Towards a National Policy on ICT in School Education in India – A Critical Perspective

Prathap Chandran D
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Introduction

The role of ICT in a country’s development is perceived to be of great importance and the Governments are spending millions to ride the wave of what we could term ‘digital revolution’. By digital revolution, what I refer to is “The sweeping changes brought about by digital computing and communication technology during the latter half of the 20th century” (Wikipedia) and perhaps, continuing until today. The role of ICT is seen as very important in all aspects of a country’s economy, especially education. The development of human resource is of utmost importance for a country’s survival and progress and it is all the more relevant in today’s “knowledge-driven economies of the post-industrialised world” (Selwyn, 2011, p 61). It comes as no surprise that the Governments are investing in technology to aid education for its workforce to become skilled competitors and global citizens. The developed countries such US, UK and Australia have detailed national policies on using ICT in education at the primary and secondary levels, whereas the developing countries like China are catching up with policies and implementations of their own. Given the fact that even under developed countries like Ethiopia have a policy in place for ICT use in Education, it is surprising that a large and developing economy like India, perceived as a knowledge powerhouse and renown for its ICT support services and being a preferred outsourcing destination, has no comprehensive policy yet on the use of ICT in School Education. The Department of School Education & Literacy and Ministry of Human Resource Development (MHRD), Government of India, with strategic assistance from GeSCI (Global e-Schools and Communities Initiative) - a UN ICT Task Force founded organisation, in partnership with Centre for Science, Development, and Media Studies (CSDMS), has initiated a consultative process to formulate the “National Policy on ICT in School Education” and published a Compendium of Feedback on the same in 2008, which will form the basis of analysis and argument for the rest of this essay.
Scope

The Scope of this essay is to highlight the important issues that have come out in the published document – “Towards a National Policy on ICT in School Education in India: A Multi-Stakeholder Perspective” (going forward will be referred to as CF (Compendium of Feedback)). The essay also aims to draw out a number critical and practical issues needed to be considered for the formation of a policy based on Neil Selwyn’s work “Schools and Schooling in the Digital Age”. This essay is by no means an exhaustive research or recommendation; but nevertheless, it aims to put forward a more practical approach towards considering a relevant set of issues while framing a National policy on ICT in School Education. In the first parts of the essay, I will try to summarize what is presented in the CF document, with focus on some areas that need more attention than others. In the latter parts, I will try to bring to front some of the additional issues worth pondering upon.
Participants

The participants in publishing the CF document are from various spheres – Academia, NGOs, Schools, Government Officials and Private players.
Document Analysis

The document has three Sections:

1. e-Discussions with Community of Practitioners at UN Solution Exchange
2. Position Papers
3. Recommendations and Suggestions

The first section is a discussion in the online community of Education in the Solution Exchange website http://www.solutionexchange.net.in/, an initiative of the UN in India to engage online communities soliciting suggestions and insights from experts from various domains. The discussion covers the ICTD (ICT for Development) and Education Communities which together have more than 1400 members. The discussions were around Infrastructure and Investments, Content and Quality Issues and Program Delivery Issues, which are deliberated in more depth in the subsequent sections of this essay.

The second section of the CF document is a collection of 31 Position Papers submitted by the participants covering a range of issues concerned with using ICT in education.

The third section of the CF document contains a set of recommendations by the participants.

Let us now look at each of the sections in detail.
**e-Discussions with Community of Practitioners at UN Solution Exchange**

The important issues that came up are highlighted below.

**Investments**

**Infrastructure**

**BOOT Model** – A common model proposed by the participants is “Build-Own-Operate-Transfer” model where the private players make the initial infrastructure investment and recover their cost by providing their service over the period of contract. The questions raised were such as who pays for the service – is the students or the school or the government? And who chooses the vendor? If the Government chooses the vendor, then the vendor becomes answerable only to them and not to the school. And who will own the software licences after then end of the contract?

