LESSONS FROM THE CLASSROOM

HBS Cases: One Laptop per Child

Q&A with: John A. Quelch
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Drop it on the ground. Sprinkle water on its surface. Let it sit in the sun and expose it to swarms of dust—the XO laptop is designed to handle most any abuse from a child. But the journey of the XO laptop from concept to the educational tool for the world’s poorest children is turning out to be a bit more complicated than originally anticipated.

A new Harvard Business School case study called "Marketing the '$100 PC'" spells out these opportunities, problems, and challenges from a marketing point of view. As the case asks, can the laptop move out of the realm of "great idea, great gadget" and improve the educational possibilities for children in impoverished environments?

Tech-savvy people as well as the socially conscious have been intrigued by the idea of "one laptop per child" since it made a splash as a formal initiative in January 2005 at the World Economic Forum in Davos, Switzerland. It was proposed by Nicholas Negroponte, co-founder and chairman emeritus of the MIT Media Lab. The time seemed ripe: The One Laptop per Child (OLPC) Foundation quickly signed up Google, News Corp., AMD, Brightstar, and Red Hat. Taiwan-based Quanta Computer Inc. agreed to manufacture the laptop.

On the technological front, OLPC tackled puzzles such as creating a product both useful and fun for children of primary school age. (See CloseUp below). But despite its visionary goals and widespread public interest, OLPC has encountered more difficulty than anticipated to nudge governments from polite handshakes to cash commitments.

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- The XO laptop is a rugged little computer designed to help kids learn and play collaboratively.
- Some of its features raise the bar in the computer industry as a whole.
- Competitors are moving into the same market space to make low-cost laptops. However, the One Laptop per Child initiative is nonprofit.
- Despite some success, one of the biggest hurdles has been signing up governments to purchase the computer for their country's children.

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One problem: the price. Although originally envisioned as the "$100 PC," OLPC has struggled to bring the price below $175. And now it faces competition in its low-cost market from for-profit powerhouses such as Intel, Dell, and Lenovo. Such wide-ranging issues are the focus of the case, coauthored by HBS professor John Quelch and Carin-Isabel Knoop, executive director of the HBS Global Research Group.

The first countries to give the thumbs-up for their children were Libya, Uruguay, Rwanda, Peru, and Mexico. Of course, OLPC aspires to many more commitments to fulfill its vision of "one laptop per child."

Herein, marketers find much food for thought.

According to Quelch, a professor of marketing, the laptop's creation and diffusion are special for several reasons. They form a perfect example of the evolution of "action pricing"—setting an audacious price goal and endeavoring to meet it. The laptop typifies technological breakthroughs that influence the mainstream in ways that could have large potential impact. The diffusion also suggests the stumbling blocks any company would encounter globally when carrying out such a worthy but ambitious goal. And the whole story points to the personal challenges that face the originator of a cool nonprofit idea when "me-too" for-profit companies seek to compete for the same customers.

**Action pricing in action**

Action pricing is a technique where you set an almost impossible price target and then "engineer backwards" the design of the product to meet that price, explains Quelch. The technique has been used occasionally by consumer durables manufacturers (refrigerator makers, for example) when they decide to build a particular product priced very attractively for consumers.

With the XO laptop, action pricing met a new level of complexity. OLPC set a price goal, $100, which seemed challenging but doable based on the XO's technological building blocks such as its reliance on freely available open-source software. In addition, OLPC had to determine the right mix of attributes and features that would appeal to the target users, children. Design could not be an afterthought; the laptop had to be attractive enough so a young person would feel proud to own it. The XO also required network capability to encourage collaborative tasks from writing assignments to playing digital instruments. At the same time it needed to address constraints such as the lack of electrical power in many remote rural areas—a problem it solves in several ways. Kids can recharge the battery by pulling a cord or attaching a solar panel, and the battery itself is long-lasting.

**Breakthroughs and implementation**

The XO laptop also illustrates how goal-setting can raise the bar in an industry.
"A number of technology breakthroughs were part and parcel of the development of this product. They could potentially be extended later to the benefit of users of all PCs," says Quelch. Unlike most laptops, its screen is easily readable even in bright sunlight. Users can save power by switching the screen from backlit color to self-reflecting monochrome.

"Using less power meant generating less heat, obviating the need for a power-consuming cooling fan," according to the case.

