

Management of ICT In Higher Education in India – Upgrading Standards to Face International Competition

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Abstract. The use of ICT in education in India, particularly in higher education, has been slow but progressing steadily. This trend is set to continue because of the Internet revolution and high literacy level in India. It is with this perspective that ICT use in higher education is detailed in the paper. The paper was developed based on the interaction of the researcher with the stakeholders of the ICT at governmental and societal levels. Even though an exhaustive data collection went into the study, only the salient aspects of the ICT use in higher education has been delineated in this paper. Some of the administrative hurdles can be overcome once this process is fully utilized. Now the central and state governments are initiating steps to increase the use of ICT with the launch of EDUSAT, IT@School etc. The teachers are now refreshed on current developments using EDUSAT technology.

Key words: *ICT, Internet, EDUSAT, Higher education*

1.0 Introduction

The transformation in any society at the current perspective is characterized by explosive growth in the generation of information, exponential demand for its use and a continually shrinking life cycle of information. It is a worldwide phenomenon with very significant local implications affecting people, organizations, societies and nations, but may vary with regions and boundaries. It brings with it new challenges and opportunities for higher education. It is thus important that the traditional mode of delivery of higher education be changed. The following data on the growth in the higher education sector from the 9th Plan to the ongoing 10th Plan explains why ICT is important:

- The government has allocated US \$ 859115952 in the 10th 5-year plan for the growth of higher education system in India — a 67 per cent jump from US \$ 514317500 allocated in the 9th 5-year plan that ended in March 2002.
- Between 1956 and 1990, only 29 institutions were granted the deemed university status. In the last 15 years, 63 institutions were declared deemed universities; 36 of these, excluding Regional Engineering Colleges, have been notified as deemed universities in the last five years. It may be argued that the increase in the number of deemed universities is commensurate with the increase in the number of institutions of higher learning in the country. But it should not be at the cost of quality. This number is very small for the size of India and for meeting the emerging needs of advanced research, as can be seen from the following comparison. Japan, a relatively small country, has 684 universities, 512 of them private. The United States has 2364 universities, 1752 of them private, offering four-year degree programmes and above.
- The number of deemed universities has increased to 86 (up to '04-05) from 27 in the Ninth Plan period. The number of colleges has also risen to 15,500 from 12,342; the number of women colleges to 1,650 from 1,500. The total enrolment has reached 92,300,000 from 75,000,000. This is about 6-7 per cent of the population in the relevant age group of 17-23 years.
- At the current level of education spending of 4% of GNP, 12.5% of total education spending is allocated for higher education.
- The aim of the Government is to increase the enrollment against undergraduate courses to 10% by the end of 10th Plan period (2002-2007). This includes both formal and distance education.

According to Dr.V.C. Kulanthaiswamy¹, a former Vice Chancellor of IGNOU the entire higher education in India takes place only in the ill-equipped, understaffed, affiliated colleges as can be seen from the fact that 89 per cent of undergraduate students, 66 per cent of postgraduate students, and 82 per cent of faculty are in the affiliated colleges.

2.0 Literature Review

Maruja Gutierrez² in his work on “EU policy in the field of ICT in Higher Education”, submitted to the EU Commission, mentions that integration of ICT in education systems can play a key role:

- as a lever for change and adaptation
- as a catalyst for innovation
- as an enabler for lifelong learning
- as a support to employability
- as a bridge over the digital gap
- as a platform for European co-operation
- to foster a wide debate on the European knowledge society

Robin Middlehurst³ in his paper said that the country’s Macro and micro environments along with regional and national responses have to be planned under the strategic choices and implementation issues. There is also a need for evaluating the impact of these ICT implementations in higher education. It may be noted that many developing countries including Malaysia, and Pakistan have already started orienting their teachers on IT skills.

A. Zamastsev, T. Kitaevskaya & S. Beshenkov⁴ cited that the major problem of educational planning and curriculum development is lack of its flexibility and multifunctioning. The impact of this problem is becoming more acute nowadays due to the increased complexity for the tasks and need of new curriculum design.

Petra Fisser⁵ posits that the success of implementing ICT in a university context depends on a number of factors. Several other researchers have also identified these factors and the consequential actions that have to be taken to create a successful environment in which ICT applications can be implemented. Many issues have to be taken into account during this process. Not only factors that are related to internal processes at the university itself, but also factors from outside the institution and factors related to educational and technological developments can play an important role in both the decision to start implementing ICT in education and in the actual implementation of the technology. In addition, cost issues and questions related to the support during and after the process of implementing ICT are important to consider. This is more so the case with Indian Universities.

