

## Using ICTs to improve access to, and enhance the quality of, education in Bolivia

*'In addition to having learned how to use these technologies together with my students, I now use the computer as an effective additional teaching tool.'*

Maria Lourdes, one of the teachers involved in the AYNI project in Oruro.

This is only one of several encouraging statements made by teachers and schoolchildren participating in education projects set up under the TiCBolivia program in Bolivia ([www.ticbolivia.net](http://www.ticbolivia.net)). Three organisations - Fundacion AYNI, APCOB and CEPAC - are the driving force behind these projects. Each one is using ICT to improve access to, and enhance the quality of, education in Bolivia's primary and secondary schools. Results so far are positive: 65 computer labs now serve 110 primary and secondary schools in the departments of Oruro, Tarija and Santa Cruz and 35,000 teachers and schoolchildren are being trained to use ICT in the classroom and develop interactive support materials.

### Different ways in which ICTs can enhance education

Launched in 2001, Fundacion Ayni ([www.ayni.nl/es](http://www.ayni.nl/es)) helps teachers to develop support materials that will enhance teaching and learning in Oruro and Tarija. So far, this has resulted in 20 interactive games being developed locally, by teachers, for their younger students to enhance maths and language programmes (See insert opposite). In 2007, AYNI went on to help CEPAC ([www.cepac.org.bo](http://www.cepac.org.bo)) start up a similar programme in Santa Cruz.

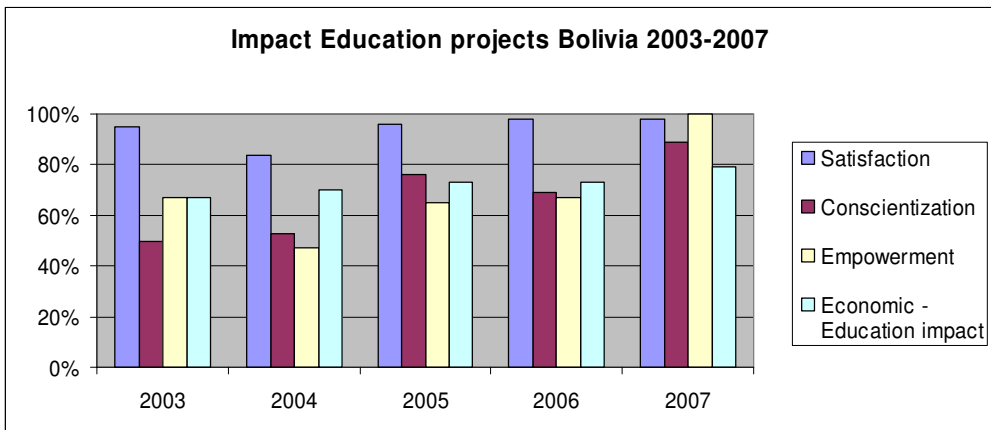
In addition, 400 schoolchildren from the AYNI and CEPAC projects also participate in the Global Teenager Project: an international initiative that uses email and chat sessions to stimulate intercultural awareness among secondary school students and their teachers and improve their computer skills. Today, children from schools in 35 different countries regularly participate in the online discussions called 'Learning Circles' organised by the Global Teenager Project ([www.iicd.org/globalteenager](http://www.iicd.org/globalteenager)). One participant intimated: 'We learned a lot

*through the projects and got to know places which we will never be able to visit.'*



*A screenshot taken from a mathematics game developed by teachers working with AYNI*

APCOB ([www.apcob.org.bo](http://www.apcob.org.bo)) is supporting the improvement of intercultural education in secondary education through the introduction of interactive CDs which inform students about the culture of indigenous people in Bolivia. The materials are integrated into their regular classroom subjects such as



Geography, History, etc and are helping to draw a more vivid picture of the cultural heritage of the teachers and the schoolchildren as well as develop an understanding of, and tolerance towards, other indigenous people.

**Ensuring sustainability through local ownership**

To ensure local ownership and buy-in from the schools, the projects are set up with the full involvement and support of parents, local government offices and the regional education authorities. In all schools, management committees made up of school principals, teachers and parents are responsible for the financial and organisational management of the computer facilities. Parents sustain the centres financially with small monthly contributions. As a result, one of the participating parents commented that *'thanks to the transparent financial management and support of AYNi, we have been able to acquire 10 additional computers for our school through contributions of the parents'*.

**The impact of ICTs on education**

The annual evaluations and assessments carried out on these projects made it possible to respond to the needs of the users and readjust the projects accordingly to ensure maximum impact. As illustrated in the chart (see insert) student and teacher satisfaction with the facilities and training provided by the projects was consistently

high (around 90%) throughout the period analysed.

Teachers and students also reported experiencing a greater level of awareness about the benefits of ICTs as well as a sense of empowerment after using ICT in the classroom. They are aware that ICT is a necessary tool to secure access to the educational resources needed for teaching and research in the classroom. One teacher expressed how they *'got to know how to use the technology in [their] daily teaching life, and see the students using the computers with incredible satisfaction'*.



