

STRATEGIES FOR USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES (ICT) IN EDUCATIONAL INSTITUTIONS

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Introduction

In the recent years we have seen a tremendous increase in use of computers in all aspects of human life and the education sector is no exception to this twenty-first century phenomenon. Everyone in this sector is aware of the vast potential of computer as a tool for efficient teaching and educational purposes. The most uninitiated ones to the world of computers have also, of late, accepted the role of computers in pedagogic arena with many initial reservations. At the same time there has been a larger convergence of all technologies and applications related to communication. Advanced computer and data transmission technologies of the late 20th century like telephone, television, fax and Internet have improved communication services by providing alternatives to the traditional letter in the form of electronic messaging networks and electronic data-processing techniques.

However the main problem facing the issue of Information and Communication Technologies (ICT) In Education In India is not the scarcity of ICT infrastructure in our educational institutions, rather gross underutilization of the available ICT facilities by educators and students alike. If we just look into the typical user pattern of university Internet connection/access by the staff and students of any university, we will note that the access to the Internet is so much limited to or made an exclusive domain of Computer Science specialists that an ordinary student from Hindi Department will perhaps never get anywhere near the computer to see the large amount of Hindi language contents that are available on the web.

Therefore, in view of the pace of change brought about by the ICT in education arena to challenge the traditional ways of teaching, learning and research methodologies, it is now overdue to look into the status of ICT usage in our educational institutions and develop a strategy for more effective and equitable use of ICT across all the streams

from Aeronautics Engineering to Sanskrit. This paper is a limited attempt to present an overview of the present ICT usage scenario in education and put forward some suggestions to overcome the problem.

ICT SECNARIO IN THE WORLD

As of March 2000, according to a report of the UN's High-level Panel on ICT, an estimated 276 million persons were using Internet and the number was growing at the rate of a staggering 150,000 users per day. Approximately 220 million devices were linked to the Web and 200,000 new machines were being added each day. There were 1.5 billion web pages and almost 2 million pages were being published on the web each day. Business conducted through Internet totaled US \$5 billion way back in 1998 and it is projected to be over US \$7 trillion by January 2004. However impressive these figures may look, the actual coverage of the Internet is still below 5% of the world's population and irrespective of the unprecedented progress made by India in ICT, most of our average citizens are not connected to the Internet or don't have access to web. The situation is almost the same in universities where most of the institutions are connected to web through dialup service but these are generally used as stand alone connections and not accessible to students in general through proxy servers in their respective departments.

THE CHALLENGE

Therefore the challenge is to make ICT facilities available to the average students in our institutions, particularly in higher education and more so in remote locations where major libraries (concentrated mostly in the metropolis) are not accessible to researchers. The teaching-learning and research facilities can be enhanced through just and equitable use of ICT in these institutions. For instance, all major research institutions and their libraries in the country are now fully equipped with electronic library facilities. The next step would be to connect them to remote institutions through easy, reliable and user-friendly ICT applications so that even the rural learner is benefited from the urban centered information/knowledge resources. In the emerging information society even the most remote and marginalized group has a great potential to compete in the global market if it has access to the information gateway.

Such a knowledge network through web-based libraries or virtual library network is one of the programme instruments and advocacy tools which has can be used to increase the access and usage of ICT by the teachers, learners and researchers to sharpen their input to harnessing information for higher education. The core activity should be knowledge and information networking, sharing and exchanges. It is, therefore, must focus on a few priority areas such as creating:

- a network of internet-based information and knowledge resources and services;
- a web of virtual libraries and knowledge exchanges relevant to local development issues.
- a “gateway of gateways” for information sources on special educational concerns for which any institution has a national/regional mandate and on which it provides advanced taught and research programmes;
- a platform and hub for the exchange of knowledge and information among researchers and educational policy makers.

Keeping these broad objectives in view, the ICT facilities in our educational institutions should be geared to help bridge the digital divide between various departments within an institution and to bring about effective information and knowledge networking solutions to knowledge-based institutions, especially universities and research centres. This can be achieved through some of these strategic actions, such as:

- Providing access to electronic resources ie, internet access to all students irrespective of their subject, stream or discipline of study and level of programme: undergraduate, post graduate and doctoral studies.
- In addition to traditional print materials, all students should be provided with web-based access to educational policy documents, bibliographic databases, general information, details of faculty and available expertise and institutional profiles;

- All remote institutions should be brought under a immediate capacity building exercise at institutional, national and regional levels on development and use of integrated virtual library services;
- Promoting regional cooperation on standardization and virtual library system development; and
- Facilitating research and developmental activities in both ICT infrastructure for education and development of digital and virtual library services.

