

The Importance of Open Source in Education

As an artist, programmer, and educator, one of the biggest passions in my life is FOSS, also known as Free Open Source Software. On my daily driver computer, I use a Linux distribution and aside from video games (although some of those are FOSS) and some closed drivers/binary blobs that allow me to use specific pieces of hardware, 100% of the software I use on my computer (still working on that for my phone) is FOSS. I have my own reasons outside the realm of education of using FOSS: I don't particularly like paying for software if there's sufficient, well-polished free, alternatives available and I like at least having the ability to know what's going into the software I use, especially in this age of privacy concerns and software on your own computer sharing unsolicited data about you. However, the main reasons I support FOSS is for its importance in education and by education I'm not solely focusing on classroom settings, but also the settings of faculty working at educational institutions as well as amateur and professional programmers who wants to inspect the structure and contents of software projects and apply their discoveries in their own work.

FOSS, emphasis on the F for free, is incredibly invaluable in a classroom setting. In my own work as an artist, I use FOSS projects such as Pure Data, SuperCollider, Ardour, Processing, Gimp, and Blender and if possible, would much rather teach concepts using these projects rather than paid alternatives (in my cases, paid alternatives don't exist anyways). As educators, our main duties are to impart knowledge, not to act as salesmen. Higher education is already expensive enough and I am in no way interested in increasing those costs. Besides, many of the skills learned in FOSS projects are transferable to their more popular paid alternatives (Pure Data to Max, Ardour to any DAW such as Pro Tools or Ableton Live). Additionally, a major element in having the skills imparted stick with students is through application. The best and most appealing way for students to learn is for them to be able to take home their projects and tinker with them on their own machines without having to worry about trial periods and restrictions. A student is less likely to invest their time and effort into a piece of software if they know that after a month, they will have to pay a sizable fee to continue using the software and having access to their work. As students become more familiar and invested with a particular piece of FOSS software, they can contribute input to the project, either as feedback, bugfixes, feature requests, or code itself, improving the quality of the software for all its users and increasing its viability as a legitimate alternative to paid software. Lastly, it is a healthier and cost-saving situation for an educational institution to be in when its reliance on commercial interests are limited.

FOSS is also an incredibly important resource for education and research outside of the classroom. As a programmer interested in music software, FOSS projects such as Pure Data and SuperCollider are invaluable resources. As the code in FOSS projects are available to the public, these projects provide real-world, working examples of how complicated audio processing techniques such as filtering, reverberation, and pitch-tracking are implemented. There are many books available that cover such topics, but their implementation in code with all the intricacies of program structure and syntax are oftentimes the best resources. In terms of research and development in these software fields, the openness of knowledge and thus code is of utmost importance. Imagine how scientifically advanced we would be as a species if the design schematics of the wheel or the knowledge of the structure of an atom were closed source and thus would have to be reinvented or rediscovered by each individual each time. For progress to be made in the fields of image processing, computer vision, digital signal procession or any computer-related subject, FOSS and the availability of knowledge are essential.

Education is about the dispersal of knowledge and open source software is the embodiment of its ideals. It puts powerful tools of creation, discovery, and empowerment into the hands of anybody and everybody even remotely interested with little regard to socioeconomic status. Open source software also represents open knowledge, without which research and development as well as scientific and cultural advancement would be unfeasible.