

Inputs from Red Hat India Pvt. Ltd for the "**National Policy on ICT in Education.**"

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*Woh shama kya jo kisi ek ghar ko roshan kare
Aisi shama jalao jo roshan kare sara jahan ko*

What is that lamp that lights just one house?
Light such a lamp that illuminates the whole world.

Suggested Policy Objectives for the "National Policy on ICT in Education."

Computers have emerged as the Fourth R of education, after Reading, Writing and Arithmetic. If our future generations have to be a part of the global mainstream society, and build upon India's great success in IT and IT enabled services, we have to equip them to be IT literate. Since IT is becoming an all-pervasive aspect of our lives from booking train tickets to receiving exam results to managing retail cash counters, IT education will help our students become a member of the global information society. This will also help the country by helping us consolidate our leadership position within the global IT and ITES industry and maintain our lead over competing economies.

We therefore suggest that ICT should be considered an integral part of the educational system and that the government must invest in making all students who are a part of the Indian education system IT literate.

Suggested Guidelines for the "National Policy on ICT in Education."

The challenges in ensuring that all Indian are IT literate are formidable. According to the Ministry of Human Resources Development website, India has 888,000 educational institutions, 179 million students and more than 2.9 million teachers. In many villages and cities across India, millions of children have no access to basic educational facilities. And even as the Indian school system grapples with basic challenges such as the lack of elementary facilities like blackboards, along comes yet another challenge How do we ensure that the next generation are not just literate but also digitally literate? Open Content and Open Source Software can be freely modified, improved upon and redistributed without paying any royalties or license fees to anyone. A venerable academic institution like MIT is using the open source Creative Commons license to share its knowledge with others at its Open Course Ware (www.ocw.mit.edu) site. MIT's web site says:

MIT is committed to advancing education and discovery through knowledge open to everyone. OCW shares free lecture notes,

exams, and other resources from more than **1700 courses** spanning MIT's entire curriculum.”

The Indian state of Kerala has adopted open source software to make its students IT literate for the freedom it provides in terms of modifying the source code and making improvements and its cost effectiveness. Governments across the world are now using open source software to modernize their education systems. In India, it has been found that the education system indirectly discourages open source software because the syllabus sometimes mandates the use of proprietary software. In light of the benefits of open source software, we recommend the following guidelines:

1. **The syllabus/curriculum should emphasize principles and not products.** In other words, it should teach wordprocessing, spreadsheets etc and not a specific brand of software. Endorsing a specific brand is illegal under the Monopolies and Restrictive Trade Practices Act. Also, products may get outdated while principles are eternal. It is therefore in the interests of teachers, students and the education system to rectify this issue at the earliest.
2. **Wherever possible, the education system must use open source software.** If proprietary software has to be purchased, there has to be adequate justification for such usage of tax payer's money. A wealth of educational software is available freely from web sites like Eduforge (www.eduforge.org) SchoolForge (www.schoolforge.net) and Gcompris (www.gcompris.net) which offer Open Source educational software in for courseware management, school administration and for teaching children in disciplines like mathematics, music, astronomy, languages etc that can be freely downloaded and used by educators. Since the source code is available for modification, educators can customize these software programs to Indian conditions, localize it to Indian languages and make it more appropriate for their students. Open Office (www.openoffice.org) offers students and teachers a high quality office productivity suite which has rapidly become the second most popular office suite.
3. **Software developed with taxpayers money should be placed under a suitable open source license.** This will allow the larger education community to build on top of existing software rather than reinvent the wheel every time.
4. **Content developed by the government using taxpayers money should be placed under a suitable open source license.** Licenses like the Creative Commons licenses (www.creativecommons.org) offer alternatives to the restrictive 'All Rights Reserved' copyright licenses by offering flexible licensing schemes for authors of content.

These guidelines, if implemented strictly, can save the Indian education system thousands of crores of rupees over the next decade.

Suggested Practices for the "National Policy on ICT in Education."

The Open Source philosophy is catching on in the world of content. For example, Wikipedia (www.wikipedia.org) has rapidly emerged as one of the largest online dictionaries in the world. In a short span of five years, Wikipedia has attracted five million entries from across the world in

several languages and is a fantastic educational resource that we should localize to Indian languages. Because it is released under the open source, "Creative Commons" copyright, Indian educators have the freedom to translate Wikipedia into Indian languages and share it with their students.

The Open Source philosophy has proved to be so popular that other disciplines are embracing the tenets of community, collaboration and shared ownership of intellectual resources with powerful results.

Other web sites like Planet Math (www.planetmath.org) aim at creating communities of educators focused on a specific domain to make knowledge more accessible.

Many educational institutions themselves are now coming together to leverage the economic benefits of participating in Open Source development. For instance, leading universities like the University of Michigan, Indiana University, MIT and Stanford are investing up to \$1 million in staff time to develop producing open source Collaboration and Learning Environment (CLE) software. Even universities that are not members of the Sakai Project can download the software and interest in the Sakai Educational Partner Program (SEPP) is growing at the rate of 1-2 universities per week.

Thus it is clear that whether it is for creating educational content, managing coursework and learning, teaching a specific discipline or administration of an educational institution, the open source model offers tremendous benefits as a model for the creation and dissemination of knowledge. In a country where 888,000 educational institutions need to be modernized and more than 179 million students educated, the community ownership model of open source can help the country save billions of dollars that would be spent on proprietary operating systems, software and content. Since anything developed under an open source model can be shared freely, it can help in the rapid dissemination of educational materials to India's vast population of students.

From a long-term perspective, it is important that the creation and dissemination of knowledge should be a collaborative, community driven process rather than one that is monopolized by a few individuals or companies. In the Indian, intellectual tradition, knowledge has always been considered as a common good treated as a community resource rather than private property that can be monopolized and enjoyed by a few. The need of the hour is therefore a close collaboration between educationists and technologists. The open source model provides a framework that can lead to an open source renaissance for Indian education.

We therefore recommend that India should adopt the best practices of the open source community for creating educational content and software. We further recommend that a working committee consisting of eminent academics, industry and the open source community be formed to guide this process.

Suggested knowledge tools for the "National Policy on ICT in Education."

The Free and Open Source Software (FOSS) philosophy and its accompanying licenses can be

powerful tools in the dissemination of knowledge.

For more on Open Source licenses, see www.opensource.org

For more on the Free Software philosophy, see www.fsf.org

I'll be happy to provide more inputs and comments to make the above suggestions a reality.

With warm regards,

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