

**e-Discussion on UN Solution Exchange ICT for Development and Education
Communities**

Consolidated Reply of the 1st Query:

**Query: *Framework for ICTs in School Education: Content and Quality Issues –
e –Content Development and Delivery*
(16.4.08 – 25.4.08)**

Moderators Note: The first topic of the e-discussion on the Framework for ICTs in School Education covered investment issues, and drew insightful responses, read the summary at the following link http://www.solutionexchange-un.net.in/ictd/e-discuss/ediscuss02/summarytopic1_01040801.pdf (Size: 25.5 KB). We thank all ICT for Development and Education community members for your valuable comments and inputs.

This e-discussion has been grouped into three broad areas: The first discussion covered investment issues. The second discussion will cover content and quality issues. The third discussion will cover programme delivery issues, and address the topics of Public-Private Partnerships, and Monitoring and Evaluation.

We present you the next topic, **TOPIC 2: Content and Quality** and look forward to your active participation. We encourage you to broaden the discussion to your contacts in NGOs, schools, government, local authorities, private sector, and other non-members who you feel would have something to contribute.

We propose to run the second e-discussion to solicit suggestions and insights on content and quality issues addressing the subjects of **e-content, quality in school education, and innovation and research**. Once again members may please refer to <http://www.solutionexchange-un.net.in/ictd/cr/res28030801.doc> to understand the process of this series of consultations.

Issue	Question 1	Question 2	Question 3
E-Content Development and delivery	Experiences and examples (case studies, recommendations, etc), on mechanisms for delivery of digital content (computer-aided multi-media, Edusat, Radio, TV, etc) to reach schools.	Challenges in procurement of quality digital content (computer-aided, TV, Radio etc) for schools, especially pertaining to local languages.	Suggestions for strategic and practical use of digital content in the school education system? Are there any experiences that can be evaluated?

Response List: 16 responses were received on the thematic area e-Content Development and Delivery from 16.4.08 to 25.4.08. Input on the topic was received from both the ICTD and Education communities of UN Solution Exchange.

1. Anindya Kumar Banerjee, Panchayats and RD Department, Government of West Bengal, Kolkata
2. Madhu Ranjan, United States Agency for International Development (USAID), New Delhi
3. Ananya.S.Guha, Indira Gandhi National Open University, New Delhi
4. Veena Sethi, UDAAN Foundation, New Delhi
5. Gurumurthy Kasinathan, IT for Change, Bangalore
6. Gurumurthy Kasinathan, IT for Change, Bangalore
7. Syamaprasad Datta, P.N. Das College, Palta, West Bengal
8. Anindya Kumar Banerjee, Panchayats and Rural Development Department, Government of West Bengal, Kolkata
9. Sanjeev Kumar Rai, UNICEF, Bhopal
10. Jitendra Shah, Indictrans, Mumbai
11. Ranjit Nambiar, National Instruments India, Bangalore
12. A Prabaharan, Public Action, New Delhi
13. Jitendra Prasad, C-DAC, Hyderabad
14. Nagarjuna G, Free Software Foundation of India/HBCSE, TIFR, Mumbai
15. M V Ananthakrishnan, Developmental Informatics Lab, KReSIT, IIT Bombay, Mumbai
16. Anshuman Das, Development Research Communication & Services Centre, Kolkata

Response 1

Anindya Kumar Banerjee, Panchayats and RD Department, Government of West Bengal, Kolkata

1. Experiences and examples (case studies, recommendations, etc), on mechanisms for delivery of digital content (computer-aided multi-media, Edusat, Radio, TV, etc) to reach schools.

Views: A lot can be written about e-Content Development and delivery issue, but the answer is simple that at present the content is ample in the ICSE & ISC and CBSE, NCERT syllabus but not much in the state run boards of both secondary and higher secondary exams, it is therefore the responsibility of respective local players or bodies of educational players to create content, IL&FS ETS Ltd has tried a lot by introducing 1093 lessons from class KG to 12 (<http://www.ilfsets.com/Solutions.asp?menuid=3&smenuid=12&childid=1&pageid=3121>) but can we only have one option or shall we experiment with other players is the big question there are many players not known to us who are making great content like I will put forth the example of IIT Kharagpur who have developed excellent content for primary education, but covering the entire length of the school standard (KG-12/K12).