In a study conducted by Prof. David Brown et al⁶, 150 technology-using professors at 50 of America’s most-wired campuses were asked to explain how their teaching strategies have been augmented by the use of computers. From their responses emerges a pattern. Most professors are using computers in teaching in order to enable more controversy and debate in their classrooms, to promote more collaboration among students, to facilitate more and more timely interaction between professor and student, to differentiate tasks and assignments according to student interests and capacities, and to involve practitioners

as well as colleague scholars with their students. A similar study conducted in the state of Kerala showed that even though the technology is available, only 40% of the teachers are using it. Hence it is clear that the teachers need orientation to and change of attitude towards working in this environment.

Indian Knowledge Commission recommendations 2007⁷ indicates the importance of ICT in Higher education. The Commission has recommended that It is particularly important to enhance the ICT infrastructure. Websites and web based services would improve transparency and accountability. A portal on higher education and research would increase interaction and accessibility. A knowledge network would connect all universities and colleges for online open resources.

3.0 ICT and its Relevance in Higher Education

3.1 Administrative hassles

In India the major universities are burdened with the academic administration of affiliated colleges. For instance, Andhra University has 405 affiliated colleges; Osmania University 390; Anna University 232 and University of Kerala has about 100. The position is nearly the same in the case of most of the major affiliating universities. The duties of an affiliating university involve enormous administrative responsibilities, which is unproductive in academic terms. Besides the acute paucity of funds, lack of autonomy, and the burden of affiliation, the general universities suffer from the obsolete composition, powers, and functions of the university authorities like the Board of Management, the Academic Council, and the Senate. In advanced countries, universities and university-level institutions constitute the strong centres of research. It is a universal phenomenon because universities alone have a continuous flow of young and fresh minds and an atmosphere that is highly conducive to talent and creative effort. The relevance of ICT is more vital in this sector where an autonomous administrative function can be bestowed on colleges with good record and the major burden of the administrative hassles can be overcome so that the focus is shifted to research.

3.2 Foreign Universities

In India the first foreign institution to start using ICT was Qunatam International. With this, actual ICT revolution started in higher education in India. Now many institutions including Indian Institutes of Technology, Indian Institute of Managements and Xavier Labour Research Institute, Bhubaneswar are working on this platform to reach more people. World Bank report has made it clear on education in India that the government should allow the private sector to fill the burgeoning demand for higher education by relaxing bureaucratic hurdles and putting in place better accreditation systems for private providers of education and training. It also recommends increased university-industry partnerships to translate research into applications that can yield economic value and develop lifelong learning programmes to meet the learning needs of all, both within and

outside the school system, including using distance learning technologies to expand access to and the quality of formal education and lifelong training programmes.

India has no multilateral obligation under the WTO to open up higher education services to foreign participation. The impact of opening up higher education services is shaped not by the WTO but by domestic factors, including the domestic regulatory framework and the state of the domestic education system in terms of quantity, quality, costs, infrastructure and finances. A growing number of Indian educational institutions are beginning to export to other markets. So, globalisation of education services should also be seen as an opportunity, and the GATS as a framework to exploit this opportunity. In short, a pro-active rather than defensive approach is required to benefit from the liberalisation of higher education services, both unilaterally and multilaterally, on the import as well as export fronts.

3.3 Standardisation

Higher education is fundamentally about distinction. The general goal should be that average quality of education improves. The only way disparities can be prevented from arising is by laying greater premium on the lowest common denominator. The main thrust of this argument is to prevent diversity of institutional forms. India as a developing country needs all kinds of institutions: some that cater for the bright, some for the average, and others for a combination of the two; some that are experimental in their pedagogy and others that are traditional. It is important to enable quality institutions to come up and thrive. Stringent licensing requirements in these professions are needed to test individuals on the output side. One way of enforcing accountability is transparency. This can be enforced by effective utilization of ICT.

3.4 Supply problems

Poor regulation is constraining supply of higher education in India:

- There is a huge mismatch of supply and demand for higher education leaving students with very few choices, thereby allowing institutions to get away without being held to high standards of quality. Supply can only be increased if there is a huge infusion of funding into education from all kinds of sources - public, private, philanthropic and foreign.
- Fee caps only tend to decrease supply further - if one can't recover costs, one might as well be doing something else. Rather than helping the poor, regulations end up hurting them since average fees won't fall if supply doesn't increase.
- We want to decrease fees, increase supply, but don't want to decrease the costs of providing education. Regulations are actually adding to the costs of supplying education - the costs of getting accreditation are too high.

The following could be done to help improve the supply both in terms of quantity and quality:

- The regulators should be given a target of increasing the supply by a certain amount each year. The regulator's job must be limited to that of regulation (drawing up the broad guidelines) while accreditation (ensuring compliance with the regulations and rating the institutions on compliance) may be given to an independent set of organizations.
- If the rating agencies like CRISIL, ICRA and CARE are given the responsibility with healthy competition amongst them, and also independence from the regulator, it would ensure that the institutions are held to high quality standards.

