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TECHNOLOGY INITIATIVES: AN INDIAN PERSPECTIVE

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INTRODUCTION

The foremost argument for many years and in most places is about the purpose of education. Is education for individual betterment as an end itself, or should it be for occupational preparation? The answer is that education has served both the purposes. We ought to acknowledge the fact that knowledge is not only a self-actualizing force but also the key to the sustainable development. Knowledge is capable of being its own reward as well as bringing in tangible rewards to the knowledge worker. The human mind itself is such that it thirsts after knowledge; it could range from a neighbourhood gossip to a metaphysical theory or quantum theory, it could propel a millionaire to go join a mundane course in an institute or an octogenarian to pursue a degree in economics. It has given rise to the postindustrial age noun - knowledge society

There are two issues related to this. Firstly who will and how will they have access to knowledge? Secondly what kind of knowledge is that, that will enable us to realize a less divided world? To repeat what was said at the Education For All Conference at Jomtien in 1990 among other things "Every person –child, youth and adult –shall be able to benefit from educational opportunities designed to meet their basic learning needs". It means that it is the individual at any / every stage of growth who desires knowledge and the kind of knowledge they require is that that will satisfy their basic learning needs whatever that may be.

When we look at how an individual can access knowledge, the traditional conventional modes of education will take us in India a long time to achieve education for all and in the creation of a less divided world. To quote from NPE 1986 "Neither normal linear expansion nor existing pace and nature of improvement can meet the needs of the situation." When we think of alternate ways the first thing that would strike us is

technology. Though technology does not by itself teach, it can significantly contribute to address issues of education and training and can mediate between teachers and learners for effective self learning.

ICT AND EDUCATİON

ICTs **for** education refers to the development of information and communications technology specifically for teaching/learning purposes, while the ICTs **in** Education in education involves the adoption of general components of information and communication technologies in the teaching learning process. In a classification by Thomas & Ranga (2000), the application of computers and other communication technologies in education was divided into three broad categories: Pedagogy, Training and Continuing Education. The pedagogical applicability of the ICTs is concerned, essentially, with the more effective learning with the aid of the various components of ICTs. Almost all subjects ranging from mathematics to music can be learnt with the help of computers. It should be emphasized that pedagogic application of ICTs, involves effective learning with the aid of computers and other information technologies, serving the purpose of learning aids, which plays complementary roles in teaching/learning situations, rather than supplements to the teacher/instructor/facilitator.

Technology especially Internet is something that has made possible an access unimagined until now. Internet, multimedia hardware and intelligent software are opening up opportunities for people in the poorest part of the world to access information and knowledge. Internet can be termed as a convergence of technology where print, visual, audio technology comes together for the true discoverers of knowledge.

Internet as a tool of educational technology is capable of taking education to the people rather than people to education. It has brought about "School without walls" a reality. Effective knowledge transfer can happen through web conferencing, collaborative software, content management systems, organizational directories, email lists, blogs etc that have a basis in Internet.

These and other technologies also support knowledge capture, transfer and reuse. Knowledge transfer includes organized processes and practices for identifying and capturing knowledge, know-how, expertise and other intellectual capital. Making

knowledge resources available for transfer and reuse is called as knowledge management. Knowledge may be accessed, or captured, at three stages: before, during, or after knowledge-related activities.

Individuals in the beginning, access resources to learn best practices and lessons learned for similar activities undertaken previously, access advice on after-activities actions, access relevant information again during the knowledge acquisition to seek advice on issues encountered, review activities, and later, lessons learned during the knowledge acquisition may be recorded, and after-action reviews may lead to further insights and lessons for future access

KNOWLEDGE MANAGEMENT LIFE CYCLE

In a typical Knowledge Management Life Cycle, the process begins as soon as someone conceives an idea. This idea may be in an imperfect, context-specific state. The idea is then shared among colleagues who then analyze the idea and offer their opinions, experiences and general feedback. The idea is revised based on this feedback. The result is a more perfected and less context-specific knowledge object. The result of this process is knowledge creation, not simply knowledge sharing.

With the introduction of technology this cycle moves at an exponential speed. But how educational environment in such a paradigm be constructed, organized, structured, governed and financed needs a lot of consideration. According to Chen and Kee (2005) Information and Communication Technologies are the backbone of the knowledge economy and in recent years have been recognized as an effective tool for promoting economic growth and sustainable development.

In India, government is waking up to the need of building a sound knowledge society. A special commission known as the National Knowledge Commission (NKC) was constituted on 13th June, 2005 as a high level advisory body to the Prime minister of India, with a mandate to guide policy and direct reforms. NKC's overarching aim is to transform India into a vibrant knowledge based society. One of its main aims is to leverage information and communication technologies as a means of enhancing governance and connectivity. Its prime focus is on five key areas of the knowledge

paradigm –access to knowledge, knowledge concepts, knowledge creation, knowledge application and development of better knowledge services.

