Overview of the Innovation

STEM aimed to improve teachers’ proficiency in English and their confidence and ability to teach through the medium of English. It was hoped that through developing their proficiency and confidence, teachers would be able to apply more learner-centred methodologies in the classroom. The project was implemented through a blended-learning package which combined self-managed learning through printed units, learner journals, and audio learning materials; and supported by School Based Mentors (SBMs) and school based personnel (SBPs). The audio content was delivered through pre-loaded micro-SD memory cards on mobile phones as well as the Life Player (a solar-powered MP3 player with recording function and in-built speakers).

The blended approach include the following:

- 20 units of guided self-study materials (including an introductory unit) based on classroom tasks and language tokens (specific pieces of classroom English)
- Accompanying listening, speaking and pronunciation activities loaded on to mobile phones for each participant
- Mentor-facilitated support with guided self-study materials (1-1 and group)
- Life Player listening, speaking and pronunciation materials (approx. 1 player for 5 teachers)
- Peer support/learning groups (initially facilitated by STEM mentors) based on content
- pre-loaded on a Lifeplayer for listening and recording and guided self-study materials
- Learner journals to encourage reflective practice in professional development
- 'Can do' statements linked to classroom tasks to encourage self-monitoring of progress and self-assessment of ability in using classroom English

P1-3 teachers of English and P4-6 teachers of all subjects in 10 schools in Nyamasheke were initially involved in the pilot, which was later extended to 36 schools in the district. The total number of teachers involved was 497, who reached 32,400 primary students. The budget for the STEM project was GBP 635,099.

Grant Recipient:
The programme was implemented by the British Council in collaboration with local partners: the International Education Exchange (IEE) and the Association of Teachers of English in Rwanda (ATER).

Contact:
Sheilagh Neilson: sheilagh.neilson@britishcouncil.org
John Simpson: john.simpson@britishcouncil.org

What makes it innovative?
The STEM programme was innovative both in terms of being new to the Rwandan context, as well as being based upon new use of technology. A blended approach to teacher professional development, combining guided self-managed learning with mentoring and peer learning has not been used in Rwanda before. The guided self-managed learning was delivered through a mix of audio and print materials, with the audio being delivered through mobile phones and solar-powered MP3 players with recording and playback facility.

Relevance to education priorities:
Main theme: Effective teaching and learning;
Sub theme: Skills development.
This project was relevant to the 2010-15 ESSP where the sector-wide shift to English medium education was promoted as a cross-cutting priority. This was also highlighted in Rwanda’s Economic Development and Poverty Reduction Strategy (EDPRS) where the School Based Mentor programme was explained as a way to “strengthen teacher proficiency in English and to improve
the quality of teaching and learning.”

**Project learning (activity/output to outcomes level)**

- Teachers generally reported positive attitudes to the STEM guided self-study model, including learning materials and peer support groups.
- Audio resources were greatly appreciated and were shared throughout the schools on mobile phones. The audio materials were also shared with teachers from non-STEM schools in Nyamasheke district and beyond. M&E reports highlighted that the audio materials were considered essential to the package, introducing teachers to spoken classroom English.
- The mobile phone was by far the most popular means of studying STEM materials. Working with mobiles helped build teachers’ confidence and enhanced their skills of listening, speaking, and pronunciation. Dictionaries on the phones further helped with vocabulary enrichment, and access to the internet was considered as very useful for research on lesson content.
- The print materials, used in combination with the mobile phone, helped teachers to develop reading and writing skills. This is particular important as the most recent assessment of English language proficiency of teachers in Rwanda showed that reading is the weakest skill.
- Peer Support Groups and teacher support from SBMs and SBPs have helped teachers in exchanging and sharing experiences and supporting each other.
- Life Players were envisaged for use in peer support groups, but they were often replaced by mobile phones and speakers. Moreover, a number of the Life Players faced some technical problems (e.g. charging batteries).
- Learner journals are not a feature of Rwandan culture, and teachers did not fully understand their purpose and/or failed to see their usefulness.
- Self-study is something new in the Rwandan context and not easily understood. Project strategies to address this (such as encouraging guided self-study through peer support) will need to be repeated at scale-up.
- Heavy workloads and other school plans sometimes prevented teachers from engaging with STEM as intensively and extensively as they otherwise might have done. Engagement with Head Teachers to gain their support can help mitigate this.
- For the potential scale up phase it will be important to issue guidelines and procedures to handle the equipment (mobile phones) and on how to deal with loss, theft and damage.

**Project outcomes and reflection on monitoring and evaluation**

The study design tests different models of support to teachers (treatments) against a pair of control schools. The samples are too small to make it an experimental approach, but it compare baseline and end-line results. The projects’ outcomes were measured by a variety of methods with pre- and post-
tests of teachers’ general English language competence and classroom English, observations of their classroom practice, and survey of understanding and attitudes to pedagogy and self-study. There were also Focus Group Discussions with teachers and a series of case studies of individual teachers.

The outcomes of the project were:

- Increased understanding and positive attitudes amongst teachers towards guided self-study within a blended learning approach to continuous professional development (cpd), with a preference shown for self-study combined with a face-to-face element.
- Significant improvements to teachers’ classroom English and confidence to use English in the classroom. Teachers were observed to be better able to conduct lessons in English though with no significant improvements to their general competence in English.
- Teachers enabling pupils to be more actively involved in the learning process, but limited improvement in the English interactions among pupils and with their teachers.