Multimedia content

<http://www.ilfsets.com/Solutions.asp?menuid=3&smenuid=1&childid=0&pageid=31>

School Infrastructue

<http://www.ilfsets.com/Solutions.asp?menuid=3&smenuid=3&childid=0&pageid=33>

Chattisgarh Content

<http://www.ilfsets.com/Projects.asp?menuid=4&smenuid=3&childid=0&pageid=43>

Urdu Content

<http://www.ilfsets.com/Projects.asp?menuid=4&smenuid=9&childid=0&pageid=49>

Gujarat Content

<http://www.ilfsets.com/Projects.asp?menuid=4&smenuid=13&childid=0&pageid=413>

Chennai Content

<http://www.ilfsets.com/Projects.asp?menuid=4&smenuid=10&childid=0&pageid=410>

I personally feel that the best way to develop good content is allowing the academia Indian Institute of Technology (IIT), Indian Institute of Management (IIM), IIIT etc to provide us with good content which will be accepted by the educational boards without much fuss.

2. Challenges in procurement of quality digital content (computer-aided, TV, Radio etc) for schools, especially pertaining to local languages.

VIEWES: In fact most of the schools can be given digital content to be unicasted but fact is how to "broadcast" it as we all know a computer is viewed by 2-3 or 4 students as the screen size is in between 14" to 17" but if a projection system is used like KYAN of IL&FS (<http://www.k-yan.com/>) then the impact is obviously greater here in West Bengal the state government with the School Education Department along with IT Dept. has given KYAN to Bankura-42, Burwan-23, North 24 Parganas-51 to Girsl schools have been Provided similar to Tripura Govt where 55 such KYAN did a wonder over 2 years back.

Tripura

<http://www.ilfsets.com/Projects.asp?menuid=4&smenuid=15&childid=0&pageid=415>

Footprints

<http://www.ilfsets.com/Projects.asp?menuid=4&smenuid=12&childid=0&pageid=412>

West Bengal

<http://www.ilfsets.com/Projects.asp?menuid=4&smenuid=11&childid=0&pageid=411>

Baramati Bus

<http://www.ilfsets.com/Projects.asp?menuid=4&smenuid=7&childid=0&pageid=47>

Kyan

<http://www.ilfsets.com/Products.asp?menuid=2&smenuid=6&childid=1&pageid=261>

3. Suggestions for strategic and practical use of digital content in the school education system? Are there any experiences that can be evaluated?

Views: I would definitely suggest KYAN as there is no other option unless otherwise a PC is combined together with a Projector at a cost lower than KYAN.

A good example is a projection system I ordered through Rediffmail a few months back where they offered me plastic lens which inserted in a box and the TV inverted yielded to a projection of 9' x 9' WOW and it cost me two boxes to be used a telescopic version and Rs.160/- for the plastic lens. Well we can modify the same with the help of a good carpenter too.

Response 2

Madhu Ranjan, United States Agency for International Development (USAID), New Delhi

Technology Tools for Teaching and Training (T4) is a United States Agency for International Development (USAID) supported initiative implemented by Education Development Centre (EDC). T4 has innumerable examples of delivery of digital content through Radio using Interactive Radio Instruction (IRI) and TV (Edusat) to reach lakhs of primary schools in several states (Karnataka, Chhattisgarh, Jharkhand, M.P., Bihar) in India in partnership with the state SSAs. The IRI programs have been developed and broadcast in the respective local language medium for all primary grades in Karnataka for all subjects (in topics that teachers found difficult to teach), in Chhattisgarh, Jharkhand, MP and Bihar for grades I and II for English language, and so on.... based on the needs identified by the states themselves. The initiative also delivers content through video (Edusat) in those primary schools in Karnataka that have the receiving infrastructure in place. All radio and video programs are aired through the All India Radio network and Edusat, and this allows for a wide outreach. Besides, a series of GTL or Group Teaching Learning multi media CDs have been developed on a range of Science and Social Studies topics, and these can be played in Kannada, Hindi and English. Over 500 programs have been produced and broadcast/delivered so far. All these programs go through an intensive formative evaluation by external agencies before they are aired. The initiative is also evaluated by external agencies each year for assessing the changes, both in teaching practice of teachers and learning levels of students.