**Power** – Provision should be made for uninterrupted power supply to the infrastructure that will be created on these schools. It’s important to consider that 15% of villages in India do not have electricity. And even in the rest 85%, the percentage of schools with power supply gets lower. Will the policy consider sources of power supply for the infrastructure it proposes?

**Maintenance backbone** – A very common issue raised by the participants is the poor support services available post deployment of the infrastructure.

**Proprietary Vs Open source** – While proprietary software may be available off the shelf, the cost of procurement and maintenance remains costly. This again leads to the debate of who pays for it. The alternative proposed is the adoption of open source software.

**Internet Security** – The security issues concerning the usage of internet by young children have been highlighted in the discussion.

**Training the faculty members on IT** – The IT services provided by the private players require training for the teachers to handle inside the school settings. The teachers are largely dependent on the private vendors in this regard, since their technical aptitude is left much to be desired. For example, a case was cited in a secondary school in Bhanaj where 4 brand new PCs remained untouched for a year due to the non-availability of qualified staff.

**Recycling hardware** – The redundant IT equipments from the corporates could be passed on to the schools which cannot afford new equipment. However, the new set of problems such an approach could bring remains unclear. For example, higher maintenance of used devices, which brings back the support services problem into the picture.
Involvement of Teachers and Students in choice of Technologies and Vendors –
A call was made to involve the students and teachers in selecting technologies and vendors.

After hours use of infrastructure – The possibility of using the infrastructure created in schools for community development or commercial purposes was explored but no satisfactory plan emerged.

Teacher student ratio – The current scenario of teacher to student ratio needs to be mentioned. 12% schools are single teacher schools; 16% schools have more than 60 students per teacher. 5% schools have 1 teacher for 100 children. Under these circumstances, introduction of ICT to these schools will add one more layer of complexity. Or in Neil Selwyn’s words, it is similar to applying technical fix to a social problem (Selwyn, 2011). Adding to this is the reality of teacher training, where only 40% of teachers in government schools in the previous year (26% for government aided schools). Under these circumstances, the impact of the introduction of digital literacy in the teacher training curriculum and its subsequent effect in classrooms remains largely wishful.

Budget from panchayat – Sarva Shiksha Abhiyan (SSA), a government initiative aimed at compulsory primary education, has budgets specific for each school. It was proposed that local panchayats have a say in these budgets for the schools under their jurisdiction.

Physical infrastructure – There was a mention of the school’s overall infrastructure and a consideration towards how the proposed IT infrastructure would fit in.

Capacity building

Short staffed and transfers – The Government schools are frequently under staffed and transfers happen often. Under such circumstances, implementing a long term capacity building program becomes a challenge

Attitude of headmaster/headmistresses – The older generation of senior teachers and head masters are not very keen or sensitive towards continuous capacity building of the teachers

Online teacher resource base with localized content – There was a general consensus towards creating a central repository of learning material that can be used/reused by the teachers. There was a clear preference for content in local language and context as well.

Trained teachers moving to industry – There was also a mention of the teachers, when appropriately skilled, preferred to move into the private sector or industry as the pay for the teachers in government schools is very low. A diploma through distance learning that would involve classroom practice on using ICT was proposed as an idea.
Content and Quality Issues

Interactive Radio & EDUSAT – Interactive Radio and EDUSAT (A satellite dedicated to education) were highlighted for their role in providing content in local languages. The involvement of SSA, local block officers and NGOs were highlighted to be particularly useful.

Judicial Use – Animation of something that can be shown live was to be discouraged.

Teacher’s enthusiasm – The subjectivity of the teacher’s enthusiasm in using ICT resources in classroom was highlighted.

Program Delivery Issues

Vocational education – There was a mention of the lack of Vocational Education Institutions in India and the need for the Government to engage private sector in providing Vocational Training Services.

Transferable corporate expertise – There was also an implicit assumption that involvement of private sector in School’s governance will bring with itself the corporate ethics of quality, standards and industry relevance.

