

10 Reasons why Free Open Source Software and GNU/Linux should be used in schools

Open source software (OSS) began as a marketing campaign for Free Open Source Software. OSS can be defined as computer software for which the human-readable source code is made available under a copyright license (or arrangement such as the public domain) that meets the Open Source Definition. This permits users to use, change, and improve the software, and to redistribute it in modified or unmodified form. It is very often developed in a public, collaborative manner. Open source software is the most prominent example of open source development and often compared to user generated content. Most articles on this subject tend to focus on the cost savings for organizations to run GNU/Linux and Open Source Software. The way it is portrayed by mainstream media turns it into a cheap "alternative" that you use if you can't afford Windows or hate Microsoft. For me this isn't what makes GNU/Linux truly great for schools. Using that as my motivational drive, I decided to compile a list of the top 10 reasons that make GNU/Linux and other Free Open Source Software essential for schools.

1. **No vendor lock-ins** - Once you go to a proprietary company, it's hard to leave. Many people, especially computer-illiterate people, believe that companies all try to make their products the best so that consumers will like them. While this is definitely true for most markets, the software market is completely different. The longer you use a piece of proprietary software and build up your infrastructure around it, the harder it is to leave.
2. **Freedom to redistribute** - The freedom to redistribute allows schools to bridge the gap between home and school. Since the GPL allows free redistribution, any student or staff member can install it on his/her own computer and have access to the same applications that they have at school. Many freeware programs do not allow you to redistribute them, or limit the environments in which they may be installed.
3. **Security** - In almost all cases, Free Open Source Software based solutions are more secure than proprietary software based ones. Free Open Source Software authors leave software in Beta until it is really ready to be used, whereas some proprietary software companies sell you Beta 1. When using open source software it is rare to find a security issue. When security holes are found, they are patched much sooner because everyone has access to the source code. People don't have to wait for weeks on end to see if the company decided to fix the bugs they found.
4. **No pressure to upgrade** - "Done!" exclaimed Joe, the school's network administrator. He grabbed his Norton Ghost CD, slammed it in the garbage, and strutted down the hallway back to his office. It was a wonderful thing, to see all of these computers running Megasoft Doors XT. It had taken years to get this software package deployed onto all of these computers. As he approached his office, he noticed a shadowy figure standing in the doorway. "Are you Mr. Joe Peterson?" asked the equivocal man. "Why yes, I most certainly am. How may I

help you?" Joe asked, as he stepped into the door. The man followed him into the office, and closed the door behind him. After about an hour, both men emerged from the office. Joe had a new responsibility now: install the new Megasoft Doors VS+ software on every computer in the school. In most schools, situations are closer to Joe's extreme than the average person would expect. Big Brother Salespeople are lurking around every corner.

5. **Computers last longer** - I have a machine from 1996 running the most recent version of Linux Debian smoothly. Older computers can run stripped-down distros, like DSL or Arch, which will work great on nearly any computer. I wonder how a certain other operating system from a monopolistic company would work if it had only 32 MB of RAM to work with? (*Probably the same way it would work on a brand new Alienware machine: not at all!*) Even through many schools wouldn't want to use computers this old, it provides another excellent opportunity: distributing them to poverty-stricken children. This isn't possible with today's proprietary operating systems because of licensing problems. Even if it were possible, it would still be far from practical to give students a computer that can't even open a web browser.
6. **Ability to modify** - The truly amazing part about Free Open Source Software is that you can adapt it to fit your needs. All software has limitations. Proprietary software power users know the limitations of their software. Free Open Source Software power users know how to fix the limitations of their software. This flexibility is especially important in the educational environment, where programs must be molded to suit students, staff members, and administrators. To expand a bit: With Open Source software, the source can be viewed. If a student wants to learn how a particular piece of software works, they can learn as much as they want about the internals of the software. Also a student who develops the appropriate skills, can actually become a contributor to OSS projects and OSS organizations. This in turn isn't just educational, but students can actually build experience and references for their resume - and their contributions can be verified. This is most applicable for programming students; but could involve technical writing, graphic art and design, and other marketable skills (including marketing for that matter). And students can get started on this path with the investment of just a basic computer and internet access (which can be provided by schools, libraries, and civic organizations for those who can't afford them).
7. **Students get exposure to Free Open Source Software** - Nobody knows what the future will hold. It could be an online desktop. It could be cell phones completely replacing laptops. Nobody knows. The more exposure students have the better. It also helps students develop more tolerance. People today think of GNU/Linux as the 'generic brand' product. Every GNU/Linux user has, at some time, had someone "inform" them in this jeering, derisive voice, "You get what you pay for." Well, I hate to break it to you, but nothing in life is free. People don't understand this. Therefore, when they hear about GNU/Linux, they don't take it seriously. For the same reason people buy outrageously priced Abercrombie clothing, Coach purses, and BMW cars, they continue to buy "designer" software.

