

# OLPC XO-1 Review

Jon Moss

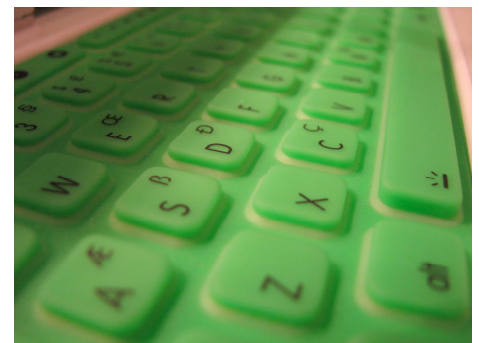


The *One Laptop Per Child* program is a non-profit organization run by Nicholas Negroponte. Originally part of M.I.T., OLPC became an independent body so they could more easily pursue their goal of developing an appropriate laptop for children in developing countries. Their goals seem to have three key parts. First, they are working to develop an inexpensive laptop. Their original goal was for each laptop to cost \$100 to produce, but because they have not been able to begin mass production to the extent they hoped to, the cost is currently \$180 per laptop. Either way, this low-cost system is more fiscally practical for nations to purchase en masse for their children. Second, the designers felt strongly that they wanted to design a system that was unique. Despite offers from Steve Jobs to give modified copies of Mac OS X without charge to users of the XO, Negroponte and his colleagues decided to design a

unique, Linux-based operating system that they considered to be more intuitive. Remember, the intended demographic of users is one where children have probably never used a computer before. Concepts like the Mac “Finder” or the Windows “Start Button” may not be intuitive enough for first-time users who won’t necessarily have support from more experienced users. Third, given that OLPC has a collection of advanced engineers on its team, Negroponte sought to develop innovative technologies that could allow for greater functionality, versatility, and durability. I should make clear that these three goals are my interpretation of OLPC’s intentions. They have not necessarily announced their goals in the same ways I am explaining them.

Starting in November, 2007, and continuing until New Year’s Eve, OLPC offered a Give One, Get One program. For \$400, individuals could purchase an XO laptop for themselves and also send one overseas. This was the one and only time in which the XO was available for purchase by private consumers, and OLPC also offered a free one-year subscription to the T-Mobile WiFi hotspot service. Although it seems that this promotional program has been plagued with problems with shipping and customer service, my XO arrived in late December.

The appearance and form factor of the XO is definitely unique. Some would call it strange. Where most laptops have their inner components under the keyboard, the XO’s inner components are in the upper part, behind the screen. The XO opens by flipping up two side pieces. In keeping with the goal of multipurpose use of innovative technology, these pieces have three purposes. They secure the laptop in its closed position when not in use, they conceal USB and audio ports, and they serve as WiFi antennas. An integrated handle allows people to carry their laptop without need for a case or bag. (I’m wary of the “It’s rugged and can withstand anything!” mindset. I carry mine in a laptop bag.) When open, the XO is certainly unique and is a successful example of design to fit the needs of proposed users: kids in developing countries. The designers intentionally gave it a kid-friendly look and feel, with a green color-scheme, a kid-sized keyboard, and an overall appearance that supposedly resembles a face. The keyboard is rubber and soft, which means that spills of liquid probably won’t effect the system. The soft feel of the keyboard and its shrunken size can make it a bit awkward for adults to use, but with practice, my fingers have gotten used to it.) It has a unique set of keys function keys that are used along with a traditional QWERTY keyboard (for English-speaking nations. Other languages are also available.) Many of these function keys have not yet been used in software titles, along with two sections of the touchpad that are intended to be used with a yet-to-be-created stylus.



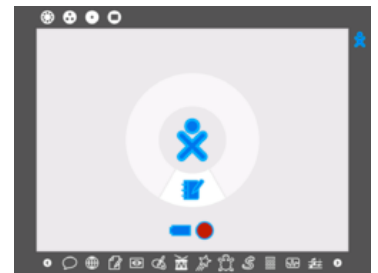
Because the XO's are intended to be used outside, the casing is very resistant to dirt and dust. There are no moving parts inside the XO, and the solid-state flash memory replacement for traditional hard drives means that they fair much better when dropped. The screen portion of the laptop can be rotated and flipped down for use like a tablet computer, and the screen can be changed from traditional color mode to an ultra high resolution, unlit monochromatic mode for use in the bright sunlight. (This tablet mode allows children to access text books and literature which might otherwise be impractical to