In general a good study with convincing outcomes in relation to the classroom. There were some initial problems in the reliability of some of the data (particularly observational) which were addressed.

Conditions for success

This project was dependent upon teachers taking time to self-learn outside of the classroom as well as finding effective ways of learning from each other and joint reflection on their classroom practices. Engagement among teachers was very good because all teachers involved in the pilot recognised the clear need for improvement and how the initiative would facilitate their work, as well as the benefits to them and their learners in terms of better quality teaching and learning.

The pilot project initially made extensive use of the Life Player but during implementation this was found not to be essential. Mobile phones are required, but the use of mobile phones is not dependent on network connectivity (because of the preloading of the SD cards) and, importantly, it is not necessary to have the latest and more expensive ‘smart phone’ technology.

The project was also dependent upon both Head Teachers and SEOs supporting teachers. The project was flexible in its delivery of strategies to give these stakeholders small but discrete roles that engaged them without overburdening them.

An intervention of this intensity depends on significant investment and the long-term success of the project is dependent upon its cost effectiveness, which could compare favourably with relatively expensive face-to-face training.

Scale up and sustainability considerations

The most important elements to be sustained for future scale up are the audio materials on mobile phones; corresponding printed units; peer support groups; teacher support; and a light touch M&E model. Elements that have been considered less essential and hence, not recommended for scale up are the Life Players and learner journals.

The project presented a sound analysis on the essential elements to be retained and also made a strong case for continued technical assistance, capacity development and quality assurance for the large scale roll out. Moreover a continued and stronger role for national implementing partners is foreseen during this process of rolling out the intervention, which will be led by the Government (REB).

The project envisages a phased roll out, eventually leading to reaching all primary school teachers. The approach and methodologies that STEM applies in the area of ‘using English as a medium of instruction’ have the potential for much wider use, and may become a general model for Teacher Professional Development in Rwanda. Moreover, close collaboration with the College of Education (CoE) will be sought to ensure that materials will be embedded in pre-service teacher training as well.

Chances for successful institutionalisation are high as continuing to support teachers to use English as the medium of instruction and supporting their English proficiency remains high on REB’s priority list and the STEM project is positively perceived by GoR. Interest in the project has
been shown in other Sub Saharan Africa countries (Nigeria, Mauritius and South Sudan); and STEM has recently won a Commonwealth Good Practice in Education award.

In case no further external support is provided, the materials (audio and print) can be made available and reproduced by the Government. Moreover, these materials could be made available in pre-service teacher training. The peer support groups could also be sustained within REB as a component of a wider in-service teacher training programme. Inspectors could use the classroom observation instrument. Key teachers (school based personnel) can be used in those areas where there are no school based mentors.

However, while useful materials, instruments and methodologies have been prepared and can be transferred to the Government, the Fund Manager supports the projects’ view emphasizing that technical assistance and capacity building of teacher trainers and teachers will continue to be required to ensure highest impact of upscaling.

**Cost considerations**

Although unit costs per teacher were relatively high during the pilot project, the project has proposed an efficient and slimmed down package for scale up. The revised package will exclude the elements of the pilot that had least impact [learner journals and Life Players].

The economic analysis discussed unit costs in relation to materials, training, equipment and M&E. It showed that the pilot intervention has been quite expensive at GBP 5,292 per teacher, which was reduced to GBP 1,296 per teacher when school based personnel (i.e. key teachers) rather than school based mentors took on the role of supporting participating teachers. When scaling up the intervention to all estimated 37,404 primary teachers in the country, the cost per teacher would be reduced significantly to a range of GBP 23 – 73 per teacher depending on the package offered (e.g. providing only SD cards or providing an entire mobile phone set). This includes print, audio and M&E, but excludes training and the quality assurance role previously provided by the British Council.

For scale up it is assumed that the national consortium partners IEE and ATER will deliver the training to trainers consisting of existing personnel of the Government (e.g. mentors). The Fund Manager has referred to the experience from English in Action (a DFID supported programme implemented by Mott MacDonald in Bangladesh) to advise that providing just SD cards, rather than mobile phones, to teachers will significantly reduce costs.

**Immediate Next Steps**

- Continue to develop and strengthen the scale up plan for STEM, including revising the package, and aligning this to the implementation of the new competency based curriculum, and seek REB (in particular the REB TDM Department) feedback on the plan.
- Disseminate findings from the guided self-study pilot innovation more widely across the education sector in Rwanda.
- Using the Technical Working Group on Teacher Professional Development, provide advocacy for the STEM model, including how the model could serve as an example of ongoing teacher professional development beyond English as a medium of instruction.
- Seek REB approval for the system-wide use of self-study training materials developed by STEM and determine how they can be adapted for self-study purposes within a scaled up modality.
- Work with CoE to explore ways in which the STEM self-study resources and learning approach can be embedded in pre-service training programmes.
- Develop a strategic plan to secure private sector investment for the project (in particular Information Technology and Telecommunications providers).
- Assess the impact of the lighter package in the long run.

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