Private players deciding curriculum – A warning was raised against the deep involvement of private players in school matters as much as framing the curriculum of school. An example MoU between Microsoft and a public school was cited, in which Microsoft reserving the exclusive right to set up the IT curriculum for the school from grade 6 upwards.
Position Papers

In this section, I will discuss one paper briefly before summarizing the list of issues that were highlighted by the other participants.

The Paper by Amitabh Dabla, “Promoting the Use of Information and Communication Technologies for Primary and Secondary Education: The Case of the States of Chattisgarh, Jharkhand and Karnataka in India” is a collection of initiatives and case studies across three states in India. I have discussed this specifically because this paper provides key insights into what works and the practical issues faced in the country. The best practices identified were:

- Involvement and commitment of high ranked Government officials essential for success
- Establishing of dialogues between NGOs, private companies and Government officials contribute to success
- Good relationship among Government personals, content producers, teachers and community contribute to success of Radio programs

Common problems identified were:

- Lack of awareness and commitment from government officials
- Payment and funding
- Lack of dialogues between all the stakeholders
- Technology support and maintenance
- Lack of monitoring and evaluating mechanisms
- Lack of National level policy

The summary of the list of issues highlighted from other papers are:

- Alignment of ICT policy in School Education
- Co-ordination of education ministry with economic planning, telecommunications, labour and rural development ministries
- Importance of practice to reflect policy
- Digital divide and effective use of ICTs
- Use of blogs, wikis, Microworlds, logo and scratch in the classroom with which students create knowledge themselves
- Consideration for differently abled people when framing ICT policy
- Changing pedagogies of 21st century
- Producing locally and culturally relevant content
- Subsidised internet access for teachers and students
- Awarding innovation in eLearning
- Importance of Information and Media literacy, Global Awareness, Financial, Economic, Business and Civic literacy
Private Interests

It is important to talk about the attitude of the private players who have presented their responses and position papers. Their stances vary from product ideas and indirect marketing to direct and explicit sales pitch. This can be seen from Gurukul Online Learning Solutions’ response for questions on Infrastructure problems. Rather than talking about solutions, the company talks about the features and credibility of its products. Taking it one step higher is the paper submitted by IL & FS, which goes on to claim to create “levels of motivation and esteem never experienced before” through their products. It also makes assumptions that radio and educational television have failed in their educational objectives and ICT (which they obviously see as something different from Radio and TV) is the only way forward. LearnSmart takes a different angle. It claims to have created a product with a dream to eliminate stress and low esteem associated with exams that lead to students committing suicides. Their product, an online assessment tool, apparently solves the problems they have mentioned above. Oracle has come up with 2 product ideas in 2 separate papers, which again focus on marketing their services and solutions than on the real issues in discussion. Texas Instruments markets projectors and Globus Infocom markets Smartboards.

Although the services of private sector can be beneficial to education, we also need to be sensitive to the pre-dominantly profit making outlook of these private players. “Private interests play a key role in the selling and supplying of digital resources to schools – not least computer hardware, internet connectivity and the plethora of ‘content’ such as learning materials software, online content and broadcast services.” (Selwyn, 2011) While schools might not be a very lucrative marketplace for MNCs and the sale of such products and services might not be their best source of revenue, we need to think about the other indirect benefits these companies get. These schools represent an opportunity for these private players to build themselves a loyal customer base and increase their brand awareness. Consider the example of Microsoft specifying the IT syllabus I had mentioned earlier. In this case, the students end up learning Microsoft Office instead of Word Processing or Microsoft Excel instead of Spreadsheets. Thinking of pedagogical implications, the practice of using Microsoft PowerPoint and Microsoft Word are “overloaded with the material-semiotic infrastructure of business” (Fuller 2003, p10) i.e. more focused on representing and disseminating information than being an interactive learning engagement which risks the students exposure to digital technologies being reduced to “being taught how to formulate client pitches and infomercials” (Tufte 2003)

