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EVALUATION OF THE "UNA LAPTOP POR NIÑO" PROGRAM IN PERU: RESULTS AND PERSPECTIVES

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Summary: The effective implementation of the "One Laptop per Child" program was not enough to overcome the difficulties of a design that places its trust in the role of technologies themselves. The use of technologies in education is not a magic and rapid solution through which educational problems and challenges can be solved with the simple acquisition of technological devices and systems.

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Introduction

The Government of Peru and the Inter-American Development Bank have collaborated to develop an experimental evaluation of the "Una Laptop por Niño" (OLPC) program. This document presents the main findings of the evaluation and proposes some lessons and challenges that this type of intervention presents for the development of education in Latin America and the Caribbean.

The evaluation aimed to explore the characteristics of the program's implementation, the direct effects (associated with the use of laptops), and the indirect effects (expectations and motivation, learning tests results, and non-cognitive skills development).

The evaluation found a higher level of teachers´ satisfaction and moderately positive results in the development of students' analytical skills. On the other hand, lack of connectivity, the limited amount of available educational resources on the machines, and doubts concerning the possibility of using the computers at home, have detracted learning opportunities from students. **The lack of educational use and of new pedagogical practices among teachers and students explain the absence of improvement in learning tests and the moderately positive results in the development of cognitive skills.**

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An effective program implementation

The program was very effective in adhering to its design. Distributing laptops, while 100% of the schools selected for treatment received laptops, only 8% of schools in the control group received them. Eighty-three percent of teachers and 99% of participating students received laptops.

Seventy-one percent of teachers received the training provided, but all teachers who were interviewed stated that they would have liked to have more training time, especially in how to use laptops better to prepare (64%) and make them part of (16%) educational activities, and also in how a laptop works (10%). Two of every three teachers reported that they had received the manuals prepared by DIGETE to accompany the use of the equipment, but only 1/3 reported having used any of the manuals.

Among the less successful, the program planned a pedagogical support strategy for teachers, with field visits to support their work when preparing activities in the classroom, but 2 out of every 3 schools did not receive the pedagogical support.

Ninety-two percent of the machines were functional one and a half years after the implementation and almost none was stolen during the same period of time (0.3 %).

Despite their availability, the laptops were only used on some days of the week, especially at school

The OLPC program proposed that students take their laptops home with them and keep them under their care every day of the week. However, a little more than half the students actually complied with this suggestion, because their school prohibited it (43%), they were afraid the laptops would be damaged (27%) or stolen (5%), or they did not know it was possible to bring the machines home (3%). 58.1% of students used the machines three or more days a week prior to the collection of data. Sixteen point two percent had not used the laptop during that time.

Regarding teachers, a large majority used their laptop in the classroom to develop educational activities (84%) and a significant number used it to prepare lessons (49%) and communicate (13%). **In the case of its use in the classroom, only 17% of teachers used the laptops daily, while 33% of teachers used their laptops between 3 to 4 days per week; fifty percent used them 1 to 2 days per week.**

Teachers from treatment schools were statistically significantly more satisfied with the educational material (61% vs. 53%), equipment (51% vs. 36%) and their relationship with parents (24% vs. 17%). This is interesting because despite constraints and difficulties, 99% of teachers in treatment schools continued to maintain their belief computers promote learning (vs. 98% of teachers in control schools).

There are no effects on learning yet…

The program did not show any effect on registration or attendance at treatment schools when compared with control schools. No significant differences were found in teachers and parents expectations regarding the students' futures between the two school groups.

A test to measure students´ intrinsic motivation (motivation that does not depend on external incentives or external punishment) was applied, and no statistically significant differences were found. On the other hand, regarding their perception about the courses and their own abilities to do their homework, it was found that students of treatment schools showed statistically lower results than those from control schools (76% vs. 79%). This attitude of criticism and self-criticism had already been detected in the first data collection three months after the implementation of the program, and persisted a year after it, albeit more subtlety.

Regarding the results on Mathematics and Language standardized tests, as shown in Chart 1, no significant differences were found between students from treatment and control schools 15 months after the implementation.

As part of the study, the impact on general cognitive abilities was explored. Three tests were given. They measured: a) non-verbal analytical capacity; b) executive functioning and language; and c) processing speed and short-term memory. The grades obtained by students of the treatment group were higher than those for students in the control group in all three cases, although the difference was statistically significant only for the non-verbal analytical capacity test.

