

The story of IT@School's migration to free software

In Kerala 1.6 million high school students learn to use the computer every year. Unlike their peers in the rest of the country, they do so using free and open source software (FOSS). IT@School, the project that enables these students in Information and Communication Technology (ICT) also holds the record for the largest deployment of free software anywhere in the world.

IT@School project was set up by the Government of Kerala in April 2002 to remodel conventional teaching methodologies through the use of ICT. IT@School happened at a time when the school curriculum was under revision and the predominant mood was one that supported innovation. IT@School offered the perfect opportunity for introducing ICT to students from different socio-economic strata who attend the 3000 odd government and government-aided schools in the state.

For reasons such as lack of adequate resources and facilities, the project soon shifted its focus from IT-enabled learning to IT as a subject of study. Training of teachers in basic computer skills began even before 2002. Empowering teachers in implementing the project was expected to increase the acceptance the project. Resource mobilisation for setting up computer labs also began at the same time.

Politics of technology choice

The government did not frame or adopt any guidelines for choosing the software for ICT education in schools. The syllabus developed by the State Council of Educational Research and Training (SCERT), however insisted that school computers have pre-installed Windows operating system. It appeared that the IT@School project patronised and preferred one software brand to others, which closed off alternatives and inhibited the possibilities of economising costs.

A new trend of corporate upper hand came to be noticed after the Directorate of Public Instruction (DPI) signed an MOU with Intel Asia electronics to spearhead the IT@School campaign. By 2002 Intel trained had 300 teachers as master trainers for the project. The first IT textbook for standard eight was prepared based on proprietary software and 18,000 teachers were trained in Windows and the course curriculum was based on Microsoft Office.

Schools were directed to develop necessary infrastructure with the support of local self governments and communities. They were told to procure computers with certain specifications. At this point some schools began to use unlicensed versions of the software, ignoring issues of using illegal software. Infact most of the schools used illegal software as the schools were not supplied

with any legal software nor given the instruction to use legal software. This sparked a public debate on the options in the use of software. It also generated some awareness about the potential of FOSS and its advantages over proprietary software.

Building the protest

The advocates of Free Software in Kerala, led by Free Software Foundation of India (FSF India) raised objections to the use of Proprietary Software in the public education system. The problems of the school community also strengthened their arguments against it. Kerala School Teachers Association (KSTA) joined hands with FSF India to sensitise teachers. Teachers and schools affected by the costs and license issues of Proprietary Software were soon attracted to FOSS.

As a result the government was forced to include FOSS products such as GNU/Linux and Open Office as optional subjects in the curriculum in 2003. The prescribed computer syllabus was also to be neutral. However training of teachers continued to be conducted on the Windows platform in view of conducting IT practical examination using a software that worked on Windows platform only. KSTA conducted a study on IT@School Project favouring Free Software. The study pointed out that most teachers were ignorant of the prevailing norms in the use of Proprietary Software. 60% schools used illegal versions of software and 43% of the heads of institutions were unaware of software licencing issues. The IT@School Directorate also revealed that it had no mechanism to monitor the use of software in schools.

Migration to FOSS

In March 2004, the DPI introduced a software to conduct examination for students of standard 9. The experimental Soft exam was built on Windows platform forcing schools which had already installed FOSS to install Windows all over again. Led by KSTA, schools protested and finally the government gave in to the demand to include FOSS based software for conducting practical examination. In 2005, for the first time, IT was a subject for SSLC examination.

In 2004, IT@School Project with support of FSF India and Kerala State IT Mission (KSITM) developed a customised GNU/ Linux version called IT@School GNU/ Linux. There was need now to install this in schools and train Master Trainers and School IT Coordinators. Since FSF was largely an amorphous and activist group, this task fell on the Society for Promotion of Alternative Computing and Employment (SPACE), an organisation promoted by a group of people interested in the promotion of free software, including people from FSF. Installing the distribution was a challenge since the hardware in all schools was procured locally and were of different configurations. To address this challenge SPACE developed a new version in 2006, 'IT@School GNU/ Linux Lite' which operates even on computers with low memory. This customised version is now being used in all schools.

In 2005-06 the syllabus for Standard 8 was exclusively based on FOSS. In the following academic year, this was extended to Standard 9 with a supplementary IT textbook completely based on FOSS and IT-enabled learning. But in 2005, the exam software was based on proprietary platform. Also the software was made in such a way that there was no role for the teacher to evaluate the students. Instead the software evaluated the students. The KSTA went on a strike against the softexam. The Opposition leader supported the FOSS movement and publicly stated that Microsoft has purchased the authorities for including proprietary SW in Education. Following this nearly 50% of the schools conducted the IT practical exams on FOSS platform in 2006. Evaluation of students by software was done away with and teachers were given the role.

The complete migration to FOSS took about four years and in April 2008, IT practical examinations for all SSLC students were held using free software. The software for the Soft exam was developed by SPACE. SPACE continues to be involved in customisation of the software for the Soft exam as well as in the collation of marks and grades.

Developing free software support groups

SPACE began to develop free software support groups across the state in 2005. Training programs for hardware vendors were initiated in association with All Kerala IT Dealers Association to help them tackle common issues in GNU/Linux installation and hardware compatibility.

FOSS on-line help desk

In 2006 SPACE launched an on-line help desk (<http://support.space-kerala.org>) and a mailing list for addressing technical issues the teachers encountered while installing and using the GNU/Linux distribution they have. All common problems are listed in the FAQ section. Registration and support is open to all IT@School Master Trainers and VMEs interested in using/promoting Free Software. All the queries posted are periodically added to the FAQ section for public viewing.

FOSS Resource Centre

In 2006, SPACE and IT@School started a GNU/Linux resource centre at Ernakulam to give advanced training for IT@School Master Trainers. SPACE conducted training for Master Trainers in ICT, Video Tutorials, FOSS programming with Gambas and Assistive Technologies. SPACE directly trained the 200 Master Trainers and through them reached 5600 IT Co-ordinators, as well as nearly 40,000 teachers.

Developing KTech Lab

SPACE is contributing to the development of KtechLab, an Open Source Integrated Design Environment (IDE) for electronic and PIC micro controller circuit design and simulation for teachers and students. Programmes designed by these tools can be added to any circuit design as a 'virtual' PIC allowing complex micro controller based circuits to be created. Master Trainers of IT@School were provided a two day training on Ktechlab. It was also introduced in the curriculum of IT@School. Master Trainers were also trained in a PIC Micro controller based board to enable teachers to explain relatively complex concepts in electronics.

Conclusion

While the [IT@School](#) project has successfully set an example for IT education based on free software, it still has a long way to go in making the transition from IT as a subject of study to its original vision of IT enabled education. The complete migration to free software provides a platform where such education can be made a reality with limited investments in software development/ procurement. Making this a reality perhaps needs another movement and momentum, this time steered not merely by free software activists but also by all concerned with making education meaningful and relevant for future generations.