

infocus | BY STEVE HAMM AND GERI SMITH

# SOCIAL CAUSE MEETS BUSINESS REALITY

THE MISADVENTURES OF  
ONE LAPTOP PER CHILD



One by one, the children ran into the school yard, lining up in a grassy field next to a low-slung building of classrooms topped by a rusty steel roof. Most of these children in Luquia, a tiny, impoverished town 13,200 feet above sea level in the Peruvian Andes, wore ragged navy-blue uniforms, and many had not bathed in days. Their small adobe homes have dirt floors, no running water, and no bathrooms. They share sleeping space with dozens of squeaking guinea pigs, which scamper underfoot before becoming the family's rare meal of meat. The children, then, were understandably giddy with excitement in May as principal Pedro Santana handed them the most valuable thing they had ever owned: a small green-and-white laptop computer. These children are among the first in Peru to receive laptops from a trove of 140,000 the government plans to distribute to poor rural students this year in a bold bid to revolutionize the country's dismal educational system. Yet even as the students enjoyed one of the biggest thrills of their lives, the organization behind the computers, One Laptop per Child, was in danger of cracking.

Negroponte says his group is building a movement, not "an empire"

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The outfit begun by former MIT Media Lab director Nicholas Negroponte had been thrown into turmoil by the stress of trying to achieve the audacious goal of transforming learning by supplying millions of the world's poor children with laptops. Six weeks earlier, OLPC President Walter Bender, who helped launch the Peruvian deployment, quit abruptly in a dispute with Negroponte, the group's chairman. Software security leader Ivan Krstic left, too. Those departures followed a messy breakup with chip giant Intel in January. Cambridge (Mass.)-based OLPC's travails seemed to signal that a group that had promised to rescue the world's poor children from ignorance was itself in need of a lifeline.

The fate of OLPC is uncertain, and it's too early to judge the effectiveness of the computers. Still, it's possible to draw lessons about the difficulties of such grand-scale social innovation. The group's struggles show how hard it is for a nonprofit made up largely of academics to operate like a business and compete with powerful companies. They also show what happens when differing philosophies of education and beliefs in how software should be created go head-to-head. Values the group has promoted have met resistance in the marketplace, government bureaucracies, and classrooms. That Negroponte and his colleagues took on way more tasks than they could handle only complicates the situation further.

Since its launch three years ago, OLPC has fallen woefully short of Negroponte's initial goal of supplying Third World children with 150 million laptops by the end of 2008. Development of the XO laptop and software took longer than expected; the price came in at \$188 each rather than the \$100 first targeted; countries including Libya and Thailand reneged on initial pledges to buy large quantities; and competition from tech titans like Intel slowed momentum. Although pilot programs began in 2006 on test laptops, the final version wasn't ready until late last year. Now pilots are running in 20 countries, distribution has begun in two, and about 370,000 laptops have been shipped.

The group seems to have backed away from the brink in recent days. On May 15 it announced a tie-up with Microsoft to run the Windows operating system on the XO laptop, gaining credibility with a number of governments. And other backers like Google and Advanced Micro Devices are holding firm. During the week of May 18, Negroponte ran a four-day conference in Cam-

bridge that brought together education and tech leaders from 44 countries. About 500,000 orders were placed, bringing the total to 750,000 outstanding orders.

A chastened Negroponte no longer predicts mass adoption in short order, but he remains confident that OLPC can have a major impact. He sees it playing the role in computer-aided learning that Muhammad Yunus' Grameen Bank has had in the global spread of micro-credit. Grameen started something that many others now practice. "We're not building an empire. We're building a movement," Negroponte says.

Now, as the initial tech development phase has wound down, the organization faces a more daunting challenge: deploying and integrating millions of laptops in schools and communities. If something goes awry, the fragile credibility it has stitched together in recent weeks could rip apart. "This is the moment of truth," says Chuck Kane, a longtime software industry executive who became OLPC's president on

May 2. "One unsuccessful deployment and it might mean the end of the project."

**THE BIG IDEA  
OF GIVING PCs  
TO POOR  
CHILDREN WAS  
CHALLENGED  
BY EDUCATORS  
AND BUSINESS**

## SEARCHING FOR THE INTERNET

Spending time in villages where the laptops have been distributed shows both OLPC's promise and immense challenges. In Luquia, Justo Miguel Comun, a fifth-grader who is the youngest of seven children of subsistence farmers, was delighted to get his laptop in late April. "I like the math games, and I love the camera," he said two weeks later. On a chilly evening, his mother, Alejandra, who quit school after first grade, watched proudly as her 11-year-old son sat at a small table outside their adobe house with his face illuminated by the light from the screen. "This computer is going to be a very good thing for learning," she said.