The critical features of this initiative are:

1. The teacher remains central to the teaching learning process and the radio/video/computer programs only support her.
2. The programs are so designed that they encourage 'interactivity' and 'inclusion' in the classroom.
3. The programs are designed, implemented, monitored and evaluated in consultation with the SSA (including teachers, BRC/CRC officials etc. - thus allowing for a mainstreaming measures, such as building the teachers' training into the regular SSA training, incorporating the broadcasts into the school time table and so on ...
4. The rich and insightful inputs of grassroots NGOs in formative evaluation of each radio/video program strengthen it immensely.
5. There is intensive training of teachers and other education functionaries of the government.
6. Appropriate use of radio allows for enhancing quality with economy of scale.

From our experience, the most critical challenge in this entire process is to maintain the rigour in providing handholding support to teachers and closely monitoring their work, and this in turn requires an adequately equipped and motivated academic support staff.

Response 3

Ananya.S.Guha, Indira Gandhi National Open University, New Delhi

1) Experiences and examples (case studies, recommendations, etc), on mechanisms for delivery of digital content (computer-aided multi-media, Edusat, Radio, TV, etc) to reach schools.

The ramifications of ICT are many and complex. It is an all-encompassing term which includes the radio, the television and the computer. The greatest challenge is to make it pervasive, and integrate its features into the ethos of a school. They could act upon one another and could be used separately but in an integrated fashion. For example, pod casting or computer broadcasting can serve the purpose of a radio, but with the ability for interaction that can also be synchronous. There could also be phone-in programmes by FM Channels. As a college teacher in Shillong way back in the eighties, I found many of the school radio broadcasts very good. Regardless of their quality, which student would tune into them when they are at 1.30 pm during a time when classes were being held?

The policy makers must consciously take the advice of the school authorities, or they must at least be made a party to decision making such as fixing the hours of timing. It will be similar with television programmes. With the computer coming into the picture there can be special timings, in two to three shifts. The mechanism of the computer should be an essential feature of the classroom substituting the black board. This role is of course subject to the availability of a computer.

Response 4

Veena Sethi, UDAAN Foundation, New Delhi

I have no new suggestions to offer on this subject but would like to share my experience in introducing ICT learning in a remote area.

We are a very small NGO operating in Mukteshwar (Nainital district). Since there are no such facilities in the area, as an experiment in 2005, I started a computer education centre in my house.

I designed a very simple course and trained local youth (who had never seen a computer) in computer basics. Today, they are not only teaching others but one of them is also the centre-in-charge. Unfortunately we have not had much success in persuading the local government schools (primary as well as secondary, there are no others) to outsource computer teaching to us. Reasons are the usual: a) the schools do not have electricity / provision to pay for it b) the very 1-2 that do have systems do not have teachers c) they do not have the authority etc.

So instead, we have entered into partnership with a local Shishu Mandir school where we are imparting computer education (based on NCERT courses) to the 3 senior classes (approximately 70 students). This is working out well. In addition our own students also run the Tata Consultancy Services (TCS) designed Adult Literacy programme in different villages, from time to time, I get some of our senior students to come to Delhi and get hands on training in hardware, learn new programmes.

Our latest venture is producing multimedia educational CDs in Hindi for students from class 1-5. The first one will be out by early May. We shall be happy to give information about it to anyone interested.

Response 5

Gurumurthy Kasinathan, IT for Change, Bangalore

Find below my comments and suggestions on the **Nature of ICT in Education policy**.

