

ICT and Education: Challenges and Practices

With a focus on the use and potential of ICT in education and training, the first Digital Learning conference, highlighted various ICT and education initiatives across the India and from abroad. Organised by the Centre for Science, Development and Media Studies (CSDMS) and supported by Department of Information Technology, Government of India and UNDP, the conference featured the work of 50 speakers including keynote speakers, presenters and chairpersons. With a participation of over 150 delegates, the conference programme brought together many of the leading exponents of technology enhanced learning, leading advocates of e-learning, ICT in education professionals and practitioners.

In order to create the best possible mix, the conference program was created through a selection process involving both a public call for papers and invited speakers and representatives, identified through a thorough review of the national e-learning sector.

Commencing with a welcome speech by Dr M P Narayanan, President, CSDMS, the opening Keynote speakers on 18 October included Susanne Ornegar, Advisor for Communication and Information in Asia and Pacific, UNESCO, Amitabha Pande, Principal Resident Commissioner, Government of Punjab, Punjab, Keshav Desiraju, Jt Secretary, Ministry of Human Resource Department, Government of India, Aruna Sundararajan, Country Programme Facilitator, GeSCI and Dr Amiya Baran Saha, Executive Director, CDAC, West Bengal.

Susanne Ornegar gave an overview on the Distance Learning Resource Network as an effective process of e-education and opportunity for those who would otherwise have no access to new knowledge. She pointed out that an ontological standardization is required for standardizing course content, a necessary for distance learning. She discussed that there is a need for proper coordination between the teachers and students to avoid isolation of the students. Since technology is the only conduit through which information and communication flow, students and teachers needs to familiarize themselves with the technical delivery system to maintain adequate communication. She quoted several initiatives of UNESCO and

explained how collaboration among distance learning institutions and recognizing and addressing cultural diversity in content and curriculum development can be effective methods to overcome some of the challenges faced in distance learning programmes.



Lighting the lamp of knowledge

Amitabha Pande emphasised on the need for a paradigm shift in education, with more focus on the learners as knowledge creators than on the instructor. He pointed out that the present education system does not add value to a child's development.

Mr Pande described the 'Mapping the Neighbourhood' Project, which initiated a learning process outside the formal school system. Initiated as a process outside the curriculum, the projects involved students who joined voluntarily to learn and generate knowledge. The process initiated the learners to design their own learning and learn through the process of knowledge creation. Quoting the example of the National Curriculum Framework, Mr Pande insisted that learning should be learners centric and knowledge created within the learners.



Keshav Desiraju highlighted the Sarva Shiksha Abhiyan (education for all) initiative of the Ministry of Human Resource Development to reach and keep students in schools. Mr Desiraju pointed out that the initiative has been successful in the primary level, however, the secondary education level still requires serious attention. In this respect ICTs can act as an effective shortcut to fill the gaps in education delivery process, lower the dropout rates and retain the students in schools.

The Human Resource Development department along with the Department of Information Technology has developed a report on technology in education. The report has identified four issues in integrating technology in education in government schools, namely, ICT infrastructure, quality content that is locally relevant, teachers training, and education delivery through public-private partnerships. Mr Desiraju pointed out that these four interdependent issues needs to be addressed if technology has to be integrated to formal education to improve the quality of education in government schools.

Aruna Sundarajan drew from her experiences in ICT projects that impact community lives and pointed out that there is a strong similarity in the debate that persists in e-governance and e-education. She elaborated that instead of disputing the merits of ICT in Education, focus should be on how best the education challenges are addressed and education objectives achieved through the infusion of technology in education.

ICTs, primarily computers, are incentivising children to be back to schools; similarly ICT can be used to address several other traditional problems of education. She also stated that there is a need to facilitate a paradigm shift in education. She pointed out that conference like this help to bring stakeholders together to share their products and knowledge and an opportunity to learn and use such knowledge for bettering the education process.

Dr Amiya Kumar Saha represented the industry sector and spoke on the need for quality content that is interactive, to identification of the users of this content and associated training required by the user, be it a teacher or a student to use the same. He highlighted CDAC's, Kolkata's initiative in providing ICT training to local community to create local information management system, and manage their information system. He also discussed the need for local education content in local language and alternate learning materials for effective education through ICTs that can affect education anytime and anywhere.

The keynotes was followed by the three thematic sessions pertaining to Tools of learning through ICT, Challenges and Practices of e-learning and Technology options in education.

Tools for learning vary between CDs and DVDs, multimedia, PDA, Internet, mobile devices etc. The aim of the session was to showcase and discuss the potential of various tools in formal and

informal education. Akira Hattori of Kanagawa Institute of Technology, Japan, demonstrated how digital map-based geo-information system is used for awareness building for senior population. V K Sharma of CDAC Noida demonstrated a web-based learning model for formal education and Atul Pant of Enabling Dimensions presented an interesting case for game based audio-based e-learning for the visually disabled youth. Dr Ananthkrishnan provided a conceptual framework for web-based repository of information for self learning. Abhinav Dhar of Educamp Datamatics demonstrated Educomp's Technology enabled smart classrooms that uses various digital and multimedia techniques to improve the delivery of education. The session was chaired by Dr Hema Murty, TeNet group of IIT Chennai .