As we see, the private players have a lot to gain from investing in education space and their involvement in the National Policy making would be susceptible to their business interests, which in turn will affect the course of how the implementation of the policy unfolds. It’s therefore necessary to carefully evaluate the inputs from the private players in deciding on what is going to be enacted in the classroom. Care should be exercised that education does not end up as a “business by capitalist enterprise pursuing profits via the creation and sale of curriculum and testing materials” (Apple, 1979) It is relevant to quote David Noble (1997, p 1321) here: “From the start to the present Big Business has never really known what it was doing in this area. Again and again, major firms have exploited political opportunities to
break into the education market and have flailed wildly trying to make the killing they had convinced themselves was there for the taking.”
Recommendations

The Recommendations Section of the CF document does not provide any new information that has not been covered elsewhere in the document.
Points to ponder

As I have already highlighted, framing a National Policy in ICT in Education presents a unique set of challenges that need to be addressed. It is helpful to think of ‘policy as text’ (Ball, 1993) where the “policies are seen as being ‘written’ (textual) interventions into educational practice, which are then read and re-written by macro-, meso- and micro-level actors as the policy is passed down.” (Selwyn, 2011) By macro, meso and micro level actors, Selwyn means that the policies are drafted and influenced by macro agents from the political and economic domain, whereas the meso and micro level actors in regional education departments and schools act it out as appropriate. When we look at policies as text, it communicates that it is open to interpretation – i.e. the intention of the policy needn’t always match the implementation. This can help us explore the possible gap between the policy and practice.

Let us think of what drives such policies in the first place. “Policy interventions must be understood within the social and economic conditions through which resources are identified and conflicts arise […] Questions of social and economic structure not only shape the work of policy makers, they may themselves be the subject matter of policy interventions.” (Considine, 2005, p 26) The Governments’ public policy making is invariably and understandably driven by economy. There has been a considerable consensus among the countries world over that investment in schools technology will eventually lead to economic competitiveness. Zhao, Conway and colleagues’ work on comparing the education technology policies of the developed and developing countries reflect “a techno-centric, utopian and economic driven mindset towards e-learning” (Zhao et al. 2005, p 674)

Thus, the state responds to this perceived economic opportunity by drafting policies around ICT in Education. As we can see, the policy does not have its roots from classroom practice; “State policies can be seen as symbolic systems of values, acting as a means of representing, accounting for and legitimating political decisions.” (Selwyn, 2011) Hence, these policies don’t necessarily focus on the performative nature of the School Technology; the interest of the Students and Teachers are not on the top of their priority. It is only natural that this results in a disconnect between policy and practice. Or, to put it in Jensen and Lauritsen’s words (2005, p 368), “there is a package, shiny in its vagueness, of ideas – balls thrown in the air, in the hope that someone will catch them”

So, what then can be made to make policy and practice work together? I am putting forward an additional set of issues worth discussing before proposing an approach towards making a policy that will work hand in hand with practice.

Firstly, from an Infrastructure perspective, how relevant are these policies for private schools? If these policies apply only to public schools, what sort of digital divide that would create between the public and private schools? What if the schools did not have a water-proof ceiling? Having any electronic equipment inside such a setup would be risky. And what about the issues of theft? What is the cost in putting up a security mechanism in place? Do these equipments need to be insured? Who pays the insurance premium? I wonder if these kinds of questions can be addressed at the
policy level, given the diverse nature of social and commercial rules and regulations playing across different geographies in a vast country like India.

Secondly, from the content perspective, the CF document had at various points emphasized the production of digital content. While there is a clear emphasis on training the teachers and imparting IT literacy to them, it would still not amount to effective use of technology in the classroom. Using digital resources and internet makes the teacher’s role all the more significant. He/She can’t be a passive disseminator of information, but an active facilitator arranging the learning situation and scaffolding the learners in a way that will lead to meaningful learning. What sort of training does such a skill entail? Is the Government considering such a skill relevant at all? If it does, how does it plan to incorporate inside the teacher training routines? Adding to that, some contents are easily delivered through digital resources where others cannot. While simulations can teach physics, digital teaching of music and arts is not straightforward.