Yet when *BusinessWeek* asked her son detailed questions, it became clear he didn't fully understand the computer's capabilities. His teacher had told the class to search the Internet for information on the environment, but the boy was stumped. "I was trying, but I couldn't find anything," he explained. He seemed to think the Net was something contained within the machine.

Such are the challenges of introducing not just a strange new machine but an alien world to a child brought up in isolation from outside culture. The leaders of OLPC believe the laptops must be much more than electronic substitutes for textbooks if they are to profoundly effect learning. The group, an offshoot of MIT's

Media Lab, which Negroponte launched 23 years ago, has based its educational philosophy on the theories of Seymour Papert, a Media Lab professor who pioneered the use of computers in elementary education in 1967. Papert, now retired, developed a theory called Constructionism, which posits that young children learn best by doing rather than by being lectured to. So to create a tool that could deliver more than rote lessons and e-books, OLPC designed the machine and its software to enable collaboration, exploration, and experimentation. "We're hoping that these countries won't just make up ground but they'll jump into a new educational environment," says David Cavallo, OLPC's chief education architect.

#### CULTURAL IMPERIALISM?

While this philosophy is essential to the mission of OLPC, it's also a source of tension. Current educational leaders in Peru embrace Constructionism, but most countries base their education systems on the idea that teachers pass their knowledge to receptive students. That was a problem for OLPC in China as well as India. India's education department, for instance, calls the idea of giving each child a laptop "pedagogically suspect," and, when asked about it recently, Education Secretary Arun Kumar Rath barked: "Our primary-school children need reading and writing habits, not expensive laptops."

Some observers accuse OLPC of cultural imperialism. "It's arrogant of them. You can't just stampede into a country's education system and say, 'Here's the way to do it,'" says William Easterly, a professor at New York University and author of *The White Man's Burden: Why the West's Efforts to Aid the Rest Have Done So Much Ill and So Little Good*.

In fact, though OLPCers still have faith in Constructionism, they don't force the approach. Nor do they still insist on open-source software, a change that has caused some of the deepest rifts within the group. Originally, rather than using Microsoft's pricey Windows and ready-made commercial applications, they chose the

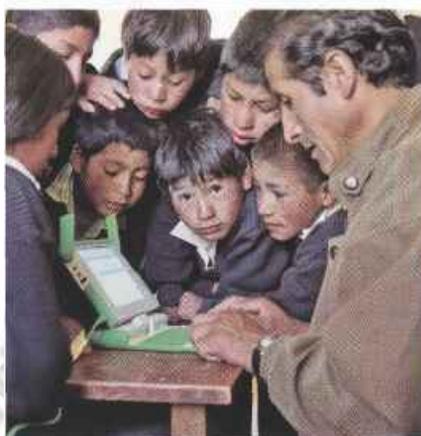
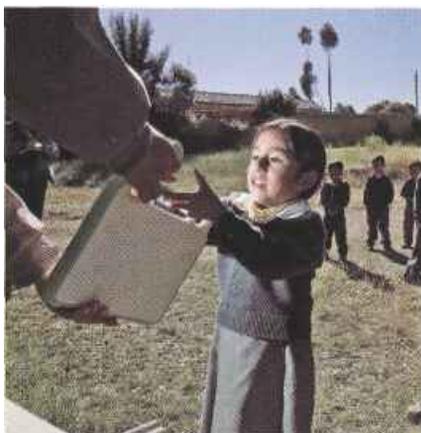
Linux open-source operating system and created a new user interface and applications designed specifically to aid in learning by doing. A key reason to support open source: It allows students to tinker directly with software. However, some countries, such as Libya, which initially agreed to buy more than 1 million laptops, backed out and chose a Windows-based alternative from Intel. One attraction: Microsoft cut the price of a software package for poor schools from \$150 to \$3.

So when Negroponte chose to do business with Microsoft, turmoil erupted within the organization. After an Apr. 1 meeting during which the board agreed to break bread with Microsoft, Bender resigned. For weeks, OLPC's online message forums lit up with an angry debate. The anti-Microsoft side believes software shouldn't be owned but shared freely. To Negroponte, the choice was simple—and necessary—pragmatism. "It's like Greenpeace cutting a deal with Exxon. You're sleeping with the enemy, but you do it," he says.

Negroponte has had to fend off critics from the start. Early on, Intel and Microsoft executives, confronted by this charismatic rabble-rouser with his promise of affordable computing for the masses, called the XO a toy. They rushed out alternatives. Suddenly, Negroponte and his band were up against two of the most powerful tech giants in the world. And the giants played rough. Even after

Intel joined with OLPC last year to help design a version of the XO powered with its chips, some of its people belittled the XO to governments who had agreed to buy it. Negroponte accused Intel of undermining his cause. Intel complained he was pressuring it to stop selling its Classmate PC for poor students. Negroponte now says he wishes he had been able to hold his temper and avoid a split.

