Quality Education for All: Colombia's Partnership with the Republic of Korea to Expand Learning Opportunities through ICT, 2012–15

Introduction

In 2012, poor students in rural Colombia were learning at levels far below their rich peers (Bos et al. 2014). Colombia needed to close the large learning gap across socioeconomic groups and regions to ensure that all students had a fair chance to realize their dreams. With the realization that limited and poor-quality educational resources were hampering learning in the most disadvantaged schools, the Colombian government sought to harness the power of information and communication technology (ICT) to provide quality education to every corner of the country.

In 2012, the Colombian Ministry of National Education partnered with the Republic of Korea to launch the Building ICT in Education Capacity in Colombia project. Through this partnership, the education ministry began to train content developers, administrators, and teachers across the nation to produce, manage, and use digital educational content. The idea was that if more teachers had access to a range of digital educational content—and the skills to use them in classes—students across the country would receive a better education.

Development Challenge

In 2012, learning outcomes of Colombian students were heavily determined by students' place of residence and socioeconomic status.[1] To improve access to educational resources, the education ministry had launched in 2004 a national education portal called Colombia Aprende ("Colombia Learns"), but the content available in the portal varied greatly in quality and was suitable for only some grades and subjects (KEXIM 2009). In addition, most teachers lacked the skills to use the content in the portal to improve their teaching.[2]

Intervention

A team of education experts from the Korea Education and Research Information Service (KERIS), a Korean public education research institute, and the Office of Innovation of the Colombian education ministry designed the five project components: (a) build ICT infrastructure, (b) renew the Colombia Aprende portal to improve users' experience and facilitate educational information sharing, (c) develop high-quality digital educational content, (d) train teachers to develop and effectively use digital content, and (e) support pilot lab schools, where ICT-trained teachers could apply their newly acquired skills and knowledge (Seo 2015).

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1 According to the 2012 Program for International Student Assessment (PISA), a widely recognized global education study, Colombian students from the lowest income quartile were learning about two years behind their richest peers, while rural students were more than a year behind their urban peers in math.

2 Author interview with Roger Quirama, director of technology and information systems in the Colombian Ministry of National Education, October 24, 2019.

A key feature of the project was collaborative learning, where teachers and project team members trained by Korean experts would share their knowledge and experience with peers in their regions and online. To facilitate peer knowledge sharing and skills transfer across the country, the ministry selected five cities for the five Regional Education Innovation Centers. The five regions were central, eastern, northern, western, and southern.[3] The regional centers were to act as change agents, fostering peer knowledge sharing and skills transfer, generating educational research, and driving innovation in education.

The project implementation agency, LG CNS, a subsidiary of LG Corporation that specialized in ICT systems, equipped the regional centers with ICT infrastructure, such as wireless networks, multimedia classrooms for teacher and center staff training, and studios for content production. With that equipment, each center developed digital educational content on language, math, and science for two to three grades. Some centers pooled resources from university departments, such as biology for subject expertise and art for graphic design, to enhance the quality of the content. The centers also coordinated the selection and training of ICT master teachers, public primary and secondary school teachers who completed intensive training in ICT in education by Korean experts. These ICT master teachers then taught peer teachers how to integrate ICT in their classrooms and produce their own digital content (Ministry of National Education 2016).

Addressing Delivery Challenges

Stakeholder Coordination and Engagement

More than 300 ministry officials, Korean and Colombian consultants, and regional center staff were involved in the project. The sheer number of stakeholders presented a coordination challenge, which was compounded by the language barrier between the Colombian and Korean project members and between technicians and nontechnicians. Yet stakeholder buy-in was critical because the project centered on building capacity of the education community through peer learning.

Communicating the government's full support and the national importance of the project helped to motivate Colombian teachers and developers to participate in training and stay engaged with the regional centers. During implementation, frequent formal and informal interactions were key to facilitating understanding and communication. While sharing visible results of the project, including the establishment of the regional centers and positive feedback from teachers and students, the Colombian education community began to see the benefits and opportunities offered by the project.

Master teachers served as some of the main advocates of the project and played a pivotal role in scaling up teacher training. However, by late 2014, teachers' participation in training was low, with fewer than 3,500 trained teachers. Many teachers in remote areas were unable to complete training at the regional centers, mainly because of travel costs and permissions.[4] From early to mid-2015, master teachers organized training sessions in different locations, which proved to be effective: the number of teachers trained in 2015 nearly quadrupled the total from 2014 (KEXIM 2018). Through these efforts, more than 16,000 teachers learned effective teaching methods using ICT (Seo 2015).

Lack of Skilled Personnel

To produce high-quality digital educational content to support teaching and learning, Colombia needed content developers. However, finding skilled developers locally was extremely challenging, especially in regions outside Bogotá, the capital city.