THE WORKING COMMITTEE (MHRD)

Earlier a working committee was set up in 2000 to review the technology penetration in India and it came up with a number of suggestions to accelerate the process of integrating technology. The Working Committee from the Ministry of Information technology (2000) has given suggestions on how to make IT work for us. Working Group has classified issues related to spread of IT to masses into the following categories:

- ***Infrastructure and Services***
- ***Electronic Governance***
- ***Education***
- ***Mass Campaign for I T Awareness***

The recommendations made by The Working Group have been enlisted below:-

Infrastructure and Services

- 100 million Internet connections by 2008
- 1 million IT Kiosks by 2005
- Revenue share to franchise operator to be at least 50%
- No licensing to set up Telephony/ Internet in low telecom density regions
- CUG (Closed User Group) status to private networks
- Encourage new communication technologies
- Promote indigenous technology development for low cost Internet access devices
- Right of way to cable operators
- Franchise operations of CICs (Community Information Centres) on revenue sharing basis
- Evolve Standards for development of Indian languages based content on Internet

Electronic Governance

- Five Year IT Plans
- IT Sensitization of decision makers
- 5% of the budget for IT induction in government
- IT infrastructure up to working level staff in government by 2003
- Compulsory IT literacy for government recruitment by 2002
- At least one citizen oriented service by every government department by January 2001
- Annual E-Governance Reports by government departments
- Sharing of experiences and best practices amongst States
- Internet portal for one- point government information and services
- State portals to help rural artisans
- Set up Administrative Re-engineering Commission at national level
- Standardize formats/ procedures for common services across the country
- Data capture at the point of origination
- Prime Minister's Annual Award for best E-governance
- All government information on Internet by April 2001
- All Tenders on Internet by August 2001
- On-line bookings by January 2002
- All government payments on internet by 2003
- Results of public examinations on Internet by June 2001
- Internet enabled Employment Exchanges
- Land Records computerization by 2005
- Extensive use of IT in Judiciary
- File Tracking system at District Collectorates by 2002
- IT Kiosks for single point delivery of government information/ services

Education

- Computer education at block level by 2003
- All schools with computer education facilities to have access to Internet
- Pilot project for schools in 100% literate blocks
- Special scheme for college students from under-privileged sections
- Career guidance/ counseling

Mass Campaign for I T Awareness

- IT Yatras (Journeys)
- Competitions
- National IT Talent Search
- Use of Radio, TV & Internet
- Use posters, banners, displays, etc for IT awareness
  IT Melas (Fetes)

These recommendations have been taken into consideration, and developments have been taking place in a wide range of areas. In the following paragraphs a few measures and changes that have been happening in Indian context have been enlisted.

TECHNOLOGY IN INDIAN CONTEXT

Technology for preserving cultural heritage

The Mahabharata Research Foundation of Bangalore will roll out a project to digitize ancient manuscripts. As of now they have been able to tap only 0.1% of the total number manuscripts available in our country. They plan to go to far flung areas of the country in mobile vans fitted with all scanning and uploading facilities and collect manuscripts and digitize them.

Technology in rural areas

Telecentres, also known as public access points or digital community centres (a slightly different kind of cyber cafe) is a good means of responding to the needs of local people

that vary considerably from one village or neighbourhood to another. Telecentres can provide access to telephone and fax services, e-mail, Internet and digital networks, databases and libraries. They can also link the Internet to local media such as radio and television. Telecentres were first used in Europe in the 1980s where the ideas spread rapidly. Recently they have been established in some semi rural areas of Brazil and in some Latin American countries.

 By February 2007, Jharkand will get the first of Centre's ambitious Internet kiosks called common service centres. This typical kiosk will have information on crop protection, agricultural tools,pricing and marketing besides other things. It is proposed to set one kiosk for every six villages. There have been other players like ITC's eChoupals which is a good example of revenue model telecentre suited for rural needs.

Technology and Indian languages

Indian government launched software tools in 10 of the 22 official Indian languages in the month of January 2007. Not knowing English will not be a hindrance in the access of technology.

Technology for free speech

With the arrival of blogging more and more people are taking to this medium that offers so much potential for expression. Blogs have the capability to empower the citizen simply because entry barriers are so low and it is easy to express oneself on them. In India currently blogging seems largely restricted to Mumbai Chennai and Expats from US. The site http://indianbloggers.blogspot.com gives a listing of Indian Bloggers worldwide

Technology for the under privileged

 The Minimally Invasive Education (MIE) occupies a distinctive and unique place in the educational learning system. MIE experiments consist of providing computers to children in safe, public location such as a school playground or even outside school. Through such public learning stations children are provided access to "state-of-the-art" personal computers to several thousand children in urban and rural India. The computers are

placed outdoors, usually mounted on walls and, hence, often referred to as "Hole-in-the-wall". It is likely to have far reaching results for developing nations, where achieving mass levels of literacy is of great concern. The pioneering research was conducted by Dr Sugata Mitra (1999, 2000) with one PC embedded in a wall facing a slum in Kalkaji, New Delhi.

Encouraged by the success of the Kalkaji experiment, freely accessible computers were set up in Shivpuri (a town in Madhya Pradesh) and in Madantusi (a village in Uttar Pradesh). These experiments came to be known as Hole-in-the-Wall experiments. The findings from Shivpuri and Madantusi confirmed the results of Kalkaji experiments. It appeared that the children in these two places picked up computer skills on their own.

International Finance Corporation joined hands with NIIT to set up Hole-in-the-Wall Education Ltd (HiWEL). The idea was to broaden the scope of the experiments and conduct research to prove and streamline Hole-in-the-Wall. As part of this, more than 30 such clusters of computers or, as they have come to be known, Learning Stations have been set up in India and outside India. The results, which have been uniformly encouraging, show that children learn to operate as well as play with the computer with minimum intervention. They picked up skills and tasks by constructing their own learning environment. Over the past six years more than 40 sites have been established across India - all with similar results.

Technology for improving literacy

Dr.F.C.Kohli, a great doyen of Indian IT industry and his team developed a Computer Based Functional Literacy (CBFL) method in which reading ability is focused. In this method scripted graphic patterns, icons and images are recognized through a combination of auditory and visual experience using computers. This experiment was first conducted in Medal village near Hyderabad.Without a trained teacher, the women started reading the newspaper in 8 to 10 weeks. Earlier versions of PCs were modified and used in this project.

Conclusion

The developing technologies are not going to go away and they are going to be here for a long period of time. The educational interdependence is inevitable in a knowledge-based society. The potential picture that will emerge from such exponential growth will be worth waiting for.

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