

Open Source in the Classroom

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A recently released study by the British Educational Communications and Technology Association ([pdf](http://www.becta.org.uk/corporate/publications/documents/BEC5606_Full_report18.pdf), http://www.becta.org.uk/corporate/publications/documents/BEC5606_Full_report18.pdf) concluded that UK primary schools could radically reduce their technology spending—by almost 50 percent—if they replaced vendor software and systems in favor of nonproprietary, open source products. The study's critics contend that such sizeable upfront savings nevertheless result in substantial backend costs. Still, the study's results will likely add fuel to the already fiery debate surrounding open source software use in US schools.

Educational market share

"Open source is a vital issue, especially for those advancing the effective use of technology in education," says Kurt Steinhaus, board president of the International Society for Technology in Education (<http://www.iste.org/>) and New Mexico's deputy education secretary. "With so many stakeholders and so many issues to be considered, open source needs careful debate and dialogue."

Proponents on both sides of the issue agree that the ultimate determinant ought to be what is in the best interest of schoolchildren. The goal is certainly admirable, but the financial bottom line is undeniably another major consideration driving the debate.

Only recently has educational technology become its own niche market, and open source advocates as well as those on the vendor side are responding. "In the past, [educational technology] had to ride on the coattails of what was being done in business and government sectors," says Basha Krasnoff, speaking from the 2005 Software and Information Industry Association (SIIA) Ed Tech Industry Summit. "Now, it's being referred to as its own industry. That's a major shift." Krasnoff is lead researcher for Open Options, a Web-based decision support resource for K–12 educators who are considering adopting open source solutions.

Linda G. Roberts, former director of the US Office of Educational Technology under the Clinton administration, traces the surge in the educational-technology field to the surge in technology in general over the past decade, especially among grammar- and high-school-age children.

"The K–12 market has been growing year by year, and we have seen phenomenal growth in classroom access to the Internet," notes Roberts, who has held various advisory positions at a number of entities, including Apple. "In 1994, only 3 percent of classrooms had access; in 2004, almost 90 percent of classrooms had Internet access, as well as use of computers, laptops, other digital devices."

According to Roberts, results, not rhetoric, ultimately determine how school systems make decisions about technology. "Particularly in K–12, what drives use and changes behavior are tools and applications that support student learning," she says. "The field responds to compelling results, such as proof that students can learn more difficult subjects and demonstrations of tools that can support diverse learner needs."

Cost-benefit analysis

As part of the Northwest Educational Technology Consortium (<http://www.netc.org/>), Open Options has been conducting open source user studies with K–12 educators since 2002, and in that time has documented tangible educational benefits. "[Open source] encourages sharing and collaboration," says Krasnoff. "Schoolchildren of all ages and all technological capabilities can benefit from the freedom that interoperability and open access afford."

However, Krasnoff says, the financial considerations are the primary selling point. "Our research indicates that if educators do choose to adopt open source software solutions it is because of the lower upfront costs and elimination of license fees." She also cites the

ability to customize options without having to purchase unnecessary additional functionality, as well as freedom from forced upgrades or product lock-ins.

But an open source scheme doesn't come without a cost, or at least a compromise. "No school or district can risk dependence on one knowledgeable person to carry responsibility for the entire deployment," Krasnoff warns. "If that one key staff person leaves, implementation can grind to a halt.

"There is also the consideration of legacy systems and possible migration issues, although this is becoming less of a concern as the open source software matures," she says. "And sometimes uncertainty plays a factor—that is, what does it mean not to have a vendor to rely on or to not know how the movement is evolving?"

Users weigh in

For Les Richardson, a member of open source advocacy group Schoolforge (<http://www.schoolforge.net/>) and an open author himself, the benefits of open source greatly outweigh the costs. "It fosters a community approach to software development and use," says Richardson. "This gives a new dynamic to software development, as opposed to traditional vendors with shrink-wrap applications and expensive customization options."

According to Chris Lehmann, technology coordinator of the Beacon School in Manhattan, "An open source philosophy makes sense with a progressive pedagogy."

Lehmann says that using a nonproprietary scheme for the past eight years—all of the school's primary servers are open source, and the backend runs on Linux—has bred more technologically savvy kids. In fact, many of his more advanced students have written code with him that is now part of the system. "They're understanding the process, not just the facts," says Lehmann. "They're not just users, they're participants in the process."

Are there increased security concerns in an open source system? "You have to know what you're doing," says Lehmann. "Anytime you get away from a point-and-click system, there has to be a desire to learn, because there's a sharper learning curve.

"Have we been hacked in eight years? Of course we have, but so has Citibank."

Vendors offer alternatives

Not surprisingly, vendors aren't taking the competition, or threat, posed by the open source movement lying down.

Microsoft recently commissioned VertiTest to compare the reliability of Windows Server 2003 to Red Hat Enterprise Linux AS 3.0 and found that Windows Server 2003 is more effective at troubleshooting, not to mention easier to configure and maintain.

"We see school districts beginning to look at Linux vendors like any other commercial software provider," says Anthony Salcito, general manager of Microsoft's education division. "Our goal isn't simply to deliver software. Addressing technology access is only half the battle. We're making a long-term commitment to promoting digital literacy and helping people get the training they need to truly thrive in the digital economy. We're working to increase access to software through discounts, donations, and innovative technology. Microsoft offers easy ways for schools to acquire and administer software at substantial discounts, in some cases as much as 85 percent off commercial rates."

Another major vendor, Apple, provides school students their own iBooks as part of its Apple 1 to 1 Learning (<http://www.apple.com/education/onetoone/>) initiative. "It has been one of the most successful grants in our district," says Jeffrey J. McMahon, academic technology officer of the Indianapolis Public Schools school district, which has participated in the project for the past four years.

McMahon says that, just like adults, schoolchildren can greatly benefit from having their own personal computer. The program has been so successful that it's being replicated throughout the Indianapolis school district, which doesn't currently make use of open source products.

Conclusion

In the end, it may be that a little healthy competition will improve the face of educational technology offerings across the board. "I think there is room for both schemes," says Roberts.

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