

Ideas Cube offline server and digital learning kit

Promising Practice

Implemented by: Bibliothèques Sans Frontières (BSF)/Libraries Without Borders

Where: Burundi and Democratic Republic of Congo

Status: Started in 2019

Summary: The Ideas Cube is a portable nano-server that creates a local offline Wi-Fi hotspot to which users can connect using any device. It allows access to thousands of specially curated digital resources as well as support in the use of technology-aided teaching methods to be extended to educators in areas of the world that lack internet connectivity.

Overview

Innovative technologies and teaching methods

Bibliothèques Sans Frontières (BSF) is an international NGO founded in 2007 that works to strengthen the agency of vulnerable populations throughout the world by facilitating access to education and information. One of the organization's main activities is to provide tailor-made support to educators in areas of the world where a large percentage of the population is not connected to the internet.

Addressing the challenges that TVET institutions face

Since 2019, with funding from Enabel (the Belgian Development Agency), BSF has been implementing offline digitalization projects in Burundi and the Democratic Republic of Congo (DRC) to support quality improvements in TVET teaching and training. Its work is based on three pillars:

- Connectivity – offline tools that enable access to rich media content without the need for connectivity
- Content – materials adapted to the needs of learners in terms of languages, the tools and equipment that TVET centres have in place, and the curriculum
- Teacher training – training provided to teachers and trainers on how to effectively integrate ICT into their pedagogies

The Ideas Cube

A key tool used by BSF is the Ideas Cube – a portable nano-server that creates a local offline Wi-Fi hotspot to which users can connect using any device and access thousands of specially curated digital resources without an internet connection. When connected to the internet, the Ideas Cube updates and shares locally-created content to the cloud. New resources can also be downloaded from an online catalogue. Ideas Cube kits contain the Ideas Cube server, 20 tablets, a laptop, a projector, a camera and (if needed) solar panels, all packaged neatly together in a small backpack or hardware box to optimize storage and protection from dust, heat and humidity, while allowing easy recharging.

Objectives

The main target groups for the Burundi and DRC interventions are teachers/trainers in public TVET centres. Although TVET centres may have the right textbooks for each course, the lack of additional resources – including videos, tutorials and other content – can limit their ability to provide good-quality, comprehensive training. The main objective is to support quality improvements in TVET using innovative technologies and teaching methods.

Providing offline digital tools and strengthening digital skills

This initiative overcomes key digitalization challenges – namely, the lack of digital infrastructure or equipment and high data costs, which contribute to the digital divide between countries and regions. The organization addresses this challenge by providing offline digital tools



THE KIT IDEASCUBE A READY TO USE TOOL

To respond to a lack of equipment or to permit the distribution of resources, BSF offers a complete Ideas Cube kit, portable into isolated or inaccessible zones.



and strengthening populations' digital skills.

BSF's approach involves not only training teachers/trainers to use the Ideas Cube, but also training them to be able to create their own content, upload it to the server and share it with learners and other teachers/trainers. The accompaniment it provides seeks to make TVET teachers/trainers and learners completely autonomous in terms of their capacities to create, edit and share content.

Other standout features of this initiative:

- The support that BSF offers to TVET teachers/trainers covers not only how to use its digital tools and contents, but also how to organize and facilitate learning activities to engage students and create an active learning environment. Pedagogy, together with digital tools and curated content, is central to its operations.
- Products, software and contents are available under free licence to allow others to reuse them on the condition that they do not make them exclusive. In this way, the products benefit everyone and promote innovation.
- There is a strategic focus on providing students with skills that differentiate them from others in the labour market, such as being able to use industry-specific software or communicate in French.

Outcomes and impact

By late 2021, BSF had installed Ideas Cube kits in 13 vocational training centres across Burundi and 15 technical education centres in the DRC. The educational and training content hosted on the server is specially selected following a needs assessment involving consultations with all relevant local stakeholders. The organization's staff regularly visit after the initial set-up period to coach the facilitators, offer refresher training and update the contents on the server.

