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# One Laptop per Child: Computer designed for those who can least afford them

By Alice Rawsthorn / International Herald Tribune  
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LONDON: Who could possibly object? A nonprofit organization develops a laptop computer as a fun learning tool for the world's poorest children. And to make sure that it is affordable even in the neediest countries, it is to cost just \$100.

That is the goal of One Laptop per Child - founded by faculty members of MIT Media Lab, part of the Massachusetts Institute of Technology near Boston - only to run into a blaze of controversy. Check out the blogs to see what I mean. The fiercest criticism has come from the tech industry, with claims that a laptop can't be made for \$100.

Environmentalists have said that, even if it can, developing countries could be left with toxic mountains of defunct computers. Meanwhile, the development camp has questioned whether it is worth spending \$100 on a laptop, when so many schools don't even have enough books.

Despite those gripes, the first batch of OLPC's XO-1 computers rolled off a Shanghai production line last week. Over the next few months they will be tested in different countries. "We have to test, test, test this machine under conditions of extreme cold, extreme heat, mud, dust, jungle and daily abuse by kids," said Nicholas Negroponte, chairman of OLPC and chairman emeritus of the MIT Media Lab. Throughout the tests, the XO-1's design will be refined with the aim of shipping the first production models to schools next summer.

If the project succeeds, the XO-1 could transform millions of children's lives. It will also pose a formidable challenge to the tech industry, by questioning its price structure and introducing millions of young people to the free software of Linux's Open Source operating system. No wonder tech bloggers are rattled, and companies like Intel and Microsoft are racing to design their own low-cost technology for schools in developing countries.

The race began when OLPC decided that a laptop would be the single most useful learning tool for poor children living in remote places, rather than books or smart phones. In addition to providing Internet access, it would enable them to form learning communities and to own an object to be proud of. After analyzing what those children needed from an educational laptop, the group concluded that, rather than build one from recycled components, they should design a new model from scratch. Thanks to MIT and Negroponte's clout, investment was secured from companies like News Corporation, Google and eBay. Fuseproject agreed to design the hardware, and Pentagram the software.

What type of laptop do the world's poorest children need? As many of them don't have electricity at home, they had to be able to power it by hand. The screen needed to be visible in strong sunlight, and the entire machine to be dustproof, sandproof, waterproof and tough enough to survive being bashed about. It had to function both as a laptop and electronic book, and to create networks of up to 1,000 kids sharing an Internet connection. The target price was \$100, which would only be achievable by radically redesigning the hardware and software, and by manufacturing in huge quantities. But the only cheap thing about the XO-1 was to be its price. "We want our laptops to be as cool as the iPod," said Negroponte. "Nothing less."

The XO-1 is equipped with a powerful Wi-Fi antenna with a half-mile radius to enable kids to network from remote places using the camera and microphone. It has flash memory, but no hard drive, which breaks easily. As the software focuses on the children's needs, it has a low data-storage capacity, thereby reducing its processing power and energy use. The screen can be colored for computing or monochrome for reading, and can be used both as a light and a television set. OLPC hopes that these additional functions will encourage people to keep the XO-1 for a longer time, thereby defusing the environmentalists' fears of toxic junk.

Fuseproject's designers shared Negroponte's determination that the XO-1 should be fun to use and to look at. "All of our decisions were made with the kids in mind," recalled the lead designer, Yves Béhar. "How will they use it? Will they love it?" The result is a cute, cartoonish machine, distinguished by the rabbit-like ears of its antennae. Each component serves at least two purposes, with the antennae acting as USB port covers and as latches to close the clamshell, and the colored bumper as a seal and a palm rest for scrolling. The user interface (tech jargon



Courtesy of Fuseproject

The XO-1 laptop computer, by the nonprofit group One Laptop per Child, was designed with affordability in mind so it can be sold for as little as \$100, yet still appeal to children.

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