



HUMAN DEVELOPMENT INNOVATION FUND

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BUILD FOR SUSTAINABILITY: THE CASE OF CSSC

Christian Social Services Commission (CSSC) is a non-governmental organisation with an outstanding record of delivering education in Tanzania. To help improve teaching standards and attainment rates in science and mathematics, CSSC collaborated with Studi Academy, an international partner with expertise in creating content for education technology (EdTech). Together they piloted ‘The Performance Enhancement by eLearning for Secondary Schools’, a project focused on creating an e-learning platform that places students’ active participation at the heart of the learning experience.



Students access educational animations, videos and interactive exercises onto tablet computers.

Education has the power to transform lives. Equipped with skills, knowledge and confidence, educated children have the potential to lift themselves out of poverty and reach their full capacity. Yet problems such as under-resourcing, poor infrastructure and low levels of attendance, particularly at secondary level, have meant that Tanzania has struggled to make its vision of ‘education for all’ a reality. The 2012-2013 Annual Assessment Report for Tanzania released by Uwezo Tanzania at Twaweza reported poor basic literacy and numeracy skills at primary and secondary levels. Learning outcomes at the time of appraisal in April 2014 showed continued decline.¹

Historically, science and mathematics in Tanzania are taught through traditional teacher-led methods where the teacher is active and the student is passive. While there is much talk nationally about a shift towards student-centred learning, there is little evidence that this is taking place.

CSSC preloaded quality teaching resources such as animation, video and interactive exercises onto tablet computers for 50 secondary schools, and worked with the Tanzania Institute of Education (TIE), which sits within the Ministry of Education, Science and Technology (MoEST), to ensure resources were in

¹ World Bank 2016 www.worldbank.org/en/results/2016/12/21/tanzania-focusing-on-results-leads-to-better-learning

line with the Tanzanian curriculum. Schools were selected on the basis of having good infrastructure, with both managers and teachers willing to cooperate and assist with installation and implementation. Teachers were given technical instruction and trained in learner-centered teaching.

Initially, the approach had mixed success. The use of e-learning made a positive impact on classroom teaching and student learning in schools where teachers were enthusiastic, IT literate and willing to cooperate. The teaching resources were of good quality. Students were given time to watch a video clip of the topic before taking tests or quizzes. Students were able to work at their own pace, stopping videos at any time, rewinding or skipping a subsection based on their personal choice. The videos were self-explanatory and appropriate to Form I and II students, who were the main target group for the project.

The teachers also found it to be a useful teaching resource. A science teacher from St Joseph Girls' Seminary said, *"I have changed a lot through this e-learning, instead of giving notes to the students now I use the questions and let students answer them, as they answer they are preparing their own*

notes. Also before e-learning I used to talk too much to my students, I did not have habit of listen to them what they knew before. I used to think if I will give time to express what they know about my lesson I will lose much time listening them. The lecture method was my best option. But now I allow democracy during my lesson, student have time to explain, narrate and sometime demonstrate the issues. They are happy with me."

BUILDING FOR SUSTAINABLE EDUCATION

Applying the principle of 'building for sustainability' has been a story of trial and error and of learning and adaptation for CSSC.

For example, poor design and technical infrastructure have been major barriers to sustainability for the programme. In a number of schools, a limited number of devices and unreliable internet connections have caused frustration and loss of confidence in using the tablets for formal classroom teaching. As one teacher from Sumaye Secondary School reported, *"...when you turn on devices you find that there is no internet, videos do not play... the students become unhappy and very demoralised, in such situations I decided to go back to old methods of teaching and lose trust on the digital materials."*

Challenges concerning content have also arisen. CSSC found that as a consequence of outsourcing maintenance of the tablets, it had little influence or control over content development. This third-party ownership arrangement meant that development of the programme was being inhibited and teachers were losing interest.

To address these issues, CSSC brought on board Camara Education Tanzania, a new technical partner with EdTech experience in resource-poor settings. Together they adapted the design of the initiative and removed its reliance on the internet connection. The revised design includes a school-based Learning Management Systems (LMS) where educational content is hosted locally and maintained within the school. In addition, resources are hosted on a national web-based education platform. This allows schools to update content from the host server to

PRINCIPLES FOR DIGITAL DEVELOPMENT: BUILD FOR SUSTAINABILITY

- ▶ **Plan for sustainability** from the start.
- ▶ **Develop a definition of *sustainability*** for your initiative.
- ▶ Identify and implement a **sustainable business model**.
- ▶ **Use and invest in** local information technology service providers.
- ▶ **Engage local governments** and integrate national strategies into programming.
- ▶ **Collaborate instead of competing**, and partner to identify the best approach with the greatest impact.
- ▶ **Build a programme that can be adapted** as user needs and the context change.

the LMS, and to access examination and revision material directly from school or mobile devices.

