# Peru's ambitious laptop program gets mixed grades

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In this June 8, 2012 photo, a boy uses his laptop at the Jose Maria public school in a shantytown on the outskirts of Lima, Peru. Peru has sent more than 800,000 laptop computers children across the country, one of the world's most ambitious efforts to leverage digital technology in the fight against poverty. Yet five years into the program, there are serious doubts about whether the largest single deployment in the One Laptop Per Child initiative was worth the more than $200 million that Peru's government spent. (AP Photo/Karel Navarro)

(AP) — Peru's distribution of more than 800,000 low-cost laptop

computers to children across the country easily ranks as one of the world's most ambitious efforts to leverage digital technology in the fight against poverty.

Yet five years into the program, there are serious doubts about whether the largest single deployment in the One Laptop Per Child initiative was worth the more than $200 million that Peru's government spent.

Ill-prepared rural teachers were often unable to fathom, much less teach with the machines, software bugs didn't get fixed and most had no way to connect to the Internet. Many could not take the computers home as the initiative intended. And some schools even lacked electricity to keep them running.

"In essence, what we did was deliver the computers without preparing the teachers," said Sandro Marcone, the Peruvian education official who now runs the program.

The volume of low-cost, education-focused computers delivered globally remains modest. Intel Corp. says it has shipped more than 7 million, about a third in Argentina. Venezuela boasts 1.6 million distributed, licensed from a Portuguese company.

MIT Media Lab founder Nicholas Negroponte inspired the One Laptop Per Child initiative, pioneering the idea that computers could be potent tools for lifting developing world children out of poverty. It was never able to achieve the $100 laptop price tag he desired, but nevertheless won adherents.

More than 2.5 million of its $200 XO laptops — green-and-white models for the early grades and blue-and-white machines with bigger keyboards for older kids — have been distributed in 46 countries since 2007.

The rugged, energy-efficient OLPC laptops, which run a variant of the open-source Linux operating system, are in Ethiopia, in Rwanda, Mongolia and Haiti, even in the United States and Australia. Uruguay, a compact South American nation of 3.5 million people, is the only country that has fully embraced the concept and given every elementary school child and teacher an XO laptop.

No country, however, bought nearly as many as Peru.

"It's a really great idea," said Jeff Patzer, a software engineer with a degree from the University of California, Berkeley, who traveled from school to school in Peru's rustic Cordillera Blanca highlands in 2010 introducing and maintaining the laptops. "It just seems like there was some stuff that wasn't thought through quite enough."

Inter-American Development Bank researchers were less polite.

"There is little solid evidence regarding the effectiveness of this program," they said in a study based on a look at 319 schools in small, rural Peruvian communities that got laptops.

"The magical thinking that mere technology is enough to spur change, to improve learning, is what this study categorically disproves," co-author Eugenio Severin of Chile told The Associated Press.

The study found no increased math or language skills, no improvement in classroom instruction quality, no boost in time spent on homework, no improvement in reading habits.

On the positive side, the "dramatic increase in access to computers" accelerated by about six months students' abstract reasoning, verbal fluency and speed in processing information, the report said.

A study in Ethiopian schools by Dutch researchers from the University of Groningen, published last year in the journal Computers and Education, similarly indicated that OLPC laptops improved abstract reasoning.

The teachers in those schools had received extensive training in the laptops, which the researchers said introduced an "information-rich novelty" into an environment previously starved for learning material.

The laptops in Ethiopia, like those in Peru, were loaded with books, memory games, music composing software and other programs.

In this June 8, 2012 photo, students use their laptops at the Jose Maria public school in a shantytown on the outskirts of Lima, Peru. Peru has sent more than 800,000 laptop computers children across the country, one of the world's most ambitious efforts to leverage digital technology in the fight against poverty. Yet five years into the program, there are serious doubts about whether the largest single deployment in the One Laptop Per Child initiative was worth the more

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The Education Ministry official who ran Peru's program until last year, Oscar Becerra, calls the abstract reasoning findings "spectacular" and disputes claims that the program has been a failure.

"We knew from the start that it wouldn't be possible to improve the teachers," he said, citing a 2007 census of 180,000 Peruvian teachers that showed more than 90 percent lacked basic math skills while three in five could not read above sixth-grade level.

Many of the teachers had never so much as booted up a computer. In Patzer's experience "most of them barely knew how to interact with the computers at all."

At the Jose Arguedas primary school in Lima's gritty San Juan de Lurigancho neighborhood, 40 computers for its 570 students arrived nearly two years ago but few teachers have worked them into their lesson plans.

"It's been difficult for many teachers to adapt to them," said Graciela Martinez, the school's technology coordinator.

Many of teacher Magnus Fajardo's second-graders struggled when he took them to computer lab and asked them to write, sequentially, the numbers from 200 to 300 on their laptops.

The children knew their numbers but few knew their laptops. Less bashful children asked a visiting reporter for help. They wanted to know how to advance to a new line, how to increase the font size.

In the higher grades, Martinez said, children's use of the machines is mostly social. They have Internet, and Facebook is big. So are online games.

"For them, the laptop is more for playing than for learning," she says.

Educators say that's a clear sign the children haven't been properly introduced either to the Internet or to what is on the machines.

Negroponte thinks the main goal should be simply getting computers into poor kids' hands. Last year he proposed parachuting table computers from helicopters and he has begun a pilot project in two Ethiopian villages to test whether tablets alone, loaded with the right software, can teach children to read.

"There are about 100 million kids without schools, without access to literate adults, and I would like to explore a way to get tablets to them in a manner that does not need "educators" to go to the village," he said via email.

The OLPC team always considered Internet connectivity part of the recipe for success. They also insisted each child be given a laptop and be permitted to take it home.

Uruguay, a small, flat country with a far higher standard of living, has honored those requirements and achieved ubiquitous Internet access in the process.

Peru did not.

Becerra said trade-offs were necessary because it would have cost $1.2 billion to provide all 6 million children in Peru's elementary schools with laptops. Rural schools, beginning with those where a single teacher

manages multiple grades, got priority.

But those schools' very remoteness complicated matters.

Some parents, mistakenly believing themselves the laptops' owners, tried to sell the machines, Becerra said.

About a quarter didn't want the computers coming home, fearing theft, the development bank researchers found. Meanwhile, two in five children didn't take their computers home because their school wouldn't let them.

Some schools didn't have enough electricity to power the machines.

And then there was Internet. Less than 1 percent of the schools studied had it.

Patzer blogged about the frustration he witnessed when children and teachers struggled with the laptops' old, buggy software and, not understanding how to update to improved versions, "promptly boxed them up and put them back in the corner."

Marcone questioned whether the IADB study measured the right aptitudes among those who did use the machines.

"What was evaluated was a paper and pencil test," he said. "What if they had tested 21st-century skills?" he said. Skills such as those developed by the audiovisual tools the laptops possess?

Marcone has already made modifications to the program, including making the XO laptop part of Peru's university teacher-training curriculum this year.

His office will continue to support the laptops, replacing broken ones as well as distributing 41,000 that were destroyed in a warehouse fire earlier this year. It plans to expand rural Internet penetration and put new support resources online. But it won't be trying to give out one laptop per child.

"The ministry is not going to do another macro project of this type. It is not going to make multimillion-dollar purchases and distribute (computers) like candy."