Reflections on a Pilot OLPC Experience in Uruguay

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ABSTRACT
In this position paper, we present our experience, findings and interests related to a pilot One Laptop Per Child (OLPC) experience in Uruguay. Through observation, participatory activities and interviews we have found that so far, in spite of several problems with connectivity, input devices, and software design, the laptops are having a positive impact on the children and their school activities. The fact that all our team members grew up in Uruguay facilitated conducting participatory activities with children and teachers. In the future, we look forward to establishing partnerships for the design of user-centered localized software to enhance children's and teachers' experiences with the laptops.

Categories and Subject Descriptors
K.3.1. Computer uses in education: collaborative learning, computer-assisted instruction. K.4.2. Computers and society: social issues. H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

General Terms
Economics, Reliability, Human Factors.

Keywords
Children, laptop, OLPC, Uruguay, developing regions, universal access, digital divide.

1. INTRODUCTION
The increasing digital divide between those in developed and developing regions of the world has the potential of increasing the economic gap between these regions. The One Laptop Per Child (OLPC) Foundation [6] has championed the idea of providing every child in developing regions with a laptop in order to address this problem. The idea is that by providing children with computer and information resources, they will be better prepared to compete in the global economy through computer and information literacy as well as a wider world view. This initiative comes at a time when the HCI community is paying increasing attention to designing for and with children in developing regions (e.g. [3][4][5][7][8])

Uruguay, through Proyecto Ceibal, is the first country that has made a commitment to provide a laptop for every elementary school child (1st to 6th grade) by 2009. Currently, one school in Villa Cardal, Florida, Uruguay is conducting a pilot experience using XO-B2 laptops donated by the OLPC Foundation.

2. OUR EXPERIENCE
We sought to bring an independent view on this pilot experience, as none of us are part of the OLPC Foundation. In August of 2007, we visited the elementary school in Villa Cardal where we conducted activities with the children and spoke with the teachers. We report on the specific methods and findings elsewhere [2].

Overall, we found that in spite of several problems with connectivity, malfunctioning input devices, and software not designed taking into account young children's abilities or the need for localization, the laptops so far had a very positive impact. Children are motivated to read and write more using the laptops, they are accessing information resources that are far beyond what was previously available to them, they are creating content for the world to see, and collaborating and learning from each other.

This last aspect was one of the most pleasantly surprising. A recurring criticism of the use of computers in schools has centered on the idea that computers isolate children, getting in the way of collaboration and communication [1]. Our observation of children's use of the XO-B2 laptops was exactly the opposite. The laptops encouraged and facilitated social interactions. Their small size, low weight, as well as their wireless and tumble-proof nature enabled children to move around the classroom holding them as if they were notebooks. Children showed each other their creations, information, or games they found. They also were quick to seek help from others. Given these social dynamics, information on how to accomplish something quickly spread throughout the classroom.

We discussed with children how their parents were using the laptops when they brought them home. They said that their parents and siblings use the laptops to play games, but also to seek information (e.g. maps of a city they needed to visit). We also had one report of parents using the laptops to schedule milk pickups from their dairy farm.

3. OUR FINDINGS
The fact that all of our team members grew up in Uruguay, where the population and culture are very homogeneous, helped ease communication. The children and teachers had no problems understanding us and we did not have any problems

understanding them or the cultural references they made. Everyone felt very comfortable. We also did not notice any power issues, with the children and teachers being very willing to provide information and engage in conversation. Given our experience, we believe that the inclusion of HCI experts with strong local ties should be encouraged in this type of projects. Having those that lead activities be local rather than just having local help in translating can make a positive difference. When possible, this should help greatly alleviate issues of communication, which are often cited by others as challenges to be overcome (e,g, [8]).

We also learned that the participatory techniques we used worked well, just as they would have if we had used them in a developed country. For example, we conducted an activity where children used sticky notes to write down three things they liked, three they did not like and three they would like to change about their laptop. The activity worked similarly to the way it did when the first author used it at the University of Maryland as a graduate student, with very engaged children and very useful discussions after we clustered the groups of sticky notes on a blackboard based on themes (see Figure 1). The only difference was a bit of excitement from children at using sticky notes since they were a rare material for them and became a bit of a collector's item.

Figure 1. Results form the sticky note activity.

4. OUR INTERESTS

We are planning to continue our work with Proyecto Ceibal. One of the challenges, which may be replicated in other countries, is that while the Uruguayan government is making a great effort in providing funding for the hardware, there is no funding for designing and developing software and content for use with the laptops. We are interested in developing technology to help setup and facilitate partnerships between local communities, schools (children and teachers), software developers and funding sources to foster the user-centered design, development and evaluation of open source software and open content for the XO laptops.

We are interested in designing, developing and evaluating software ourselves. We are currently considering software to connect classrooms in developed and developing countries so children can learn from each others' experiences and gain a wider world perspective.

We also have an interest in evaluating the outcomes of Proyecto Ceibal in terms of its effects on children's learning outcomes, teachers' attitudes and work conditions, classroom activities, as well as its effects on society at large.

Figure 2. Two girls using an XO-B2 laptop at Villa Cardal's Elementary School in Uruguay.

5. REFERENCES

[1] Alliance for Childhood. 2001. Fool's Gold: A Critical Look at Computers in Childhood. http://www.allianceforchildhood.net/projects/computers/

[2] Hourcade, J.P., Beitler, D., Cormenzana, F. and Flores, P. submitted. Early OLPC Experiences in a Rural Uruguayan School. CHI 2008 Note.

[3] Kam, M., Ramachandran, D., Raghavan, A., Chiu, J., Sahni, U., and Canny, J. 2006. Practical considerations for participatory design with rural school children in underdeveloped regions: early reflections from the field. In *Proc. of IDC 06*. ACM Press, New York, NY, 25-32.

[4] Kam, M., Ramachandran, D., Devanathan, V., Tewari, A., and Canny, J. 2007. Localized iterative design for language learning in underdeveloped regions: the PACE framework. In *Proc. of CHI 07*. ACM Press, New York, NY, 1097-1106.

[5] Moraveji, N., Li, J., Ding, J., O'Kelley, P., and Woolf, S. 2007. Comicboarding: using comics as proxies for participatory design with children. In *Proc. of CHI 07*. ACM Press, New York, NY, 1371-1374.

[6] OLPC. 2007. One Laptop Per Child. http://laptop.org

[7] Pawar, U. S., Pal, J., Gupta, R., and Toyama, K. 2007. Multiple mice for retention tasks in disadvantaged schools. In *Proc. of CHI 07*. ACM Press, New York, NY, 1581-1590.

[8] Ramachandran, D., Kam, M., Chiu, J., Canny, J., and Frankel, J. F. 2007. Social dynamics of early stage co-design in developing regions. In *Proc. of CHI 07*. ACM Press, New York, NY, 1087-1096.