Pocket Debian, in my school

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Lycée Jean Bart – association: AFUL – association: APRIL – association: OFSET – Debian Developer

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La salle des profs, Théâtre Le Brady

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5. I cannot read my USB stick

Computer usage: student side

The spectrum of complaints
from students has a richer set of colors:

1. Nothing works

room C203, lycée Jean Bart

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3. The computer is way too slooooow
4. Where is the application?
5. All my work suddenly disappeared
6. How can be this computer so old?

room C203, lycée Jean Bart

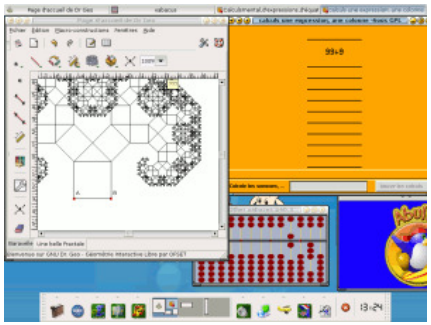
Computer usage: the OS issue

I have been pushing Gnu-Linux solutions in my school for years, with few success. There has been a room equipped with Linux thin clients between years 2005 an 2010, to teach "Physical measurements & Computer science". This curriculum disappeared in year 2010, so there came more than the four colleagues used to Linux-based computer.
The other colleagues immediately asked to pay for Windows licenses, rather than using those "foreign machines".

Freeduc-Écoles

Computer usage: the OS issue

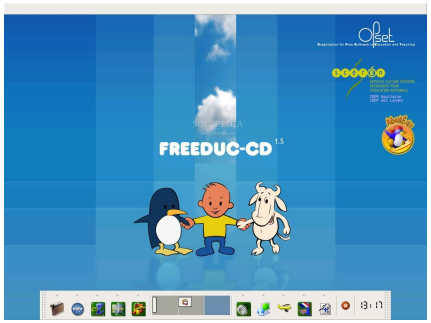
Now, since the worldwide spread of Android, colleagues accept easier to consider that there is more than one OS in the universe. However, they are still claiming to buy MS-Office licenses for the teacher's room computers, even if all of the computers available for students come with LibreOffice. We can suspect that Microsoft's program to provide free (as in free beer) licenses for teachers has got a long success.



Freeduc-Écoles

Freeduc-CD

Among the oldest bootable media based on GNU-Linux, you can count with Freeduc-CD. It was a bootable CD-ROM, with an educational distribution, made by members of the association OFSET, from year 2002 to year 2007. The more successful release, Freeduc-CD 1.5, has been downloaded more than 100,000 times in year 2005.



Freeduc-CD 1.5

From the feedback, we could learn that its most sensible advantage was to empower schools with outdated computers to access rock-solid applications, in a virus-safe environment.

Freeduc-USB

For ten years now, bootable USB sticks are more convenient than DVD-ROMS, because one can save one's environment and one's work on the same medium. So Freeduc-USB inherited the work done so far. See https://usb.freeduc.org
Currently, Freeduc-USB is a derivative of KNOPPIX, due to Klaus Knopper, which maintains this custom Debian distribution regularly. It is remastered at a deep level (the file system is uncompressed, updated, reworked, and then compressed again).

Freeduc-USB, first release

Students' reactions

When my students use the USB stick for the first time, they must understand how to boot the computer with it. It is not a big problem in the school, since I can configure boot parameters of the computers, and in most case, they just need to plug the stick in before starting the computer.

Students, year 2012

As far as I could watch, the adaptation time of my students to the new environment is roughly 20 seconds, far from the average time recorded with colleagues. In the late 2005, they used to say that "the Windows is a bit strange"; nowadays, they are proud to recognize Gnu-Linux.

Students' reactions

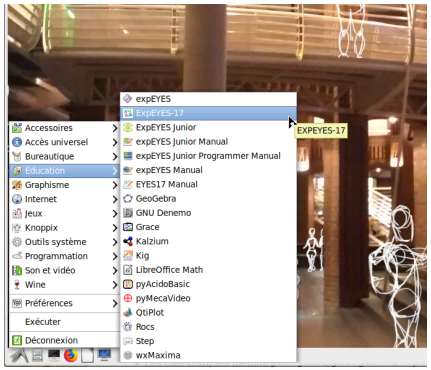
As they
generally succeed to do the assigned work,
they are proud to hear that they are officially
becoming *"hackeurs"* and *"hackeuses"*.
Girls appreciate to
hear that word in its French feminine form.

Students, year 2012

Scientific applications for schools

If we talk about simulations, demonstrations, etc., there is no need to use particular applications stored in a computer: most interesting resources are currently available on Internet. Let us begin with a short tour of a few specific applications which are doing simulations:

1. pyacidobasic



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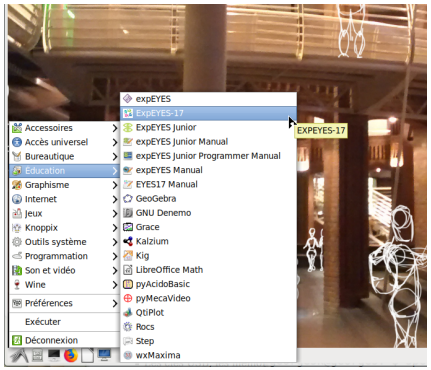

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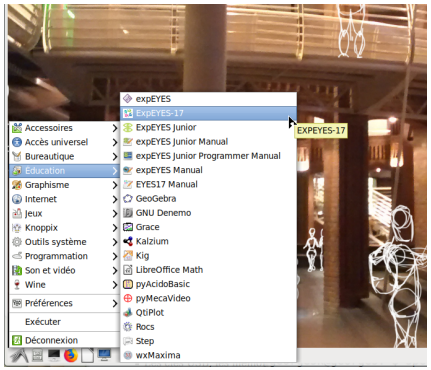
2. jonglage
3. pymecavideo (however, this one is rather about measurement)



Educational applications

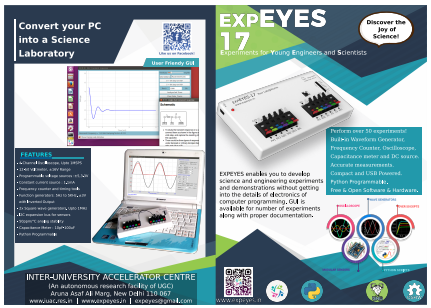
Experiments application

The difference between science and faith is that in science, you are allowed to experiment. So, it is most important to use free/libre software in science, as students must be able to experiment with everything.
The image illustrates a historic trial "Faith *vs* Science", which took place in Italy around year 1610.
The Holy Office used books which are far from freely licensed.
Galileo Galilei, on the contrary, released his source: people were invited to "recompile" it.

Galileo Galilei at his trial

Experiments application

We already
saw *pymecavideo*, which is mostly used to make measurements on video records.
Now, let us have a look at ExpEYES, which requires a small embedded system released as free hardware (Cern OHL).
This features a four-channel oscilloscope, coming with a few programmable wave generators, and more ...



ExpEYES-17

Programming environment

Students who have to learn coding and programming quickly learn that Gnu-Linux is made by hackers, for hackers. You can find acute tools, and with Debian, libraries are one “apt install” away. When my students use Windows, they edit programs with NotePad++; the USB stick provides Geany, correctly configured to run Python3 as a Python language.
However, to feel the advantage which comes with Debian, they must become proficient enough in computer science. When they are assigned simple examples of programs *like in many textbooks*, and want to reproduce them, any environment is correct, and they rather use the environment which they knew better. Most of my students who got a benefit with Freeduc-USB were involved in non-trivial projects.

Credits

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