

The Power and Promise of Open Source Software

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As we make choices about what systems, software and hardware we use in our schools or universities, it is important that we approach such choices with open minds, considering what is best for our students rather than simply what sells the best or what is most popular. With that in mind, free and open source software (FOSS) should be at the forefront of any educational organization's options.

The Power of Open Source Software

When people first consider free and open source software, they often think of weak and buggy software that has been put together by amateurs and is not a polished piece of work. That may be true in some cases, but it is also true of some commercial software. Meanwhile, it is also true that open source software is widely used by organizations that require robust, secure, powerful software. The US Navy is one example, as is NASA (the US National Air and Space Administration): both of them have switched from Windows to Linux on various systems because of security, power and customizability. Open source software is promoted by Google, in its (mostly) open Android system. The most powerful and widely used blogging platform, WordPress, is open source software. The US White House uses an open source system, Drupal, to run its presidential website. There are many more examples.

The Promise of Open Source Software

Free and open source software has much to offer any school, university or organization. Besides its inherent practicality, there are a few areas of promise for educational institutions:

1) Cost savings

Open source software is (usually) free to download and use. This has a great practical value for schools with tight budgets. A school that uses free and open source software can save thousands of dollars every year. However, schools must also consider the costs of maintaining that software. Commercial software often has an annual license cost which may include support. Support for open source software may have to be done in-house, which would require staff costs. However, that does not mean that open source software is without any support. That support is found within the next area of promise.

2) Community

Coalescing around any open source software is a community of users and developers who work together to improve the software. This community is a great asset for any school using free and open source software, and also an opportunity. Besides using this community for support, a school can have its technical staff as well as its students and teachers join the community to participate in the sharing of information and solving problems. If this is done, then students not only use the software for their subject-area learning, they also learn more about software development and share their knowledge with

others. By submitting bug reports, requesting information, contributing to documentation, etc. students can make authentic contributions and gain valuable real-world experience.

3) Freedom

Arguably the biggest and most important promise for free and open source software is in the freedoms it offers schools, teachers and students. Free software provides some inherent freedoms for its users: to use the software as they wish, to share the software with others, and to modify the software and share those modifications. Those freedoms stand in contrast with the restrictions built into licenses for commercial software. Richard Stallman, the founder of the free software movement, puts it this way:

Schools — and all educational activities — influence the future of society through what they teach. So schools should teach exclusively free software, to transmit democratic values and the habit of helping other people. (Not to mention it helps a future generation of programmers master the craft.) To teach use of a non-free program is to implant dependence on its owner, which contradicts the social mission of the school. (Stallman)

4) Learning

Finally, there are inherent learning opportunities with the use of free and open source software. The experience of working with software that is non-commercial and therefore likely to be less common provides students an opportunity to learn new skills and new ways of doing things. Students who learn to use LibreOffice instead of the more familiar Microsoft Office, for example, will need to think about what tasks they want to perform and what the most likely menu choices or commands might produce that task, instead of simply memorizing a key combination or a specific button. In addition, students are able to customize the software and even build additional plug-ins for it, as their talents and interests allow. Charlie Resinger, who is Director of Technology at Penn Manor School District in the USA, describes the educational benefits of his school district's widespread use of free and open software:

...students, no matter their technical skill level, are free to explore, experiment, and learn programming, science, math, art, and music via a capable and flexible computer. What I love so much about the open source philosophy is that it flattens the classroom hierarchy between teacher and student. Open source brings a participatory, team mentality to the classroom. The focus is on crafting something new, not passing a test. (Reisinger)

Problems

Nothing is without its problems, and free and open-source software is no exception. Some software has bugs. Some may not work on specific computer operating systems. Some software may require additional setup or maintenance steps. There are other potential difficulties, although similar difficulties can be encountered when using commercial software.

One of the main problems that schools face in using free and open-source software is with buy-in and unfamiliarity. People who join a school or university who are used to commercial software may find the process of learning new software or adapting to new operating systems a challenge. This can be overcome with training, but it does require a coordinated decision to promote and require the use of school-chosen software.

Conclusion

Free and open-source software is a powerful option for schools, universities and educational organizations. Such software holds much promise for teachers and students in such institutions. Choosing to use free and open-source software is not without its own challenges, but it is an option that should be seriously considered.

Further information

The full content of this presentation, including slides and an annotated list of free and open source software used at my school can be found on my website:

<http://johniglar.net/presentations/eLA15>

References

Reisinger, Charlie. *Students Power This Open Source High School*. OpenSource.com. 09/09/14. <http://opensource.com/education/14/9/open-source-high-school>

Stallman, Richard. *Why Free Software is More Important Now Than Ever Before*. Wired. 09/23/13. <http://www.wired.com/2013/09/why-free-software-is-more-important-now-than-ever-before/>