Remote Hotspot
Brings Educational Content to Remote Communities

Though we walk into the Taltimiche school classroom brandishing our own manual cameras and smartphones for capturing photographs, it is we who end up being photographed, smiling back at tablet-wielding secondary students. It seems, in addition to having recently learned how to use tablets for accessing the pre-loaded content on their school's hotspot for education as part of our Technology for Improved Education project, students here have also located the camera function.

To be fair, this photo shoot of sorts— inadvertently disrupting Profe Delmi's classroom by posing for her would-be paparazzi pupils—came only after observing the math class that was in progress. Students congregated in small groups around tables. Those holding a tablet for only the first or second time clumsily navigate the nuances of a touch screen, helped by those students more comfortable with the new technology.

This partnership approach, this emergence of students leading from within, this by-product of integrating a new technology with curious students surfaced as a common theme in many classrooms visited. Students take on the role of peer mentors, keen to share new online discoveries (which are actually offline!). Because internet is largely unavailable, unreliable, or unaffordable for most schools and families, the RACHEL and pre-loaded content is playing a role in teaching students to not only read and write and repeat, but to *engage* and to *visualize* and to experience and to *do*.

In Taltimiche, the tablets and the RACHEL bring with them the ability for the future scientist to see the structure of the human body in an environment where there are no physical science textbooks. They bring with them the opportunity for the girl who laments that airplanes only exist in her imagination to not only locate her own surroundings, but to navigate the entire globe through an interactive map. They bring with them the desire of a generation of students to overcome barriers to education in the region.

As we leave, the last clicks of tablet cameras subside, the hum of algebra videos resume, and the potential of this project to improve quality of education resonates — loud and clear.

RACHEL

A Remote Area Community Hotspot for Education and Learning (RACHEL) delivers free educational content to offline communities. RACHEL is a plug-and-play server that can connect a classroom to a world of pre-loaded educational content with the click of a button. It is the best of the internet, without *the internet.*

New learning strategies are being incorporated in the highlands of Guatemala where technology is being integrated with curious students. Despite access to the internet being largely unavailable, unreliable, or unaffordable for most schools and families, a Remote Area Community Hotspot for Education and Learning bridges the gap.

Project Highlights

- *Aims to improve the quality of education in Guatemala's western highlands – home to the Maya-Mam indigenous people;*

- *Equips 10 Schools (7 elementary schools and 3 junior high schools) with a class set of tablets and a RACHEL;*

- *Provides teacher training in the use of the mobile learning technology*

- *Provides teacher training in the use of innovative didactic materials;*

- *Tracks Math and Language learning outcomes compared to control schools with no access to technology.*

Project Partners

*The **60 Million Girls Foundation** supports the education of young girls and young women who currently lack opportunity.*

*The **Mayan Man Association for Research and Development (AMMID)** works to strengthen indigenous capacity through community development projects in remote, rural communities.*

***World Possible** created the RACHEL and has re-packaged the world's best educational websites for download and offline use.*

A matter of Access

Barriers to quality education in the Comitancillo, Guatemala region include a lack of classroom infrastructure; large class sizes; insufficient supplies; lack of training for teachers; and lack of access to diverse, culturally appropriate and technologically appropriate teaching tools.

In Guatemala, 98% of schools have no access to the internet (World Possible, 2014). Many students and teachers also lack access to laptops, tablets and smartphones, and the skills required to allow them to make the most of online opportunities. Offline digital technologies - for those living in remote locations, or those living in poverty and economic and social marginalization - provide access to learning, advocacy, and services to help students reach their potential and break the cycle of poverty.

"If these digital divides are not bridged, they will deepen existing socio-economic divisions"

(UNICEF State of the World's Children – Children in a Digital World 2017).

Improving Education

Offline versions of Open Education Resources (more typically available online) are uploaded onto the RACHEL to allow teachers and students to access these valuable resources without an internet connection.

In the San Isidro classroom we visit, incorporating the use of the offline resources with traditional learning strategies provides a new way for students to actively participate in learning. The Language lesson begins with the teacher dividing the students into small groups and then asking each a question. Students use the resources (dictionaries, texts, videos) on the RACHEL to find answers, and then share their findings in front of the class.

This interactive approach is designed to help with information retention, keep the students engaged and interested, and allow students to shine in new ways as they discover interests and abilities they didn't know they had!