BSF is still in the process of assessing the impacts of its TVET projects in Burundi and the DRC. Nevertheless, the first few evaluations have already demonstrated true ownership of the Ideas Cube by teachers/trainers and learners. Thus far, it has seen an increase in registrations in some of the vocational training centres where the Ideas Cube has been implemented.

The organization has also conducted evaluations in other educational contexts, which provide some idea of the impacts of its tools and training. For example, a 2015 internal evaluation found that students in Congolese refugee camps who used the offline internet technology and methodology experienced a 23% increase in their

academic performance compared to students being taught using traditional teaching tools and methodologies.

Challenges

Lack of relevant content

Much of the vocational training content that exists has been created in high-income countries and does not necessarily reflect the realities in low-income countries like DRC and Burundi. Thus, BSF encountered challenges in locating freely-available content appropriate for use by TVET teachers/trainers and learners. It was able to overcome this issue by partnering with organizations that could provide contextually-relevant content under Creative Commons licences. In addition, BSF trained TVET teachers/trainers as well as learners to create their own content documenting methodologies and outlines of courses that they knew but which had not yet been transcribed into digital format. This was then shared across the network to enrich the database of accessible and relevant resources for use by vocational training centres in the Great Lakes region.

Lack of digital literacy

In contexts where internet connectivity is lacking, there is not just a shortage of digital equipment but also a lack of digital literacy among TVET teachers/trainers. The organization aims to use its offline internet solutions as a means of reducing the digital gap between connected regions and unconnected regions. One way to do this is by developing the skills of unconnected communities in terms of digital literacy, so that the communities will be ready to connect to the internet and to fully exploit the potential of technology when it arrives.

Outbreak of COVID-19

The pandemic-related travel restrictions forced BSF to develop its capabilities in distance training. This was done by delivering online training, where viable, or by producing and sending training videos to partner institutions followed by phone calls. In addition, it created a social enterprise, Kajou, whose products were rolled out to contribute to learning continuity during TVET centre shutdowns. The Kajou card is an SD card that can be inserted into a smartphone to provide users with access to an offline library containing MOOCs, videos, audio files, e-books and other content. The card can be customized so that it contains the same learning materials as the Ideas

Cube, allowing students to learn on the move or at home. Students can also use the Kajou app to interact across SMS data technology, even when not connected to the internet.

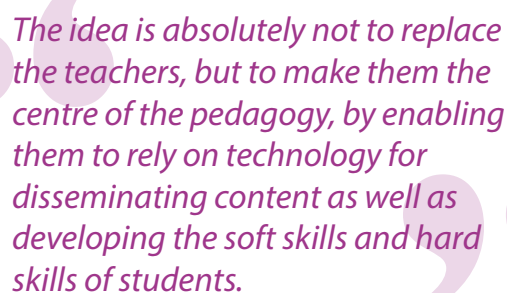
Insights

Specific lessons learned while implementing the Ideas Cube in the DRC and Burundi included:

- The importance of co-designing the curriculum and teacher training content with partners in the field, since these partners have a better understanding of the context on the ground and the backgrounds of their learners.
- Focusing on sustainability by making sure that TVET teachers/trainers can operate autonomously by the end of the programme and building their capacities to replicate the methodology and assume ownership of the tool.
- Remembering that digital education is about empowering teachers/trainers to be able to do more and teach better thanks to technology. It is not about replacing the teachers with technology; it's about enhancing teachers'/trainers' abilities to develop students' skills and capacities thanks to ICT.

Next steps

BSF is hoping to scale up its programmes to reach more teachers and students with its tools, content and training. It is currently in discussions with Enabel to extend its Ideas Cube intervention to other TVET centres in Burundi and the DRC.



The idea is absolutely not to replace the teachers, but to make them the centre of the pedagogy, by enabling them to rely on technology for disseminating content as well as developing the soft skills and hard skills of students.

Learn more

Muy-Cheng Peich, Director of Education, Content and Training, Bibliothèques Sans Frontières/Libraries Without Borders, helped to compile this document.

For more information, please contact:
muy-cheng.peich@bibliosansfrontieres.org

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<https://www.librarieswithoutborders.org/>

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unevoc-pp@unesco.org

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