Since my organization and a few others are currently doing some thinking on this issue, I have a quite a bit to say on this thread. In this posting, I would confine myself to the more structural aspects of the very definition and framework of the underlying themes on which an ICT in Education policy should be based on. I am suggesting that the identification of the 'right' themes and principles is fundamental to defining a meaningful policy.

ICT policy or education policy

At the outset it would be useful to clarify – is "ICT in education" policy an ICT (or IT) policy or is it an education policy. While this may seem semantic or even rhetorical, this distinction is crucial, (even as I understand, MHRD has initiated this, thus at least nominally defining it within the education realm).

If this is an ICT policy, then it is the prerogative or responsibility of the IT department to look at the technology related changes, which are plenty, such as connectivity, infrastructure, hardware etc. However an education policy made by MHRD would need to focus on education challenges and issues, based on an understanding and analysis of the education context, with the aim of realizing education aims.

Though a policy for 'ICT in any domain' will need to certainly consider both the ICT and the relevant domain aspects (in our case, education), my submission is that it needs to be significantly driven by the 'domain contexts and needs' and not by that of technology. e.g. the *infrastructure* aspect of the policy will need to serve the objectives of the substantive part of the policy, and not the other way around. The current processes to provide inputs to the ICT in education policy, including the initiating mail; however seem to veer largely towards the technology perspective.

Looking at some of the identified themes of infrastructure, capacity building, e-content, Public-Private Partnerships, it is clear that that a discussion on, say, on an ICT in Health policy, or ICT in Agriculture policy could be based on these very themes. These identified themes thus are quite domain non-specific, which is strongly suggestive that these themes are not driven from domain issues and concerns. The accent here appears to be not on the 'what' but on the 'how' which in my view comes later and is subservient to the 'what'. I will in a subsequent mail (to keep this mail reasonably short!) elaborate on a few of these themes to elucidate my point.

If we accept that ICTs are really tools for the actors in the domain to use for addressing their challenges to achieve their goals, then we need to re-interpret ICT in school education from an educational perspective, beginning by defining the themes for discussion. In a subsequent mail, I will also suggest some 'alternative themes' which are 'domain-driven'.

Stakeholders who should participate and drive this process

The initiating mail states "These policy guidelines will, obviously, be implemented by a variety of stakeholders, including government education departments, school systems, schools, vendors, technology providers and most importantly, by the teachers".

This does not explicitly include two important stakeholder groups –

(1) Parents and community members who are the most important 'beneficiaries' of the school system and who have enormous stake in its effective functioning.

(2) Educationists including those working in academic institutions, NGOs, CBOs etc. The discussions and debates over the recent National Curriculum Framework (NCF) were led in many cases, by these educationists and their output, the NCF 2005 is acknowledged as a curricular landmark in India.

Involving these actors in determining the agenda will be useful to shift the basis of discussions, and the eventual policy, from the domain agnostic themes suggested here, to domain based and domain driven themes for a meaningful policy. After all, ICT in Education should primarily be a curricular concern.

Response 6

Gurumurthy Kasinathan, IT for Change, Bangalore

Find below my second posting, continuing from my [first mail](#):

Current set of themes

In my first posting I had discussed the problems with defining themes from a technology or 'supply-side' perspective. To elucidate this problem, I am discussing a couple of these themes in this mail and propose to discuss a couple more in a subsequent mail.

While the themes suggested by this thread of discussions are important, however, for various reasons they may not really be the primary themes for policy for the first stage of policy discussion, which should focus on aims and processes of education

e-Content

A topic such as content is also quite domain independent. The education domain has significant meaning attached to 'teaching learning material', including philosophies of its creation, constructivism (a learner learns by making meaning of an experience, which requires active participation and even creation; a mere consumption of information or content is unlikely to cause learning), scaffolding (requiring active facilitation of the teacher in co-constructing these experiences for creating 'knowledge resources'), critical pedagogy (reflecting critically on the content and processes of learning in terms of the underlying premises and values – there is really no such thing as 'value neutral content') etc. The principle of constructivism suggest that treating "*learning as a process of consuming ready made content*" is quite problematic.

