize in 2017](#), but recent field studies on the use of ICT in Moroccan schools and universities indicate that there are insufficient computer materials and that modern technology is rarely used to help teachers in schools.

When would the country need evaluation results? What is the latest date that evaluation results would be useful for decision-making?

The reform programme will be ongoing until 2030. I'd need to discuss with the Ministry in order to determine their milestones for ICT expansion. With expanding English language teaching, the sooner the better given we are under pressure to respond to the Minister's request.

What kind of data access could be facilitated for research purposes?

We have a good relationship with the Ministry of Education and they are very interested in EdTech solutions. MASSAR, the new EMIS system, is collecting a great deal of useful data but is still working through full implementation.