3.5 Examination System using ICT

The practice of using the World Wide Web as a medium to publish examination results is not new, especially in countries where the rate of Internet usage is high. The concept picked up in India during the past eight years with the increased proliferation of Web and its reach into the Indian homes and Cyber cafes. The organization behind the vast exercise of publishing the various exam results on the Internet in India is National Informatics Centre (NIC), a department of the Ministry of Communications & Information Technology. Through its nationwide infrastructure present in all States, Union Territories (UTs) and Districts of India, NIC has been publishing and disseminating the results of several academic and recruitment examinations through the Internet every year. For the past four to five years, the school results and many others including entrance examinations for professional courses are being simultaneously released on the Internet as soon as they are ready on the exam results web portal (<http://results.nic.in>) developed for this purpose by NIC. Many Universities including University of Kerala have followed this very meticulously.

3.6 IT@School initiative in Kerala

IT @ SCHOOL is a project under the Directorate of Public Instruction of the Government of Kerala, which introduces Information Technology in High School Education for qualitative improvement of the conventional teaching/learning system. The project is implemented by a three tier system of administrators. Government of Kerala has the approved Keltron and C-DIT, both government agencies, and 15 other private agencies as empanelled agencies of IT@School Project. These agencies shall associate and implement the IT @ School Project in all the government and Aided High Schools all over the state. School authorities are requested to enter into a separate agreement with any of these selected agencies for implementation.

Table: Structure of the IT@School, Government of Kerala

Chairman	District Panchayath President
Vice Chairman	District Collector
Members	Chairman, Education Standing Committee of District Panchayath
.	Deputy Director Education
.	District Officer, NIC
.	Principal, DIET
.	District Mission Co-ordinator, Kudumbashree
.	District Education Officers
.	One or Two IT experts
.	A representative of School Managers
.	Chairman, Education Standing Committee of Corporation/Municipality

Source: IT@School, Government of Kerala

PK Surendran⁸ in his report mentioned that President APJ Abdul Kalam launched Kerala's first Educational Satellite (EDUSAT) classrooms on July 18, 2006. The president inaugurated the Virtual Classroom Technology on EDUSAT for Rural Schools (VICTERS). This ambitious programme will be a leap frog in harnessing computer for universal education. Kerala is the first state in the country to implement a full-fledged Satellite Education System using the technology of EDUSAT. By implementing 'VICTERS', Kerala has become a role model to all, re-establishing its age-old legacy of being the most educationally prominent state of the country. The VICTERS will get technical assistance from ISRO, which will provide 10 satellite interactive centres and train teachers. Plan is to set up EDUSAT centers in 50 government schools of Wyanad, Palakkad and Malappuram. Training centre will be the priority. This task is undertaken by the ISRO. The state government has submitted to the Centre a US \$ 27203520 computer education project. Once this becomes successful, the value addition will start in the higher education sector.

3.7 EDUSAT Programme

The EDUSAT programme has been started to provide a sustainable distance education service in India using advanced space technology and ground technology of convergence. This system is primarily meant for school, college and higher level of education and to

support non-formal level of education. The EDUSAT utilisation has been planned to be implemented in three phases namely: pilot project phase, semi operational phase and operational phase. Pilot projects have been taken up under EDUSAT programme in Karnataka, Maharashtra and Madhya Pradesh ahead of EDUSAT launch using INSAT-3B. In Karnataka, the Visveswaraya Technological University has begun regular classes providing lessons for 100 Engineering Colleges from September 15, 2004; in Maharashtra, Y B Chavan Open University is conducting regular contact classes in 75 locations spread over the State from October 20, 2004. In Madhya Pradesh, Rajiv Gandhi Technical University is conducting trial transmission of classes with 25 nodes. Karnataka Primary Education Pilot Project under 'Sarva Shiksha Abhiyan' covering about 885 primary and secondary schools is under implementation. The semi-operational phase begins by using EDUSAT with 20 uplinks and about 1000 classrooms in the country covering all the five regional beams. Finalisation of the ground infrastructure for implementing the networks to meet requirements of this phase has been progressing well. In the third phase, the EDUSAT network will be made fully operational. Manufacturers and service providers will replicate the systems with funding by the end-users and technical and managerial support from DOS.