Similarly using proprietary software which does not enable the learner to investigate into the tool itself is a huge problem. It is the very process of engaging with software tools to construct both new tools and new information and processes of learning that can be a epitome of learning using ICTS (Seymour Papert has developed this thinking from

'constructivism' to 'constructionism'). For this, Open source software and open standards need to be a critical theme of an ICT in education policy.

Education content is not the same as say agriculture information. And in the education domain the process of designing 'content' already has a name - curriculum, and we have dedicated frameworks for developing it. ICT as a part of and/or enabling such curriculum does not change the name of what is basically being done within the domain.

In fact, in the workshop on the 'e-content' theme held as a part of the current consultations in March 2008, the workshop decided to drop the term content for the more meaningful and dynamic 'digital learning resources' which would not only cover information resources, but also software and hardware tools that the learner could use to construct knowledge. (For more information about the policy suggestions that came from this workshop, please refer "Consensus Building - QUEST Meeting March 11-12 OUTPUT.RTF" on <http://groups.google.com/group/ict-education-india/files?hl=en>)

Response 7

Syamaprasad Datta, P.N. Das College, Palta, West Bengal

This topic, i.e. Nature of ICT in Education Policy, is thought provoking. Members have systematically presented a number of suggestions; it is marvelous to see so much support emerging out of the discussions.

But, with my experience in education for quite a long span of life in different spheres and in different places of Bengal, to be more specific, in varying economic zones, I sometimes wonder about the feasibility of this ICT. I, for my part, encourage my students, though in a higher academic sphere, to take help of this in a practical way. But the varying economic standpoint, the cost of infrastructure, the case of continuous maintenance, proper guidance of the teachers, if at all they exist in some places, when we think of the vast arena of India, make me shudder at the probability for the implementation of ICT.

Although I am an optimist to the core of my heart, and I believe, that gradually, with all our efforts and proper guidance, everything is feasible. In that case, I hope for the best.

Nevertheless, every stakeholder should be represented in the policymaking.

Response 8

Anindya Kumar Banerjee, Panchayats and Rural Development Department, Government of West Bengal, Kolkata

e-Content- On the issue of content, I feel, we are totally dependent on vendors who are working in the area of content creation. We have made a CD with the help of [Centre for Development of Advanced Computing \(C-DAC\), Kolkata-EKLAVYA](#), which is on basic computer education including Office and Hardware in English, Hindi and Bengali we also have found out some content in Bengali for class 10 and 12 for Biology, Geography etc and of course the IL&FS ETS are there with content from KG - 12

Content should be in accordance to the Board of education and that is in check here in West Bengal, a private partner is developing such content based on syllabus.

A national portal for CBSE/NCERT/ICSE can be devised and likewise state portal for local boards can be of help as Internet is available in mostly all locations

Response 9

Sanjeev Kumar Rai, UNICEF, Bhopal

Use of ICTs in Education is a natural need of the time and every school should get this opportunity. Normally we find a

usual gap in policies and programs of this kind and a casual approach for 'additional' things in the school. Therefore, it should be part of the curriculum and evaluation system. (I am saying this based on my experience of a small research on school TV during 1999 and equipping Block and Cluster Resource Centres (BRC/CRCs) with computers).

Technology would certainly accelerate the pace of learning in the schools but Technology in Education demands a bunch of other facilities like-infrastructure, electricity supply and back up support, a resident engineer for on site support, regular capacity building of the users and trainers and freedom to experiment etc.

Some experience sharing workshops with team of Head start of Madhya Pradesh (MP), School TV of Delhi, Gyan darshan of IGNOU etc. would be helpful to make the program more effective. Access to information should be seen as first step to empowerment process!

Response 10

Jitendra Shah, Indictrans, Mumbai

ICTs can be used to write a different story of education or it can be used to pour old wine in a new bottle.