Teachers are Key to Successful Tech

Great technology alone is not the answer to education. But technology in the hands of a great teacher can transport a classroom enthusiastically into the unknown! Teacher training is a key part of the implementation of technology-for-education projects, especially in the Comitancillo region where many teachers lack formal education and where professional development opportunities are few.

Before the tablets hit the classrooms, before math classes became more interesting, and before researching, collaborating, and sharing in small groups became part of the student routine in the new technology classrooms, it is the teachers who first became the students. Learning not only how to use the technology and how to access the offline content, but also learning how to integrate content in an engaging and interactive way is critical to making student learning not only successful, but also fun.

Technology itself is not enough. Preparing teachers to make the best use of this technology is essential to project success.

For students, the RACHEL includes extensive educational content presented in engaging ways that go beyond what is available in traditional textbooks, but it is also a tool to train the trainer – to teach the teachers!

To supplement the initial teacher training received, the RACHEL also plays offline host to a Massive Online Open Course (MOOC) for teachers which encourages new ideas in pedagogy including collaborative and interactive learning, creativity, and critical thinking.

With assistance from AMMID staff providing bi-weekly support visits to participating schools, teachers are becoming more comfortable with the variety of content available and with navigating the information sources to incorporate the use of the mobile devices and the RACHEL into their lesson plans.

Open Minds Open Doors

The success of this project relies heavily on teachers and students and school administration who approach the new technology with a progressive attitude and who embrace a new method of teaching, encouraging active rather than passive learning.

This open-mindedness was evidenced during a professional development symposium led by local teachers who had participated in workshops with visiting Alberta teachers. Local teachers shared strategies and resources that they had explored with their Albertan counterparts. They explained how these strategies worked, how they might assess student learning and how they could adjust their teaching accordingly. It was exciting to see purposeful, animated teacher engagement as they connected new knowledge to current practices.

Teachers like Profe Delmi are diving right in. Her students are encouraged to collaborate. To research, read, write, illustrate and share.
(Photo Credit: 60milliongirls.org)

"Schooling is not the same as learning - A growing body of evidence suggests the learning crisis is, at its core, a teaching crisis. For students to learn, they need good teachers—but many education systems pay little attention to what teachers know, what they do in the classroom, and in some cases whether they even show up"
(World Bank, 2019).

Profe Delmi, Taltimiche School

Continued Collaboration

Through partnership with the Alberta Teachers' Association, Alberta teachers traveled to Comitancillo to collaborate with local educators, sharing pedagogy approaches for use with the mobile learning labs in the context of teaching numeracy and literacy.

Technology For Education and the Sustainable Development Goals

1 NO POVERTY

4 QUALITY EDUCATION

5 GENDER EQUALITY

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

10 REDUCED INEQUALITIES

16 PEACE, JUSTICE AND STRONG INSTITUTIONS

Although the rate of primary school attendance has increased substantially in recent years, the quality of education has yet to catch up. More than two million out-of-school youth do not have the basic skills required to enter the workforce. Despite being rich in natural resources, 62.4% of Guatemala's population live in poverty (UNDP 2019).

Quality education is key to achieving many of the Sustainable Development Goals (SDGs).

Target 4.4 of the SDGs calls for substantially increasing the number of youth and adults with relevant skills, including technical and vocational skills for employment, decent jobs and entrepreneurship.

Evidence suggests that when used optimally, technology can improve learning. It can be a cost-effective means of improving quality and quantity of educational materials and information available in marginal and remote locations with limited resources. Technology invites collaboration, but also facilitates individualized learning by enabling students to work at the pace and on the content that best suits their learning needs, preventing some students from falling behind and enabling others to take on greater challenges.

Technology can facilitate learning in an engaging, immersive, and interactive manner, encouraging active rather than passive learning.

Special thanks to 60 million girls for their generous support of Technology for Improved Education in Guatemala.

Change for Children

Change for Children partners with grassroots organizations in Latin America & Africa to support community-based solutions to poverty and social injustice while providing unique global education programs here in Canada.

Change for Children is a non-sectarian, non-partisan, non-profit organization operating from Edmonton, AB since 1976.

Charitable # 11884 9496 RR0001

10808-124 Street, 2nd Floor
Edmonton, AB, T5M 0H3
Ph: 780.448.1505
Fax: 780.448.1507
cfca@changeforchildren.org

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www.changeforchildren.org

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