The session on E-learning challenges and practices was chaired by Osama Manzar, Founder and Director of Digital Empowerment Foundation. Several e-learning initiatives like learning through computers in school in Delhi Municipal Corporation, e-learning for small groups in Diplo Foundation, e-learning centers of Colombo University, e-learning content in Egypt and e-learning in Technical University were presented by MR Mukesh Haleja, NICT, Indore, Kishan Rana, K P Hewagamage, of Colombo, R Bahgat of CULNAT, Egypt and N K Roy of National Institute of Technology, West Bengal.

Technology in education session, chaired by Dr Manas Chakrabarti of HIWEL, had diverse and interesting presentations including Government Initiatives like the National Institute of Open Schooling (NIOS) and IGNOU, represented by S K Prasad and Prof S C Garg respectively, IIT Cennai TeNet Group initiative on developing online tutorials presented by Dr Hema Murty and Gautam Goradia (Remittag software Co Pvt Ltd) advocated for e-learning solutions for the individual. Indranil Das Gupta (L2C2 Technologies) and Rahul Dewan's (Srijan Technologies) presentation on the scope of open source in e-learning and higher education generated a very lively debate that indicated that open source has moved on from being a powerful idea to a working principle.

The conference began the second day with the session on Civil society initiatives in ICT and education. Chaired by Swaran Singh of Tamil Nadu Text Book Corporation, this session provided opportunities to practitioners to showcase their initiatives. Shiksha initiative of CII presented by Narinder Bhatia, UNESCO initiatives presented by Savitri Subramaniam, EDC initiatives presented by Vandita Sharma provided an insight into diverse interventions in education from teachers training and community learning to using radio for education. Uday Pawar of Microsoft Research discussed a taxonomy of ICT in education initiatives while Dr Sanjeev Singh of Delhi University and Martin Stern debated the scope of open source in higher education.



The session on Government initiative was chaired by Dhir Jhingran, Director, Sarva Shisha Abhiyan. This session discussed several of large scale ICT in Education projects taken up by the state government. P Sukumar, Dy. Secretary, Ministry of HRD, presented an overview of the government policy and initiatives in technology in education. Other presentors included Rakesh Gupta, Deputy Commission and District Magistrate, Rohtak, Neeraj Saxena, Coordinator of HeadStart Project, Atul Dutta, coordinator of Punjab ICT in School project. Syamal Mehta, Dy. Project Director, GSAT-3, EDUSAT ISRO elaborated EDUSAT's outreach and Dr Parvez Ahmed discussed the need for ICT in education in islamic seminaries.

Dr Sugata Mitra presented an enlightening keynote and illustrated the need for ICT enabled education through non-formal techniques as the 'Hole-in-the-wall' project.

The private sector initiatives session was chaired by Abhinav Dhar, Vice President, Educomp Datamatics. Many cases ranging



Participants learn about Educomp experience

mediums could not only be cost effective but also has a greater outreach potential. It was also pointed out that low cost software solutions for e-learning that have scopes for innovation, should be incorporated in large scale projects. With an indication to open source solutions, the sessions recommended that such solutions should become a part of the overall policy for implementing technology supported education interventions.

Sustainability and scalability of project are also issues that needed serious considerations. While moving beyond the pilot and experimental phase, projects especially those that needs a considerable financial contribution should have a viable sustainability model for upscaling. It was also recommended that implementers needs to be cautious when selecting areas for implementing ICT in education projects. Projects should also not lose priority of the education objectives. In some cases ensuring school accountability system and teachers attendance may be more important that investing time and resources in ICT integration in schools. One fact that emerged in the sessions was that ICTs effectively computers, initiated in government department and schools were being used as decision support in education. Essentially, clear criteria, norms and standards needs to be developed for the information that was being used for decision-making.

One very essential recommendation that emerged from the discussion was that synergies needs to be developed among different players in the sector and effective partnerships needs to be build between the private and the public sectors to share knowledge and expertise. Finally, it was recommended that the vision for education should be a comprehensive balance between addressing the pertinent issues of 'education for all' strategies of improving the quality of education through ICTs at the same time creating human capital that can contribute and sustain a knowledge society. ■



Sugata Mitra presenting the 'hole in the wall' experience

from content development to e-learning initiatives were discussed by Krishna K Bhardwaj, Vidyatech, Srikant B Iyer of Edurite, Daman Dev Sood of TCS and Ramesh K Verma of Arrkey Infotech.

The Policy Advocacy session, chaired by Aruna Sundararajan, Gesci had Dr K Subramaniam, Director General, NIC, Pooran Chand Pandey, VANI, Sajan Venniyoor, Prasar Bharti, Anshul Solank, Intel, Prof Ashok Ranjan Thakur, VC, West Bengal University of Technology and Avik Banerjee of Dolcera Infomax discussing various perspectives on issues that needs consideration when framing policies for incorporating ICTs in education.

Several recommendations that emerged from the discussions emphasized on the need to think of ICT in education beyond computer aided learning and investigate the potential other technologies like community radio and other medium. These