I would like to highlight that there is a lot of open source content available online find some of the links below:

1. www.curriki.org for content which is world class and all free
2. "internet scout report" for links to all the best educational content on the net, run for years by Wisconsin University, <http://scout.wisc.edu/>
3. www.offset.org : organisation for free software for education and training
4. links on education on www.indictrans.in
5. edubuntu : education version of ubuntu <http://www.edubuntu.org/>
6. Digital study hall : dsh.cs.washington.edu : videos in Indian languages for school education
7. [geogebra.org](http://www.geogebra.org) : algebra and geometry integrated
8. netlogo : <http://ccl.northwestern.edu/netlogo> : a modeling and simulation environment for (massively parallel) agent based modeling for A to Z subject domains

A lot of this material can be the starting point for generating our own versions in Indian languages. We have the right to do so as licenses for the above are such. What the vendors usually give is locked up content and cannot be modified.

There is one condition though; we have to accept that computers are best at allowing children to learn. This is not yet another "pedagogy" which is about "teaching" but it leads to "better delivery" of the same stuff. We need to veer around to the idea that, until our system successfully kills it, every child is constructor of her/his own knowledge and her/his own 'epistemologies'.

Also, we need to ensure that the teacher does not feel ashamed of not knowing how to handle the computer or for not having "all" the information. What we need to develop is the culture of teacher "stop" teaching" and start facilitating "learning opportunities". Motivating, connecting the children should be her task.

So long as we look for quality in other places than the mind of the child we are likely to gain nothing.

Response 11

Ranjit Nambiar, National Instruments India, Bangalore

The new millennium may only be a symbolic change of date but it marks an important stage for policy-makers in many countries including India. It encourages us to look to the future and turn our attention to the challenges, which that future presents. For policy-makers, the challenge will be to stay in touch with, and ahead of, national and transnational movements, which will change the face of India and impact on national systems of education. Here are some of my thoughts:

The five key challenges for the future:

1. the knowledge challenge
2. the challenge of decentralization

3. the resource challenge
4. the challenge of social inclusion
5. the challenge of data and comparability

These challenge society brings us back to the essential purposes of school education, in relation to the world of work, to social life and lifelong learning. The information explosion demands fundamental rethinking of traditional conceptions of knowledge, its 'transmission', 'delivery' by teachers and 'acquisition' by students. It raises questions about the assessment and testing of knowledge and the more demanding resources of skills, attitudes and motivation to learn. It questions curriculum content and the prioritisation and compartmentalisation of 'subjects'. Reading, mathematics and science claim their place as indicators because they provide essential knowledge tools and provide the foundations for lifelong learning skills. Less easily measurable competencies in civics, foreign languages and ICT will be no less significant in the future. Least developed are learning to learn skills but, arguably, they may be the most critical and enduring of competencies in the society of the third millennium.

All of these areas of knowledge and skills present major challenges for the teaching profession and to the content of teaching in initial and in-service training. Indicators in these areas do not provide the answer but do raise critical questions about how and where teachers should be trained in the future and how continuing professional development can be ensured. Change requires rethinking, reappraisal, re-evaluation of accepted practices, challenging what has always been done and accepted. Change often requires both restructuring and re-culturing of organisations. It imposes new demands on hierarchies, status and relationships. It may unsettle teachers and puzzle parents who have cast schools in the mould of what they knew

Indicators on attainment

1. Mathematics
2. Reading
3. Science
4. Information and communication technologies (ICTs)
5. Foreign languages
6. Learning to learn
7. Civics

Indicators on success and transition

1. Drop-out rates
2. Completion of upper secondary education
3. Participation in tertiary education

Indicators on monitoring of education

1. Evaluation and steering of school education
2. Parent participation

Indicators on resources and structures

1. Education and training of teachers
2. Participation in pre-primary education
3. Number of students per computer
4. Educational expenditure per student

Response 12

A Prabakaran, Public Action, New Delhi

The use of ICT in education is a vital process in today's world. It is very fast moving with changes coming in every minute. To produce better results with e content we need to keep our eyes and ears on ground constantly. What is important today is not relevant tomorrow. In this amazing change world of cyber innovations the challenges to deliver e content are many.