ship in traditional printed form.) Since the WiFi antennas serve several purposes, it's easy to accept their large size. In fact, their protruding nature allows the XO to have a very impressive connection range for WiFi. (I was able to drive ¼ of a mile from my home and still have a decent signal from my basic 802.11g router.) The XO is very power-efficient (particularly when in the monochromatic mode), and the battery can last much longer than traditional laptop batteries. (This is particularly important, since many communities that are receiving XO's do not have electricity.) Hand cranks are used to generate power for the laptop.) The XO has

one SD slot and somewhat supports USB thumb drives. It comes with a webcam and microphone for basic teleconferencing (between students within a community). But otherwise, it's kept simple. The XO does not currently support printers, and there is no way to use CDs, DVDs, or other disks. Fancy features like touchpad scrolling and writing directly on the screen were not included in the design.

At first glance, the XO operating system, called Sugar, is very reminiscent of a Mac. When turned on, the logo shows up in white, up against a light gray background, with a little musical ditty. (Sound familiar, Mac users?) The main screen uses a hideable black frame to give you system information. On the bottom, users can see icons for all installed programs, much like the Mac OS X dock. On the right, the system displays avatars for other nearby XO's with which the user has formed an association. System controls are on the top. At first, I struggled to use the system because I was keeping the mindset of a Mac and PC user. Conventional wisdoms do not apply to the XO. Users must think like someone who has never used a computer before. Double clicks are not needed. The web is intended to be navigated by keyword, rather than by URL. Programs are downloaded and installed by one click. Customization is minimally possible. The programs (called "Activities"), which are designed by OLPC as well as independent volunteers, address a series of different conceptual skills for different ages. (Although someone has made a port of Doom for the XO, most games are simple in concept and creative in design.) File names are kept to a minimum, and a "Journal" stores all documents and saved links, rather than forcing the user to wrangle with folders, directories, and aliases. The XO can open some common formats (jpg, pdf, etc.) but many complicated file formats are alien to the system. Because the XO is intended to be brought home by the user, developers did include a security system that dissuades theft – it is almost like a Lojack for computers. Another of its key innovations is its use of mesh networking. Normally, wireless laptops cannot interact without a wireless router that establishes a network. Mesh laptops (such as the XO's) can communicate with one another in video chat, instant messaging, and other applications without the benefit of a wireless network. The benefit is that a community without any electricity could still have children using their laptops to work on a project together. Files can be shared among multiple XO laptops so that users can collaborate on activities. It's truly an innovative and outstanding feature.



Many challenges and changes are coming at the XO. Other manufacturers are also developing low-cost laptops, such as the Asus Eee PC. For a time, OLPC had a collaborative relationship with Intel. However, when OLPC decided to use processors made by AMD (Intel's biggest competitor) in order to keep costs down, Intel severed ties with OLPC and began to design their own low-cost laptop. The 2go

P C (which seems to be the new name for the Classmate PC) is expected to be released to consumers within the next few months (pictured on right) , and while it will probably cost more than the XO, superior specifications and wider availability to consumers will give it a leg-up. While Nicholas Negroponte is on record saying that he just wants kids to have access to technology – whether it’s through the XO or another system, I’m sure he hopes for his own system to prevail. It’s possible that both systems could succeed, given that the Intel 2go PC seems to target a different demographic.



However, OLPC has recently announced a monumental change which changes everything. They have officially formed a new partnership with Microsoft, and designers from both bodies are creating Windows XO, which seems to be a watered-down version of Windows XP. (It would have to be, given that the XO has only 512kb of internal flash memory.) The website [www.olpcnews.com](http://www.olpcnews.com) offers more details on this new partnership, but I’m fearful that OLPC will quickly become one of Microsoft’s divisions. Might this be good for the struggling non-profit effort? Perhaps. But there are those (myself included) who believe that one of the XO’s biggest strengths is its unique Sugar operating system. When it’s replaced by Windows, what’s the benefit of the XO? A few technological innovations that will be quickly duplicated by competitors? I fear that this will be a change that hands “victory” to Asus or Intel.



But on the other hand, we must never underestimate the ferocity of the Microsoft marketing machine. Plus, who knows? Their modified version of Windows XP could be more than use a water-downed version, and it could include characteristics that make it a bona fide improvement over the somewhat crude Sugar platform. But will they continue to collaborate with independent volunteer developers who are eager to contribute their efforts to the cause? Will the already-existing pieces of software still work on the new Windows XO? Time will tell.