

ICT for rural education

A developing country perspective

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Abstract: In 1991, as part of its educational reform, the Chilean government launched the Information and Communication Technologies (ICT) in Schools initiative, the “Enlaces Network”. Its aim is to properly integrate ICT into Chilean public schools. After more than ten years of development, with 100 percent of Chilean secondary schools and more than 50 percent of the primary schools already using ICT, Enlaces is entering a new phase with a more curriculum-oriented focus and with the goal of incorporating all rural schools by year 2005.

The paper addresses the main implementation constraints of the Chilean rural environment and their effect on the ongoing ICT policy: The geographical isolation and precarious infrastructure; the fact that rural schools are usually very small schools with different grades sharing the same classroom. The cultural reality of rural areas involves a special kind of relationship between the school and the local community. Those constraints, together with the previous experience with Enlaces in different Chilean realities, have been taken into account to define a special ICT policy for rural schools in Chile. First, a special long-term teacher training program with a specific pedagogical approach that fits a rural environment has been developed and tested in pilot schools. Second, the definition of a local support organisation to help sustain development strategies in the long run has been established. Third, the hardware and software infrastructure required and Internet access have also been analysed together with the technical support. Finally, community involvement in school activities was also included in the policy.

Key words: elementary education, conditions for learning, developing countries

1. THE CHILEAN EDUCATIONAL REFORM

Chile is a country with close to 15 million inhabitants with a UNDP Human Development Index of 38 among 160 countries and 16 percent of the population is rural.

Its educational system has close to 10 300 schools (9 000 primary and 1 300 secondary schools), 130 000 teachers and 3 100 000 students (2 300 000 in primary and 800 000 in secondary schools). The rural population data are shown in Table 1.

Table 1. Chilean rural schools

Characteristics of rural schools	Number of schools
One teacher school	2115 (65%)
Less than twenty students per school	1600 (49%)
Regular public transportation	706 (22%)
Schools with electricity	3027 (92%)
Schools with telephones	653 (20%)
Total number of rural schools	3280 (100%)

For the last twelve years, Chile has undergone major educational reform. A new curriculum for both primary and secondary education has been designed and gradually introduced in all school grades; new teaching and learning methodologies are being implemented in order to achieve a higher quality and more equity in our education; more resources, textbooks, infrastructure and better teacher salaries are all part of the comprehensive effort. The Information Technology initiative, the "Enlaces Network", is an important component of the reform and aims to determine the benefits, contents, costs and replicability of initiatives involving educational computing and networking in Chilean public schools. It incorporates mechanisms for evaluating impact and seeks to determine the roles of computer technology on schools with the fewest resources (Hepp 1999).

In 2001, after 10 years of implementation, Enlaces could show the following results: three million students (90 percent) using ICT in 6 300 Schools (5 000 primary and all 1 300 Secondary); 70 000 teachers trained; 75 percent of all schools with free Internet; ICT is an integral part of the new curriculum; teachers have access to a special plan to buy low cost computers; and total expenditure of Enlaces for the decade US\$110 Million.

Each school has received: Teacher training for three years together with technical support; equipment (38 000 computers together with printers, local area networks and furniture); a variety of productivity and educational software; free Internet access for most schools; and curriculum-oriented digital content on Internet. As a result, Chile has now 57 students/computer; 9/14 computers per primary/secondary school; and 10 teachers per computer.

In 2000, after completing its main goals, Enlaces began a new era and the rural schools became one of the highest priorities for the next six years. They were not included from the beginning because their poor infrastructure and weak communication facilities made it very difficult for Enlaces to train teachers and incorporate computers. After more than a decade of progress with the educational reform and improved conditions, Enlaces was ready to embrace rural education.

2. ICT FOR THE RURAL SCHOOLS

2.1 Institutional framework

Since its beginning, Enlaces has built a working relationship with close to 25 universities all over the country that contribute to the program with teacher training activities and materials, web-based content production, software evaluation, field research and healthy criticism. The universities are organized in five geographical zones for their work with Enlaces. The southern zone has the largest number of rural schools where piloting began a few years ago. The zone has 1 651 schools, about 50 percent of the total, with an average of 27 students and 1.6 teachers per school.

To improve the information exchange with the rural schools and also to promote the sharing of ideas and solutions among them, the Ministry of Education works on a monthly basis with groups of schools geographically close to one another organized in clusters of five to twelve schools per cluster. The clusters are called “microcenters” (San Miguel 1999; Wenger 1998). In the southern zone 1 651 schools have been grouped into 231 microcenters with an average of 7.1 schools per cluster.

Each university that works with Enlaces has the responsibility for a number of microcenters for a period of at least three years. Their work is closely coordinated with other professionals from the local Ministry of Education that attend the same schools and they normally organize together each visit to the microcenter meetings. Specially prepared teacher trainers attend each microcenter at least four times a year and visit a specific school another four times. Given the geographical situation of many of the schools, visits may last for a whole day and sometimes, during winter, even longer.

2.2 Rural Conditions and Opportunities

Chilean rural schools present a number of characteristics that are different from urban schools and call for a special ICT policy. The characteristics can be grouped in four categories: Location, infrastructure,



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