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3   Each center covered several departments, as follows: central center: Bogotá, and Cundinamarca; west center: Antioquia, Risaralda, Caldas, Chocó, and Quindío; south center: Valle, Nariño, Cauca, Tolima, Huila, Caquetá, Putumayo, and Amazonas; north center: Bolívar, Córdoba, Atlántico, Magdalena, Cesar, Sucre, La Guajira, and San Andrés y Providencia; east center: Santander, Norte de Santander, Boyacá, Meta, Casanare, Arauca, Guaviare, Vichada, Guainía, and Vaupés.

4   To participate in training, a teacher needed document approval and subsidies from the regional education authorities (called Secretariats of Education) to arrange travel and cover travel costs.

To speed up the hiring process, the project team reduced the qualifications required and provided successful candidates with more on-the-job training. A team of Korean educational content developers, in consultation with Colombian education experts, developed a step-by-step content production process and trained Colombian developers to produce content following the guidelines. The process required close collaboration among experts to ensure that they created user-friendly, appealing educational content. The process began with a subject expert, usually a teacher, proposing a manuscript. Using the manuscript, the instructional designer developed classroom activities and created a storyboard—a graphic organizer to help visualize a lesson—by consulting graphic designers and video producers. Once the storyboard received approval by LG CNS and the ministry, the graphic designers and programmers worked together to create digital content.

To support regional centers with low capacity, the central center, which had a relative abundance of human resources given its location near Bogotá, helped other centers create content. Through this collective effort, 150 trained content developers created more than 33,000 digital educational content by the end of 2015 (Seo 2015). As of 2019, some of these trained developers were still producing content following the guidelines, resulting in the availability of more than 100,000 pieces of content (such as videos, interactive learning exercises, books, and courses for teachers) online through the Colombia Aprende portal.

Lack of Basic Infrastructure

Schools in remote areas on the Pacific coast, the Caribbean coast, and the Amazon region had limited connectivity. Some even lacked electricity. Such lack of basic infrastructure was a challenge that needed to be addressed at the regional or national level, which was beyond what the project could offer. When conducting teacher training in areas with limited connectivity, master teachers used training materials stored on USBs or CDs. Similarly, the education ministry disseminated digital educational content stored on CDs and DVDs, so that schools without internet access could use it.

Lessons Learned

1. **Support from the highest levels of government was critical to align goals, and making incremental changes visible at a large scale motivated stakeholders.** The president, education minister, and ministry staff communicated the strategic importance of the project to integrate ICT into education and shared progress in several public events, which not only raised awareness of the project but also helped foster stakeholder buy-in.
2. **Flexible decision-making and strong teamwork helped overcome capacity constraints.** Sustained cooperation between Korea and Colombia was critical to building ICT infrastructure and scaling teacher training and content development nationally. For example, when the centers were having trouble recruiting teachers, the center directors, the ministry, KERIS, and the LG CNS team discussed alternative ways of delivering teacher training, which led to increased teacher participation. A focus on evolving practices and constant communication enabled the team to better adapt the original project design to the diversity of the local Colombian context.
3. **Training should be teacher focused and easy to access.** The success of integrating ICT into classrooms depended on teacher buy-in. Improving access to training by organizing sessions at multiple times and in different locations proved effective in increasing teacher participation. If the ministry had provided additional incentives (for example, by linking training to promotion), it might have been able to better engage teachers.
4. **Strong management and long-term planning were crucial to ensure sustainable operation of the centers.** When the project funding discontinued in 2015, the eastern and northern centers ceased operations, while others continued to develop projects and secure funding. The university where the eastern center was located used center facilities for its graduate studies, whereas the university that was responsible for the northern center abandoned it in 2015. For the centers to serve as an education innovation hub, centers needed strong management capacity to pool resources and a long-term plan defining their purpose of operation and funding sources.

References

Bos, María Soledad, Alejandro Ganimian, Emiliana Vegas, and Horatio Álvarez Marinelli. 2014. *América Latina en PISA 2012: Colombia en PISA 2012: Logros y Desafíos Pendientes*. Washington, DC: Inter-American Development Bank. https://publications.iadb.org/es/publicacion/13787/america-latina-en-pisa-2012-colombia-en-pisa-2012-logros-y-desafios-pendientes.

KEXIM (Export-Import Bank of Korea) EDCF Evaluation Team. 2009. *ICT Education Capacity Building Project Feasibility Study*. Seoul: KEXIM.

———. 2018. *Evaluation Report 2018–7: Ex-post Evaluation of ICT Education Capability Building in Colombia Project*. Seoul: KEXIM.

Ministerio de Educación Nacional de Colombia. 2016. *La Innovación Educativa en Colombia: Buenas Prácticas para la Innovación y las TIC en Educación*. Bogotá: Ministerio de Educación Nacional.

Seo, Jeong Hee. 2015. *Case Studies of Education Informatization ODA Projects and Their Areas of Improvement*. PowerPoint presentation. Daegu: Korea Education and Research Information Service. Provided to author by Dr. Seo in 2019.