8. **Choice** - When students get older, they shouldn't ever be forced to use any specific piece of computer software. Every piece of software has its advantages and disadvantages (though some more than others), so everyone deserves an educated choice. When you don't have a choice, things don't tend to go very well. That's why monopolies are illegal. Lets take my cousin for example. She called me a little while ago wondering how to use Photoshop, which she had just purchased. I told her I never used it, because I used GIMP instead. When she asked about GIMP, I explained it to her. You can imagine the disappointment she must have felt, especially since she bought it to do a few simple image edits that even a novice Imagemagick user could do via the terminal. So why did she immediately go to Photoshop? It is because she had a class at school about how to edit images with it. Knowledge is power.
9. **Open file formats** - If everybody and everything in the world would work together and seamlessly exchange information, we would be in Utopia. Unfortunately, that will never happen. Some jerk (or group of jerks, formally called a "Corporation") will end up ruining it for everybody. Imagine a new company just started up, called Ship-N-Store. Ship-N-Store offers a completely free service. What they do is hold all of your most important stuff for you. You simply package up all of your most prized possessions and ship them off to this company. Then, to get your information back, you simply write a letter to this company, and they will hopefully send your stuff back. You are probably asking yourself why anyone would use such a stupid service, even if it is free of cost? People would do it for the same reason that they would use a closed file format: to put themselves at the mercy of a large group of people who want nothing but money. Using a closed off file format offers no advantages whatsoever, beyond compatibility with certain proprietary products. In the future, there is no guarantee that any piece of free or proprietary software will be able to open the files that you save.
10. **Ethical** - Free Open Source Software encourages sharing with those around you. One person can use their time to create something that affects thousands of people in a positive way. Richard Stallman learned this back in '85, and it motivated him enough to start the GNU project. Free Open Source Software is the heart of projects like OLPC and The Helios Project (formally Komputers4Kids). It is based on the same philosophy that made Wikipedia the seventh most popular site in the world. (Wikipedia used to be, in part, a GNU project.) The only way great things can be accomplished is if everybody works together. Linus Torvalds figured this out in '91. Linus' Law, coined by Eric Raymond, states that "With enough eyeballs, all bugs are shallow." This couldn't be more true. Would you rather have one professional detective look for your lost wallet, or have everyone in your city keep an eye out for it?

There are so many benefits other than cost to using GNU/Linux in schools. In this article, I have only scratched the surface. I strongly encourage you to join the fight against proprietary software in schools.

The San Diego Unified School District has selected Novell's SLED 10 (SUSE Linux Enterprise Desktop) as the standard platform for its "Always-On Learning Initiative," a mobile computing initiative intended to help students achieve academic success and prepare them for life and work in the 21st century.

Specifically, the Always-On Learning Initiative, like the much better known OLPC (One Laptop per Child) initiative, is designed both to keep students in school and to help their grades and test results. To do that, the San Diego school system is relying not just on Linux, but on open-source software. To quote from Student Computing in San Diego Unified School District, "Both open-source software and Web applications provide students, teachers and parents wonderful tools and resources in education that are by and large free!"

This school district turning to the Linux desktop and open source is not a small matter. The San Diego Unified School District is the second-largest school district in California, serving more than 130,000 students, 100,000 of whom are in grades three through 12.

"This mobile computing program will help students develop the cognitive tools they will need to compete in the global economy," said Dan Wolfson, program manager of Educational Technology for The Office of the Deputy Superintendent of San Diego City Schools, in a statement. "To be beneficial to students and cost-effective for the district at the same time, our desktop operating platform needs to meet high standards of reliability, ease of use and administration, as well as being affordable. SUSE Linux Enterprise Desktop clearly meets those requirements."

The school district's On Learning Initiative is currently in the first phase of a three-phase implementation that is expected to run for several years. Deputy Superintendent Geno Flores said, "The district is enthusiastic about pioneering the Always-On Learning Initiative to personalize student learning. The initiative will provide meaningful learning experiences for all participating students, especially those who may not have access to computers at home. We believe it will help students develop higher order skills and to function effectively in the world beyond the classroom."

In a statement, Roger Levy, Novell vice president and general manager of open platform solutions, said, "San Diego Unified School District is to be commended for undertaking such an ambitious initiative to benefit students. Novell is pleased to play a part in its success by supplying the eminently affordable and manageable SUSE Linux Enterprise Desktop that will provide a familiar and reliable computing experience for students, teachers and system administrators."

A private school in St. Louis, Mo. is increasingly choosing Linux for the computers it supplies to students and faculty, according to laptop supplier Lenovo. Students at the Whitfield School are using Linux about 86 percent of the time now, Lenovo says, up from 50 percent three years ago.

Lenovo has supplied about 600 laptops to the Whitfield School, it says, including systems that run both Linux and Windows. Whitfield started its PC program in 2005, and this year achieved its goal of supplying each student in grades six through 12 with their own laptop, it says.

Citing a study done by the Whitfield School, Lenovo says that by the end of 2006, "students using ThinkPads spent 50 percent of their time on the PC in the Linux environment." That figure reportedly increased to 75 percent by the end of 2007, and 86 percent by the end of 2008.

Mike Schmedlen, education industry executive for Lenovo believes that Linux adoption in schools is on the rise, in part because Linux PCs work well with educational management software like Blackboard and the open source Moodle course management stack. He commented, "We're seeing a groundswell movement toward Linux and open source in education. Schools want to supply a twenty-first century computing environment."

The Whitfield School is an exclusive private school, but Linux uptake is also happening in public school systems, according to Schmedlen. He said, "The San Diego Unified School District has a program for 1:1 computing, and it is migrating exclusively toward Linux."

Alex Inman, director of technology at the Whitfield School, stated, "Lenovo support for Linux has helped us achieve our 1:1 computing goals within the first three years of the Whitfield PC program."

Translation: The school was set on supplying Linux, and being able to buy off-the-shelf systems pre-installed with Linux enabled them to do so much faster. Lenovo began pre-installing SUSE on select ThinkPad models in August of 2007, just prior to the beginning of the school year.