Thirdly, from the Teacher’s perspective, how is the teacher going to incorporate technology inside the classroom within the existing set of performance criteria? The time available for the teacher is limited and fixed; which means she essentially has got the same time as she got before to deliver a lesson. Armed with technology, what difference would it make to the learner, if the time spent is the same, what is taught is the same, only the mode of delivery being different? More importantly, what sort of delivery is used? We already discussed the usage of MS Word and PowerPoint in the classroom and the possible implications.

That brings into focus another important issue that has not been addressed adequately in the CF document. What is learning in the 21st century? How relevant are the existing schooling practices and content? It’s worthy to remind one of the issues highlighted in the position papers – the use of blogs, wikis, Microworlds logo and scratch with which students create knowledge themselves. It is in lines with Connectivism, an emerging theory of learning. It argues that “learning is framed as the ability to access and use distributed information on a ‘just-in-time’ basis.” (Siemens 2004) In today’s world of abundant information, thanks to the likes of Google and Wikipedia, this theory of learning seems all the more relevant. There is a necessity for active learning and meaning making than passive listening. Will the introduction of ICT in schools achieve that? Or will it simply strengthen the existing power structures by empowering the administration and the teachers and reinforce the existing learning practices?

Technology is assumed to be the solution for all the problems existing. For example, P.S. Narota, an IT minister, in his paper in the CF document, talks about schools that do not even have blackboards and how the introduction of interactive whiteboards will alleviate such problems. It is difficult to see how introduction of technology can solve a socio-economic-political problem. While projects like “hole in the wall” (please see http://www.ted.com/talks/sugata_mitra_shows_how_kids_teach_themselves.html) provide alternate avenues of reaching out to the underprivileged, they can never be the primary source of education. And introducing them into a formal setup like school introduces a new set of power relations and constraints within which the students will
operate upon them, which might not provide the “free exploratory learning” as was observed in the “hole in the wall” project.

Hence, unless the ecosystem of schools is well understood, it is impossible to come up with an effective way to incorporate technology in the classroom. On one end of the world, Denmark, to be precise, students take exams with full access to internet. (Judy Hobson, 2009) They clearly orient towards Connectivism as they see it as the most valuable skill for the 21st century workforce. In India, the ground reality is completely different. Starting from access to computers and internet, progress has to be made to get the students familiar with the technology, as consumers, and then as producers. To get there, the schools must provide the scope and affordance. That brings us another pertinent question – What is the role of School? Is it just to produce a skilled workforce that would complement a country’s economy? Or is it to produce enlightened citizens confident of understanding and interacting with the world? The way technology will be adopted in schools will largely be based on the answer to the above questions.

Irrespective of the role the school undertakes, it remains the destination where the technology gets acted out in a learning situation. Hence, it is only logical that inputs to policies start emanating from schools all the way up to the country than the other way around. The learning needs and vision of every school varies from each other. A school in a remote village might need a good Math teacher as its primary requirement. In such a case, it doesn’t make sense to provide the school with a computer. If the school is not ready for technology, so be it. The immediate concerns of the schools need to be addressed before enforcing technology on them. On the other hand, schools with sufficient manpower might see a good IT infrastructure and broadband a necessity. These schools might also require Teacher Training in terms of IT literacy and beyond. It makes sense to allocate budgets for that school for the same. The point I am trying to make is that it is better for the school to decide what support they want from the Government. An aggregation of these requests will eventually lead to a region level policy that will have the Infrastructure and Content requirements listed out. Further levels of aggregation will end up in a National Policy that was built bottom up with real requirements than a top down approach that innately carries assumptions and political and economic influences. This way, there is a possibility for the Policy and Practice to connect. This is also an opportunity for the local knowledge and practices to stay intact without being influenced by national and global factors.
References