Since 1998, I have been involved with a multi-national higher education project. This is known as M.A Global Studies programme www.gsp.uni-freiburg.de offered by Albert Ludwig University of Freiburg , Germany with University of Natal, South Africa and Jawaharlal Nehru University, New Delhi. It was one of the first programmes to offer P.G degree with startup through Internet. The foundation for this degree was laid through Net chat.

From my experiences of the past 10 years in this programme, I can suggest the following:

1. Current world order is all about fascination. One has work to cater to the tastes of e-content recipients
 2. The delivery should be followed up with phone call or letter. The popular expectation of e communication is not working to the level of estimation by scholars
 3. Allow the students especially in government schools and rural schools to play with the computer internet. Hole in the wall project of NIIT www.hole-in-the-wall.com/ clearly demonstrates that even illiterate students can become experts in cyber surfing through carefree playing in the Net
 4. To put it in our words, speed, innovation, followup and targetting the needy should be the hallmark of your efforts
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Response 13

Jitendra Prasad, C-DAC, Hyderabad

We at India Development Gateway: www.indg.in are developing a Computer Manual in Hindi & English (later in Telugu, Tamil, Marathi, Bengali and other Indian language) for Kiosk Operators/CSC operators.

The CD- EKLAVYA, mentioned by [Anindyaji](#) seems like a great programme and we would like to explore the possibility of collaboration for content development for rural children in regional languages

Please visit our portal: www.indg.in to understand the objective of the project.

Response 14

Nagarjuna G, Free Software Foundation of India/HBCSE, TIFR, Mumbai

What Policy Should India Adopt for ICT in School Education?

Paper; by Nagarjuna G; Mumbai; 27 April 2008

Available at: <http://www.solutionexchange-un.net.in/ictd/e-discuss/ediscuss02/res15040802.html>

Develops reasons for adoption of free software exclusively for school science education. Provides a list of policy guidelines and recommendations for the use of free software in Schools.

Response 15

M V Ananthkrishnan, Developmental Infomatics Lab, KReSIT, IIT Bombay, Mumbai

1) Experiences and examples (case studies, recommendations, etc), on mechanisms for delivery of digital content (computer-aided multi-media, Edusat, Radio, TV, etc) to reach schools.

We have created a multi-modal repository www.eshikshak.dil.iitb.ac.in which includes (a) references to off-the-shelf CDs, with sections of the Maharashtra State School Board books (Classes V-VII); (b) links to freely available resources on the net and (c) websites of related courseware...in science and social studies.

2) Challenges in procurement of quality digital content (computer-aided, TV, Radio etc) for schools, especially pertaining to local languages.

Challenges are many. To name a few:

- (a) Textbook page turners
- (b) No localisation of content
- (c) Animation/Simulation of trivial concepts
- (d) Local terminologies/words which look more confusing than the English words used earlier

- (e) No linkages to programmes on Radio/TV
- (f) No integration of technology with classroom teaching

3) Suggestions for strategic and practical use of digital content in the school education system? Are there any experiences that can be evaluated?

- (a) There is a need for close co-ordination between teachers, students, administrators and parents in making this possible
- (b) Teachers need to be assured that their involvement is essential to the integration of technology with teaching. Their jobs will not only be secure but more enriching and challenging!
- (c) Logical integration of technology with classroom teaching (as detailed in (1) above)

The IIT Bombay experiences are available for sharing.

Response 16

Anshuman Das, Development Research Communication & Services Centre, Kolkata

Educomp (<http://www.educomp.com>) has some wonderful ideas, lesson plans, materials and other useful resources on ICT in education. Educomp today works with over 7000 schools across India, US and Singapore and has a track record of implementing large scale Public-Private-Partnership projects. The Company works very closely with various State and Central Government agencies, Ministries of IT and HRD, and Governments of other countries. The Company also works closely with schools to implement innovative models to create and deliver content to enhance student learning. Educomp's long undiluted focus on the K12, curriculum design and teacher education space in developing applications and products has revolutionized leverage of information technology and Internet to deliver new age learning to people.