*Teachers give a presentation of local content to parents and students*

Competence in using ICTs has also increased, allowing teachers and students to assist their colleagues in teaching and

learning. One teacher summed it up as follows: *'Thanks to the training [she] has been able to coordinate with the school director the orientation of the other teachers in curricular activities'*. Interestingly, 80% of the teachers and students interviewed indicated that these increased competencies have opened up new opportunities for them in the labour market.

More than 60% of the teachers and students felt that the quality of teaching and learning has improved. Participants feel more motivated and are now able to assist and participate more fully in decisions made in the schools. This is a result of better access to and higher quality of lesson materials and improved teaching methods for the teachers: *'Based on this experience, I can now contextualize my teaching materials and better motivate the students'*.



*Community education telecentres conference with the Bolivian Ministry of Education and project manager, Simon Quisbert*

The teaching materials produced by teachers with the support of AYNi and CEPAC have enabled teachers and students to make

lessons more effective and efficient. While the interactive ethnographic materials developed by APCOB have allowed teachers and students to learn about and preserve their indigenous culture. Alongside other applications, the schoolchildren tell us that the materials were used to *'encourage debates and participate in traditional dances and social dramas to strengthen relations between students from different indigenous cultures in our region'*.

### **The next step: towards a nationwide programme**

While these projects are successful, support in the development of digitally interactive materials and access to further training, computers and the internet is still needed: *'I am the Director of an evening school and see that the students make an enormous effort to study. I suggest that the school provides access to computers and free training so that they will be able to find work afterwards.'*

One key challenge arises from the lack of ICT facilities needed to expand access to all students in the participating schools. While IICD and its development partners have assisted in the expansion of the projects in 2006, up-scaling will only be possible if the projects are integrated into government initiatives. One initiative to expand access to ICT is the collaboration with local governments in the case of the department of Tarija, where local governments co-invest with IICD and AYNi in the infrastructure of 15 schools on a 50-50 basis.

Steps to collaborate directly with the Ministry are currently being made to ensure further expansion of the successful pilot projects.

The experiences that AYNi, CEPAC and APCOB have gained at project level in Bolivia are of vital importance for the assistance provided by IICD to the Ministry of Education in the formulation of an ICT policy and strategy for the education sector. IICD has been the Ministry's principal adviser on ICT since 2002, while the Irish organisation

GESCI has been providing assistance since 2006 with the formulation and implementation of a national ICT education program for basic education. Key activities include the provision of digital educational content through an education portal and setting up 1,000 educational telecentres ([www.minedu.gov.bo](http://www.minedu.gov.bo)). The program is supported by the national governments of the Netherlands, Sweden and Denmark and by IDRC, GESCI and IICD.

For more information about IICD see: [www.iicd.org](http://www.iicd.org). To find out more about the project work of AYNI, APCOB and CEPAC see: [www.ayni.nl/es](http://www.ayni.nl/es), [www.apcob.org.bo](http://www.apcob.org.bo), [www.cepac.org.bo](http://www.cepac.org.bo). Further information about the Global Teenager Project can be found at [www.iicd.org/globalteenager](http://www.iicd.org/globalteenager).



*Feria schoolboys demonstrate the use of ICTs, and in particular computers, during an annual event in Bolivia as part of the Ayni project.*

As part of the programme, AYNI and CEPAC, in a consortium with COGNOS, have been contracted to support the capacity development programme of schools participating in the telecentre programme in the departments of Tarija and Santa Cruz. This directly assists in the replication of the experiences on a wider scale. Meanwhile, IICD is training the Ministry's staff in ICT for education applications. The Ministry has also adopted the IICD's evaluation system to be able to monitor the satisfaction and impact of the program which provides a basis for continuous learning by schools, the Ministry and supporting agencies ([www.iicd.org/evaluation](http://www.iicd.org/evaluation)).

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*The International Institute for Communication and Development (IICD) assists developing countries to realise locally owned sustainable development by harnessing the potential of information and communication technologies (ICTs). IICD realises its mission through two strategic approaches. First, Country Programmes bring local organisations together and help them to formulate and execute ICT-supported development policies and projects. The approach aims to strengthen local institutional capacities to develop and manage Country Programmes, which are currently being implemented in Bolivia, Burkina Faso, Ghana, Ecuador, Jamaica, Mali, Tanzania, Uganda and Zambia. Second, Thematic Networking links local and international partners working in similar areas, connecting local knowledge with global knowledge and promoting South-South and South-North exchanges. Thematic Networking focuses on sectors and themes like education, health, governance, the environment, livelihood opportunities (especially agriculture), and training. These efforts are supported by various information and communication activities provided by IICD or its partners. IICD is an independent non-profit foundation, established by the Netherlands Ministry for Development Cooperation in 1997. Its core funders include the Directorate-General for Development Cooperation (DGIS), the UK Department for International Development (DFID) and the Swiss Agency for Development and Cooperation (SDC).*