He also faults himself for not managing his organization more effectively. "I'm a visionary, not a manager," he says. He ran the organization like a science project rather than a business. People had overlapping responsi-



Students at a school in Luquia, Peru, get their laptops—and tips from the principal

bilities. The staff of 23 regular employees and 26 consultants lacks the resources to support the needs of the pilot programs and deployments now under way—much less massive expansion. Negroponte, who travels incessantly to visit heads of state and education ministers, was spread too thin. So was Bender. Kane, who joined the organization as a part-time chief financial officer last year, is now running day-to-day operations. Already, the operational chaos has diminished. Now he's busy closing deals with countries and lining up business partners to help produce the technology for the next-generation XO. "We're moving from academic brainstorming mode to execution mode," Kane says.

## DEBATABLE USEFULNESS

OLPC might not be in such turmoil if Kane had been promoted earlier. Nigeria had agreed to buy 1 million XOs, but after a competition among three alternatives, the country chose Intel's Classmate PC instead. Why did OLPC lose out? Intel provided more support, writes Isa Muhammad Ari, director of administration for Nigeria's Federal Capital Territory, in an e-mail.

With OLPC, most of the weight of training is carried by local education officials. In Peru, the Education Ministry is racing to prepare teachers. It gives them a 40-hour course that includes an introduction to the learning programs, instruction on basic repairs, and tips on how to use the laptops to enhance their lessons. Teachers *Business Week* spoke to in two villages where the machines have been distributed seemed excited about them. One recent morning, teacher Ananias Richard Inga played a catchy song programmed in Spanish into the laptops to teach his first- and second-graders how to write and pronounce vowels. When seven-year-old Idelma Huaroc, her brown cheeks burned and peeling from the sun, typed "*Idelma ama a mama*" (Idelma loves mama), she wiggled with pleasure as the computer's voice read her sentence. "This really motivates them, and it makes it easier for kids to advance at their own pace," says Inga. Teachers at another school where the laptops were tested in a pilot project that began a year ago report their students' reading comprehension has improved significantly, the drop-out rate is down, and students who once said they expected to be farmers like their parents are now dreaming of becoming lawyers, accountants, or engineers.

Even with these results, the Unified Union of Education Workers of Peru, representing some 320,000 public school teachers, is skeptical. "These laptops aren't part of a comprehensive educational, pedagogical project, and their usefulness is debatable," says Luis Munoz Alvarado, the union's general secretary. Munoz never had a chance to explore the

laptops, though. In what seems an easily avoidable blunder, the Education Ministry has not explained the program to the union.

Recognizing the need to integrate the laptops into communities, OLPC is scrambling to develop guidelines for deployment based on the experiences in Uruguay and Peru, the two countries with the largest distribution so far. The group is also bringing in consultants to advise countries on how to integrate the PCs. One, Edith Ackermann, a visiting scientist at MIT, says OLPC should have involved more educational experts in creating and testing the applications. Instead, she says, "The hackers took over." The result is some programs are too complex for many children to use. "Now we have to deal with this. I don't know if it's too late," says Ackermann.

While some critics have called on OLPC to hire aggressively so it can provide on-the-ground support for dozens of countries at a time, Negroponte and Kane plan instead to rely even more on outsiders. They'll forge alliances with local tech companies and nongovernment organizations that will provide deployment support.

Although each country has a different situation, they can learn from common experiences. OLPC plans on using Haiti, the poorest country in the Western Hemisphere, to test ideas about how to best integrate the computers with society and to create a template for other countries.

Just getting started in Haiti will be a challenge. The group's second trip there was delayed by riots over food shortages in April. The first shipment of laptops was held up in customs for weeks. Donors are paying for some laptops, but not all. Asked how Haiti can afford to pay for PCs when its citizens are starving, Guy Serge Pompi, the Haitian educator coordinating the project, answers: "You can't just focus on the present. The starving is the present. The future is education. We need to train our students for better jobs and a better future."

The desire to educate students for a better future was shared by officials from Rwanda, Colombia, Afghanistan, Senegal, and other countries. Although large-scale studies have not been done to show whether the laptops improve learning, initial successes in Uruguay and Peru have emboldened others to make the effort. In Peru itself, the laptops are gaining momentum. Regional governors have asked the Education Ministry to order a total of more than 500,000 additional laptops. "We aren't so overly optimistic to believe that distributing laptops is going to resolve the social demands of people who have been marginalized and submerged in extreme poverty for decades, but we believe it is a great step forward," says Education Minister Jose Antonio Chang.

- With Nandini Lakshman in Mumbai

ONE FAILED LAUNCH "MIGHT MEAN THE END OF THE PROJECT," SAYS THE GROUP'S CHIEF