KNOWLEDGE NETWORKING

To fulfill such a broad vision to use ICT in education, particularly in higher education sector to boost research capabilities and to ensure quality research in remote institutions, implementation efforts will have to ensure proper collaboration with other ongoing national knowledge-based projects and initiatives aimed at supporting education and research networks, policy makers and institutions. Therefore, a baseline study should be undertaken in order to determine institutional capacity and availability and present usage status of ICT infrastructures in remote locations. Findings of such a survey will help to avoid duplication of efforts and resources of similar activities in the region. Based on the findings of the survey a Knowledge Management Strategy should be designed and put in place as a part of a wider regional/national action plan for strengthening ICT infrastructures in educational institutions. Special efforts should be made to promote awareness of web based educational resources and use of ICT in education among several marginalized stakeholders and participating institutions from so called “non technical” subject areas.

The future development of ICT and web-based learning scenario, particularly in open and distance learning systems, will increase the pressure on the formal educational institutions to meet the demands of quality in research and education. Therefore, institutions should have the appropriate capacities in terms of institutional commitment, human resources, equipment, and other physical resources in order to contribute and benefit from the increased use of ICT in education in coming years. To achieve such a goal a few further steps should be taken in the following direction:

- Orientation and increasing the access of staff and students in all institutions to available information and knowledge resources on a broad based time-sharing basis;
- Institutional capacity building activities to increase the use of ICT among staff and students;
- Advocacy with libraries, users and researchers in general.

Adequate and immediate actions in the above direction will surely show results that can be measured and scaled by:

- Satisfaction of staff, students and users with progress made by them in achieving academic credits (reflected tangibly in their exam scores)
- Increase in the number of users and the library and information network nodes established and sharing knowledge resources a particular institute;
- Increase in the number of knowledge exchanges and knowledge institutions connected with web-based library networks;
- Number and quality of ICT capacity building training, meetings and workshops held; and
- Increase in adoption and adherence to international standards on information processing, management, communication and dissemination.

ICT MISSION FOR EDUCATION

It is well accepted at all levels of the government, civil society and educational planners that the issue is not to debate whether to respond to the ICT revolution in all spheres of our lives today including educational practices, but to ensure our (students, teachers and researchers) equal access to the benefits of ICT in a just knowledge society. The higher educational institutions like universities, specially the regional higher education centres, have a specially role to assist remote and marginalized sections of the society in maximizing the benefits of education in their locations through proper use of ICT. This task will necessarily demand greater coherence and coordination between various agencies undertaking ICT promotion activities at various levels: schools, teacher training colleges, computer science departments, state and central education departments, councils and boards and numerous other multilateral and bilateral organisations.

In order to reverse the growing “digital divide” even within the digitally connected society that exists between, for example, rural and urban, technical and non-technical students and researchers, two specific steps should be taken immediately:

- a. Universities and institutions should declare and proclaim the right of universal access to ICT facilities in the campus, such as the Internet, to students and staff alike as an important component of the services provided by these institutions.
- b. Each of the universities and institutions should create, under the leadership of the highest authorities, an ICT Task Force to bring together all ongoing departmental, sectoral and multilateral industry-institute partnership initiatives on ICT in a way to bridge the digital divide that exists among various departments within the same campus and to ensure that the ICT Infrastructure is utilized to their optimal capacity without being concentrated in the hands of a few tech-savvy staff.

INITIATING THE UNINITIATED IN ICT

ICT has been utilized by many nations, societies and groups in the world for their socio-economic development. But the success in harnessing ICT for development, including education, demands determination and enthusiasm on the part of the end-user to embrace the technologies for their own good. Unfortunately, for a large number of teachers, students and researchers in our universities ICT still poses a challenge in the absence of proper orientation to the benefits of the ICT in the present day world. To motivate those who are still in the “outer circle” of the World Wide Web, following issues may be highlighted through focused advocacy drives:

- a. Lack of prior knowledge and expertise in technology is no longer an obstacle to join the ICT bandwagon since both hardware and software are very user-friendly today and it needs only a few hours to get hands-on training in various applications.
- b. The cost of equipment and materials are at one fifth of the level five years ago and as such providing access to ICT is more economical and cost effective than it was a few years ago.