Finally, the results of these three tests were combined **in a single overall cognitive ability measure and positive and significant results were found**. The improvement in scores for children of the treatment group during their 15 months of exposure indicates that those in the treatment group showed equivalent progress when they were five months ahead of the control group with regards to the measured ability. These positive results are greater in students and schools that had better base line results. These last data could mean that it is too early to see better curricular results, but that greater intensity of use and exposure time in the future could lead to impacts on the learning test.

Chart 1: Results in Mathematics and Language Tests

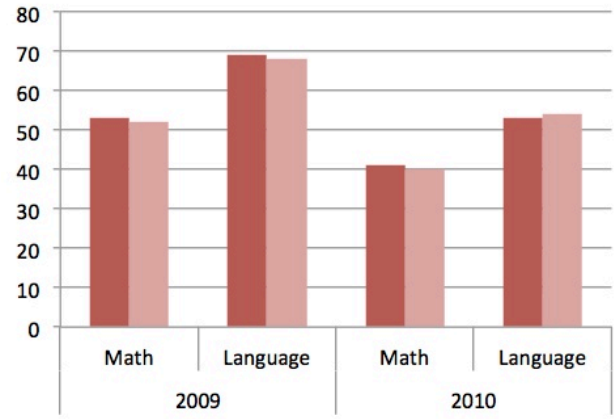
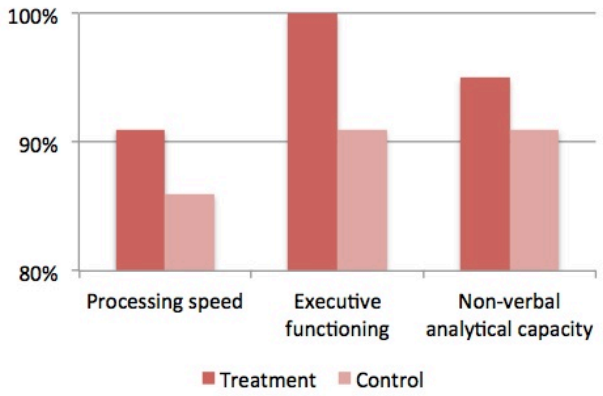


Chart 2: General Cognitive Abilities



Conclusions, Lessons and Challenges

The OLPC program offered technology access opportunities for students and teachers that could not have otherwise had it. Therefore, it contributed to reduction the digital divide in the country. **The evaluation found a higher level of teacher satisfaction, and moderately positive results in the development of students' analytical skills**.

On the other hand, educational use of the assigned equipment is still low, especially in classrooms. Available resources are certainly underutilized (texts, activities) and this can be the effect of the perception that all teachers share, which is they had not received enough training to be able to use the investment more effectively. The lack of pedagogical support in schools reinforced this effect. The lack of connectivity left both schools, and in particular, teachers, without the possibility of receiving support, participating in learning networks or professional development activities with other teachers.

The Program has brought significant challenges, from which valuable lessons can be learned for Peru and for other countries in the region that are developing or considering the development of similar programs. **The most important lesson is the need to focus the use of technology to improve learning in students, not only at a curricular level, but also to develop their skills and relevant competences for their life in 21st Century society**. This is not an automatic achievement from the investment in infrastructure; it requires a design and complex and systemic implementation to produce the desired effects.

More Information

The IDB has developed other documents that may be complementary to this paper.

Bet, G., Cristia, J., Ibarraran, P. (2010). **ICT access, use and outcomes in secondary schools in Peru**. Mimeograph. Inter- American Development Bank.

Cristia, Julián; Czerwonko, Alejo; Garofalo, Pablo. (2009) **The Impacts of Introducing Computers in Schools in Developing Countries: Evidence from Per**u. Banco Interamericano de Desarrollo.

Severin. Eugenio, Ana Santiago, Julian Cristia, Pablo Ibarrarán, Jennelle Thompson, Santiago Cueto. (2010) **Evaluación experimental del programa ULPN en Perú**. Banco Interamericano de Desarrollo.

Severin, Eugenio; Capota, Christine. (2011) **Modelos Uno a Uno en América Latina y el Caribe. Panorama y Perspectivas**. Banco Interamericano de Desarrollo.

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