To
The Secretary,
Department of School Education and Literacy, Ministry of Human Resource Development
Government of India

Sub – Comments on Revised Draft Dated 24.02.2011, National Policy on Information and Communication Technology (ICT) In School Education, 2010

Dear Ms. Anshu Vaish,

We commend MHRD for releasing the third draft of the above mentioned policy. As the role of ICTs in society increases, it becomes necessary that ICT programs in school education are guided by a sound policy framework, that is based on educational aims and contexts. 'ICTs in education' is an educational issue, rather than a technological one and hence the policy needs to be anchored firmly in sound educational perspectives. We have a couple of feedback points on the third draft.

Firstly, the recognition in the section on 'policy goals', of the role of ICTs in supporting "**development of professional networks of teachers, resource persons and schools to catalyse and support resource sharing, upgradation, and continuing education of teachers**...' is welcome. The use of ICTs to create networks of sharing, peer review amongst teachers for supporting teacher agency and professional development is important and usually underestimated, while the power of ICTs to support centralised transmission models is often emphasised.

However, there is a very serious omission in the third draft which needs to be remedied. The second draft explicitly favoured free and open source software, the latest draft has dropped this preference in in section 5.3, both version reproduced in box below.

Section 5.3 dealing with software

<u>Quote (second draft),</u>

5.3 Software

5.3.1 A wide variety of software applications and tools, going well beyond an office suite is required to meet the demands of a broad based ICT literacy and ICT enabled teaching learning programme. Graphics and animation, desktop publishing, web designing, databases, and programming tools have the potential of increasing the range of skills and conceptual knowledge of the students and teachers. A judicious mix of software will be introduced at the secondary stage.

5.3.2 **Free ware, free and open source software applications will be preferred**. Creation and widespread dissemination of software compilations, including specialised software for different subjects, simulations, virtual laboratories, modelling and problem solving applications will be encouraged.

<u>Quote (third draft)</u>

5.3   Software

5.3.1 A wide variety of software applications and tools, going well beyond an office suite is required to meet the demands of a broad based ICT literacy and ICT enabled teaching learning programme. Graphics and animation, desktop publishing, web designing, databases, and programming tools have the potential of increasing the range of skills and conceptual knowledge of the students and teachers. A judicious mix of software will be introduced in schools **to keep Total Cost of Ownership (TCO) to the minimum**.

5.3.2 Creation and widespread dissemination of software compilations, including specialised software for different subjects, simulations, virtual laboratories, modelling and problem solving applications will be encouraged.

Comments on 5.3

'Judicious mix' used in 5.3.1 meant looking at choosing applications based on learning grade, learning needs, application types etc. This meaning of has been completely changed by adding a new **'total cost of ownership'** clause in the third draft, which refers to models of ownership of software.

In 5.3.2, the clause favouring free and open source software has been dropped. These two changes would have a huge detrimental impact on our educational processes and achievement of educational aims.

Curriculum and pedagogy are known to be two basic components of education. In case of ICTs, digital learning resources (content) and digital learning processes (software applications) are their approximations. Learning processes are not assessed by 'cost of ownership' considerations, but by their educational outcomes. In case of digital learning processes, the outcomes would relate to their being able to support co-construction of digital resources, and experiences that support collaborative and constructivist learning methods. Proprietary software prohibits such constructivist approaches and hence fails the test of educational outcomes. The economic argument based on ownership models, then becomes meaningless.

Of course, there is no doubt that the costs of using freely shareable software applications would be much cheaper specially for implementing at a large scale, where support systems are feasible to build. An IIM Bangalore study estimate that on a conservative basis, Kerala IT@Schools program has saved 50 crores on software license fees. Ironically, the 'costs of adopting free software' touted by proprietary vendors as arising from learning and maintenance, pertain to the costs of transitioning from a monopoly 'lock-in' position; which costs therefore ought to be actually attributed to the software vendor/model that created the lock-in in the first place through monopoly and proprietary licensing methods.

It is worth noting that the policy draft clearly favours collaborative co-construction of content as both being pedagogically superior and cheaper for the education system. The same logic is inescapable for digital processes – where collaborative processes to create, modify and share these processes would be superior educationally and cheaper, than using digital processes that are privately owned and whose use is determined by the vendor, in ways that prohibit their study, free sharing or modification.

ICTs need to be seen as educational resources, and as digital methods become more prominent in society, the role of ICTs in education would become more and more important. As also discussed in the policy draft, the use of ICTs could take several forms:

1. Accessing a wide variety of digital learning resources in text and audio-visual forms
2. Use of text, audio, video and image software applications along with the relevant hardware devices by teachers and students, to create digital learning resources and deepen subject matter understanding. **Such local and contextual curricular resource creation methods would support teacher professional development and complement existing centralised text book curricular resource creation systems**.
3. Sharing of information through digital networks which would connect teachers to one another and to teacher educators, supporting social-constructivist processes. **Such peer review methods would support teacher professional development and complement existing hierarchical teacher education and accountability structures**

It is important to note that these digital processes are basically educational and like all educational resources, the ICT resources used above, need to be publicly owned so that they are freely available to teacher educators, teachers and students without restrictions. **Knowledge is constructed on the basis of existing knowledge, and constraints imposed on the creation, sharing and modification of knowledge resources would harm the cause of education.** Knowledge resources referred to here is not restricted merely to the 'content' (digital curricular resources), but also covers software applications that would be used by teachers and students to construct knowledge (digital pedagogical processes). It is important that such tools not be considered as 'given' to teachers to 'be used', but that teachers and students be allowed to study, understand these tools, modify them as required, share them freely without any restrictions imposed.