The grantee now has full ownership and editing rights for future development, a more stable learning platform and plans to repeat teacher training. The organisation will build on its strong relationship with policymakers in MoEST and will undertake comprehensive monitoring and evaluation to demonstrate that this improved design will be adopted by teachers, be valued by students and prove to be technically reliable and sustainable.

LEARNING

▣ **Understanding the technological barriers to access is key.** CSSC quickly learned from teacher and student feedback that the platform's over-reliance on internet connectivity was hindering access – especially in schools where connection was very poor. In response, CSSC developed a school-based Learning Management System (LMS) where content is hosted locally and services are maintained within the school.

▣ **Technological solutions must place users at the centre.** For teachers to successfully use EdTech, the design must be appropriate to the curriculum, reliable and of value to the learner. CSSC recognised that unless content was entertaining and easy to use, both teachers and students were likely to abandon the e-learning platform. By engaging users in feedback and working with TIE to improve the content, CSSC was better able to develop a product based on users needs, engagement and acceptance.

▣ **Sustainability needs to be built in from the start.** CSSC collaborated with a recognised technology partner, identified a sustainable business model and worked with government decision-makers to ensure the solution was in line with laws, regulations and policy. Without government support and collaboration, scaling up would be restricted. CSSC has had the freedom to expand the programme within its own private school network. It will need to continue to work closely with the Ministry of Education to explore avenues for introducing this service to public schools.

RECOMMENDATIONS

▣ **Sustainability must be the main priority for any education technology programme to be successful.**

It is well recognised that EdTech programmes must invest heavily in teacher training, as it is the teacher who will lead and facilitate effective use of technology in the classroom. This considerable investment in training, however, can be negated if the technology fails to deliver. Simple design, planned maintenance and reliable electricity is essential to ensure success. Failure of the simplest and least expensive device can be ruinous. Delivery of content should be flexible. Laptops and tablets will change frequently, as they can and do. The content should be accessible through a variety of technology devices in multiple places. An experienced project manager who practises the Principles of Digital Development should be appointed.

▣ **Support to participating schools is essential.** Careful school selection that includes assessment of a school's readiness forms the best foundation to build on. With many EdTech programmes, continued technical support is often neglected or expires when external funding ends. Teachers should be encouraged to set up their own social media groups to provide professional support within their own communities.

▣ **Ownership and self-reliance will help schools take responsibility for maintenance and recurring costs of the programme.** Project designers should avoid the use of vendors with recurring costs and expensive service agreements. Open-source software should be used where possible.

- Piloting should be restricted to a small number of schools. Less advantaged schools should be targeted first. Where possible, use existing technology. Incentives, tools and mechanisms for sustainability should be considered up front, and introduced and tested from day one. Independent assessors (such as universities) should be engaged to ensure neutrality in evaluation. Scaling-up should be incremental, with challenges being addressed in a progressive way. As a rule, start small and simple, then build.

ABOUT THE PRINCIPLES FOR DIGITAL DEVELOPMENT

The Principles for Digital Development are designed to institutionalise lessons learned in the use of information and communication technologies (ICTs) in development projects. They were written by and for international development donors and their implementing partners, but are freely available for use by all. The principles are 'living' guidelines, intended to serve as guidance rather than edict, and are meant to be updated and refined over time.

Further reading

- <http://cssc.or.tz>
- <http://digitalprinciples.org>
- <http://blogs.worldbank.org/edutech/what-to-do>
- <http://edutechdebate.org/2014-ict4edu-trends/5-key-barriers-to-educational-technology-adoption-in-the-developing-world/>
- <http://blogs.worldbank.org/edutech/10-principles-consider-when-introducing-icts-remote-low-income-educational-environments>

(All links accessed 2 May 2018)

Credits

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Disclaimer: All opinions included here represent those of HDIF and not those of DFID.



The Human Development Innovation Fund (HDIF) aims to identify and support innovations that have the potential to create social impact in education, health, and water, sanitation and hygiene (WASH) across Tanzania. With a focus on market driven solutions, HDIF catalyses the development, testing and scaling of innovative models of service delivery, information and communication technologies for development (ICT4D), and product solutions in health, education and WASH.

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HDIF'S APPROACH TO DIGITAL INNOVATION

HDIF's Digital Approach sets out actionable steps for using the Principles for Digital Development to support cross-sector technology adoption and scaling-up for innovation-related practitioners (including HDIF and its partners) and policymakers in Tanzania. The prevalence of digital innovation in the HDIF portfolio presents an opportunity to generate learning from grantees who are putting the principles into practice in a Tanzanian context.



HDIF aims to contribute to the global dialogue on the principles through the Digital Impact Alliance (DIAL), the stewards of the digital principles, who facilitate lesson-sharing around digital development and promote their adoption globally. The HDIF digital framework for learning borrows from DIAL's materials and content. For more information see <https://digitalimpactalliance.org/>

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