- c. ICT infrastructures is growing due to the national policies in this direction and as such connectivity will increase very fast in coming years and one can not afford to miss the benefits of ICT as such in any walks of life.
- d. Growing presence of information and other contents on the web related to various services in daily life will prove to be a handicap for those who are not connected or accustomed to retrieve and use the information from the web effectively.

LEADERSHIP FOR ICT

The ICT revolution is marked by the presence of visionary leaders in various sectors and as such for educational institutions the importance of a strong leadership at the highest level to lead the use of ICT in education cannot be underestimated. But a leader need not to be an individual but a network of enthusiastic persons interested to be part of institutional drive. In other words, decision makers and heads of departments at all levels of the institutions should be aware of the benefits of using ICT in education and should be accommodative about the impact of ICT in their respective fields. The highest institutional leaders like Vice Chancellors and Directors may, for example, facilitate, expedite and ensure a few actions from their positions:

- a. Adoption, in bodies such as senate, executive councils, university courts, academic commissions, of resolutions recognizing importance of ICT in education and to ensure that equal access to the ICT facilities are provided to all the members of their institutions.
- b. Assign a dedicated group to develop and design an institutional ICT usage policy including compulsory access to the internet to all within the campus.
- c. Explore new funding and resources for expansion of ICT facilities and their up gradation from time to time.
- d. Facilitate necessary increase in the training and procurement budget for ICT infrastructure.
- e. Building a strategic alliance between the institutions and ICT industry for getting funds for ICT projects and secure placement for the ICT graduates.
- f. Issue directives for the staff and students to compulsorily attend and get trained in ICT facilities and applications and join a new institutional communication mode, say, intranet.

CONCLUSION

To conclude a word of caution would be very appropriate here. In the wake of the information revolution, any drive to use ICT in education should not be engulfed by a threat from the Internet to the traditional communication media, specially radio, television etc. Television penetration rate in India is very high in no case educational institutions can overlook the use of TV for delivery of educational programmes rather Internet can be used to access even radio programmes. Therefore a broader multimedia approach should be undertaken if fruits of ICT in education are to be properly appreciated.

Globalization and emergence of the Knowledge Society are influencing the way we operate in our various professional and social sectors. The often repeated fear that by adopting computers and technologies from the developed world in a country like India, where we are still to provide enough blackboards to our schools, we will only create another social divide between minority digital elite groups and the poor masses is not an unfounded one. Our universities and institutions of higher education are invariably connected to the information superhighway but the fruits of the information society are still limited to a few and those who can afford private connectivity fees. Despite efforts to decentralize ICT facilities in these institutions the results are not showing particularly among a large number of humanities and social science departments. Therefore, we need a systemic approach to broaden our ICT reach among those unreached in our campuses beyond concentrating on computer engineers and software developers. Only through a fair and equal access to ICT facilities we can empower our average learners, teachers and researchers to communicate, share information and transact with colleagues, fellow researchers and professionals across the globe. Ownership and access to ICT needs to be extended to each and every learners and this will enable our institutions to foster ownership, reduce digital inequalities in the society and thus create an avenue for learner-centered education.

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ABOUT THE AUTHOR:



Dr K M Baharul Islam has been working in the area of Educational Technology and ICT in Education for more than a decade. Starting career as a university faculty in computational linguistics, he has taken keen interest in broadening the ICT implications for mass access and developmental use. He initiated and headed the Center for Educational Technology at NIT, Silchar where he taught for eight years. Since 1999, Dr Islam is acting as the Chairman (in the rank of a Minister of State) with the State Rural Technology Promotion Council in the Government of Assam (India). Presently he is on international assignment a Consultant on e-Government and ICT Policy in Ghana and The Gambia. He has been involved in various UN projects in Asia and Africa and served in Cambodia, Rwanda and Ethiopia on different UNESCO / UNDP missions. Dr Islam was working as a Reader in the National Council of Educational Research and Training (NCERT) in India and later as an Associate Professor at Addis Ababa University. He may be reached at +251-9-403722 or email: islamb@un.org

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