Proprietary software forces the teacher to be a 'mere user'; treating these tools as a 'given' which is behaviourist in its approach. **Teachers, schools and the entire public education system would become completely dependant on the vendor for any changes, modifications, enhancements, customisations to these tools and have no right to freely share these resources with one another.** Thus allowing for use of privatised digital learning processes (in the form of proprietary software) would be detrimental to education. In no case do we allow educational resources to be privately owned, with the education system a 'mere user, with no right to share, modify, contextualise' where all these rights fully vested in private entities. Thus from a foundational educational principle standpoint educational resources (which includes digital tools and content) required in the education system cannot be privately owned.

It is also important to note, that there are free software applications for all the areas where proprietary software applications have been used in schools. The free software community of software developers (many of who are teachers) have created software applications and released them under a license (GPL) which allows all to study, modify and share (with modifications if any) the software applications. CDAC, a government entity too has released software tools for the free use of all. At a systemic level, public software has been used in the most successful ICT in schools program in India – the Kerala IT@Schools program, which is now being emulated in Gujarat. There is no reason to use proprietary software when publicly owned alternatives are used all over the world by millions of people.

In section 10.8.1, the draft policy also suggests that software can be 'outsourced' under BOOT model . This is akin to outsourcing the basic pedagogical processes and should not be allowed. All software resources should be publicly owned and any outsourcing should be restricted to hardware procurement and maintenance. Section 4.2.5 discusses a specialist teacher for the program. However, having a specialist teacher would again make it standalone, isolate it from the teaching-learning of regular subjects. Instead regular school teachers should be engaged with teaching students, both computer literacy and computer aided learning. The experiences of the Kerala IT@Schools program clearly show the advantages of having the curriculum and pedagogy integrated into the regular teaching-learning, by not outsourcing content, curriculum or teaching. BOOT models that have outsourced content, software and teaching have not been able to integrate into the schools and have not got the ownership or commitment of teachers which has led to self-fulfilment of educational goals of the program.

The real potential and sensible use of ICT is in the continued professional development of teachers and on-site support wherever possible. Teachers need to engage with the questions that we are engaging with and develop perspective and capacities to discern appropriate and meaningful use of ICTs in/ for education. A clearer road map in this direction along with short-term, medium-term and long-term set of tasks would be a worthwhile investment than blindly equipping schools with hardware/software that is likely to remain unused for want of infrastructural support, teacher capacity and engagement.

Concerns of the ICT in school education policy being 'vendor driven' have been voiced earlier. The third draft reinforces this concern, since the dropping of the preference for free and open source software benefits proprietary software vendors and harms the public education system, by supporting 'proprietisation' of knowledge construction tools / digital learning processes.

We ask that the policy unequivocally mandate the use of publicly owned digital resources - whether software or content. We also think that this policy should be seen as a curricular policy and hence its aims, design should clearly be driven by people who work in the education domain, and primarily by accepted educational perspectives. In light of the importance of the policy, we seek also open consultations on the policy with educationists across the country. We look forward to your response.

Yours truly,
Signatories (PTO)

April 15th 2011

Letter to MHRD on ICT in school education policy – April 2011

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10. Aarti Saihjee, UNICEF
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Annexure

Total cost of ownership

Total cost of ownership is an argument used by proprietary software vendors who argue that the cost of implementing proprietary software is cheaper than implementing free software, *since the training and support costs on free software exceed the license fees paid on proprietary software*. This argument is based on research studies many of which have been sponsored by proprietary software vendors.

Firstly, the 'total cost' argument is an economic one, and has no meaning when we see the use of publicly owned digital resources as a basic educational requirement.

In case of any other field of learning, we do not specify brands, since learning is about concepts and processes, and not about products. For a course on automobile engineering we would not specify a specific brand like Maruti Alto. Similarly for software applications too, there is no basis for a postulation that proprietary tools are easier to learn than public ones and this arguments is basically to continue the monopoly of specific proprietary software applications, when several publicly owned alternatives are available, free of cost. If learning is generic, then it should be of a 'text editor' and not 'MS Word', and consequently, several (publicly owned) text editors could be used in the school system. And we do have a many publicly owned alternatives to proprietary software, all of which are easy to use.

Secondly, in case of schools, this logic is faulty, since students (and teachers) would be learning the application for the first time and would find any application the same.

Thirdly learning is the primary process in education, which is only fully possible by using publicly owned tools, while the study of proprietary software is expressly prohibited by the vendor.

Thus 'total cost of ownership' is a meaningless argument in an education system.

Specific public policy/program documents that have supported publicly owned software resources.
1. The National Knowledge Commission recommendation to PM on using open source in India
2. MHRD has recommended open source for higher educational institutions (letter from Additional Secretary MHRD
3. Indian Institute of Management study which suggests India would save 20,000 crores every year if we chose publicly owned software applications over proprietary applications.
4. The open standards policy of Department of Information Technology, GoI mandates digital formats used in government system must conform to open standards. In case of documents, the government has recommended the ODF standard, the formats used in popular proprietary software (.doc or .xls being proprietary do not conform to open standards)
5. Kerala government extensively uses free and open source software and this is one important cause of the success of their IT@Schools program. They have a FOSS policy as well. This program has been presented to the CABE sub-committee on ICTs. Gujarat, Karnataka, Orissa and Assam are other states who have school education programs which are based on public software.
6. CDAC has released the Bhartiya Operating System and Bhartiya Office software applications which are public software alternatives to popular proprietary software

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