Despite these design and technological advances, the XO laptop has faced its biggest challenges in the realm of adoption and diffusion, says Quelch. Although it is set for distribution to kids in the above-named countries, its boosters have faced a long road to seal the deals, and a lot of work lies ahead.

"While on the surface it is a laudable vision to get one laptop to each child, and the motives are pristine, there are stumbling blocks in implementation," observes Quelch.

The conservative nature of governments, complex bureaucracy, and decision-making hurdles can all interfere with early public sector adoption of even the most worthy innovation, he says. This slower-than-expected adoption and diffusion may have surprised the leaders of OLPC.

"I think they may have underestimated the political roadblocks that could be put in the path of adoption. If you are a technology-centric person, in the West you don't think in terms of a computer replacing a teacher, but in a budget-strapped developing country environment, resources are so limited, there aren't enough teachers. Should PCs absorb money that could pay for additional teachers?"

**Hot competition**

Even as the OLPC experienced delays in securing orders, potential competitors were taking notice. The so-called bottom-of-the-pyramid market was now a focus of attention from mainstream PC markers facing maturation of their markets in developed countries.

According to the case, "In July 2007, PC maker Everex announced it would start selling its PCs at Wal-Mart for $298. Microsoft launched the $522 IQ PC aimed at children in India. Moreover, in August 2007, Lenovo, which manufactures a third of all computers sold in China, announced it would offer a laptop priced between $199 and $399 targeted at China's rural population. The PCs would plug into TVs instead of monitors. Lenovo, based in China, planned to use its network of 5,000 dealers to sell the laptops." It wasn't just PC makers that were attracted to this new market. Chip giant Intel did not want to relinquish a potentially lucrative market to its key rival AMD, an early supporter of OLPC. Intel is promoting the low-cost Classmate PC, which retails at a price higher but in the same ballpark as the XO laptop. (Intel also joined the OLPC initiative in July 2007.)

Lenovo and Intel are established players "who saw the initiative, understood its significance, and then brought their commercial resources to bear on further developing their product lines to address the emerging need."

"All of which must have been faintly depressing if you were the originator of the idea, now seeing your idea being imitated," continues Quelch. "On the other hand, a socially responsible not-for-profit leader should surely be pleased when the commercial sector is motivated to bring its resources to bear on the problem at hand, and prospectively accelerate the distribution of low-cost personal computers to more people much faster than would have occurred otherwise."
The case challenges students to see entrepreneurship in a new light. It is the mark of an extraordinary entrepreneur, the originator of any breakthrough idea, to see beyond his or her own personal "ownership" of the concept and let the solution to a problem take precedence—in this case, access for children the world over to the educational aspects of computing.

OLPC has made a difference already because it changed the landscape in terms of dreams and expectations. Observers can see what makes the goal of one laptop per child difficult to achieve. Says Quelch, "When you envision something as powerful and transforming as this concept, it is exceptionally easy to identify so many implementation problems that you simply give up. One key to new product development is to keep the ambition of the vision always front and centre to motivate you to solve these many problems that you're going to confront." One laptop at a time.

"Marketing the "$100 PC" will be taught this spring at Harvard to MBA and Executive Education students.

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CloseUp

Getting to Know the XO

Tech sophisticates, of course, are by now quite knowledgeable about the product's pluses and minuses.

On the plus side, the XO laptop is unique for its "mesh network," an instant self-configuring network that forms in a 10-mile radius when young users arrange the laptop's antennae. Kids enjoy Wi-Fi capability, and can type, write, draw, play games, have a video conference, and make music—all collaboratively. They can read e-books as well.

Because the laptop uses freely available open-source software, children can learn about source code.

The battery lasts for 5 hours or, when a user is only reading, for 24 hours. The overall design of the XO is eye-catching and cute.

On the minus side, the XO laptop lacks a hard drive and CD or DVD drive. And, as noted in a recent, mostly positive review by New York Times tech columnist David Pogue, the processor is "very slow" to start up and switch programs.

Until December 31, 2007, consumers with a U.S. or Canadian address and $399 U.S. can order 1 laptop for themselves and donate a second to a child in a developing nation in OLPC's Give One Get One program.

Read John Quelch's blog.

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About the author

Martha Lagace is the senior editor of HBS Working Knowledge.

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