3.8 Educational TV Services in India

INSAT is being used to provide Educational TV (ETV) service for primary school children in Tamil, Marathi, Oriya, Telugu and Hindi. A general enrichment programme on higher education (college sector) is telecast on the national network. These programmes provided by the University Grants Commission (UGC) are a part of its countrywide classroom programme. The Indira Gandhi National Open University (IGNOU) broadcasts, half an hour daily via the national network, curriculum based lectures for students of the open university. Gyandarshan is an exclusive Educational TV channel of India started in January 2000 by IGNOU, Ministry of Human Resources Development and Prasar Bharti. Gyandarshan-I beams round the clock programmes acquired from UGC, National Council for Educational Research and Training, Central Institute for Educational Technology, State Institute of Research and Training and IGNOU. Aka Eklavya-Gyandarshan-III channel dedicated to technical education was started on January 26, 2003, in collaboration with the Department of Technical Education in the Ministry of Human Resource Development and IITs with IIT, Delhi as the nodal point. The channel airing programmes originating from different IITs for the benefit of students pursuing studies in Technology and Engineering has marked the beginning of new era in spread of Technical Education in the country.

3.9 Satellite-Based Training and Developmental Communications Channel (TDCC)

Training and Developmental Communication Channel (TDCC) using INSAT is operational since 1995. It provides one-way video and two-way audio system of interactive education. The teaching-end includes a studio and uplink facility for transmitting live or pre-recorded lectures. The participants at the classrooms located nation-wide receive

lectures through simple dish antennas and have facility to interact with lecturers using telephone lines. The teaching-ends are now available at Gujarat, Madhya Pradesh, Orissa, Karnataka, Goa University, Anna University and NE-SAC, Delhi and Ahmedabad. The Direct Receive System network consists of more than 2000 classrooms spread over the country. Several State Governments are using the TDCC system extensively for distance education, rural development, women and children development, Panchayat Raj and industrial training. Average monthly utilisation of TDCC is 57 programmes over 24 days with 398 interactive training programmes.

3.10 Jawahar Knowledge Centres (JKCs)

The State Government of Andhra Pradesh has opened 36 Jawahar Knowledge Centres (JKCs) at various engineering colleges in Visakhapatnam to impart ICT training to the graduates in these engineering colleges. According to a senior manager at the Centre for Good Governance, only girl students will be selected for the training programme through JKCs.

Computer-aided admission processes is becoming the norm for Delhi University. The new college to join this bandwagon is Deshbandhu college which is undertaking a complete automation of the admission process. Besides, colleges under Delhi University are also planning to computerise records of internal assessment, so that students have easy access to their examination results. Technology related courses are also being introduced in various colleges, especially Apeejay Institute of Business Studies which is coming out with an exclusive course on software technology. All these are because of an increasing potential of job opportunities in the software industry.

4.0 Recommendations of the Study

The following are the recommendations of the study:

4. 1 Immediate attention to be paid to addressing the teachers in the higher education system who need to understand the benefits and the fallout of the ICT implementation and use in higher education.
4. 2 The need for reaching the far flung corners of the state of Kerala should be inculcated among the stakeholders in the system.
4. 3 The success stories of ICT implementation to be taken to those parts where ICT has not been a success.
4. 4 A committee to monitor the effective functioning of these ICT ventures to be constituted who will eventually take up the issues at the higher level for success of the system.
4. 5 The thrust areas of ICT to be clearly spelt out as it differs in different districts of the state of Kerala.
4. 6 The college and university teachers be given necessary inputs including the hardware for their proper functioning.

- 4.7 Government need to appoint a high level advisory committee equivalent to the Higher Education Council or a sub-committee under the Higher Education Council for speedy implementation.
- 4.8 Chair Professors in ICT for Education at Universities of Kerala and Calicut should give importance to the ICT in higher education should be constituted.

5.0 Conclusion

The performance evaluation system should be such that it takes universities nearer to the realities of the market. Let the students virtually provide feedback for the success of the system. Once faculty is made responsible for revenue generation, there will be sweeping changes in the lifeless corridors of universities. Further, the existing courses will be updated automatically. The resistance on the part of the faculty to use ICT will come down. As part of the refresher programmes, now the University Grants Commission has issued regulations whereby ICT use is known to teachers. Infact, Iqbal College, Trivandrum, Kerala became the first fully ICT literate teaching college in the State.

China has become one of the world's great "study-abroad" destinations. Currently more than 60,000 foreigners study in Chinese universities, and that number is swelling each year. Powerful nearby economies and advanced technological societies of South Korea and Japan are sending huge numbers of students to China. For Americans, China is among the most popular destinations for study-abroad and the number-one choice for U.S. students who want to study in Asia (conversely very few Americans study in India, as most are frightened by perceived security risks). Chinese universities tour Asian countries to promote study at their institutions. China is active and aggressive about becoming a major player in international education. It recognizes that huge sums of money leave the country when students go abroad, and it is keen to tip that trade balance in its favour. Recently, seventeen Chinese universities from Jiangsu province went to Vietnam, Singapore and Malaysia in search of education links and opportunities for student exchanges. The use of effective ICT is crucial in the case of China. The focus of the debate on funding higher education in India has to shift from the means ("fee-caps", "equality", "regulating growth", "non-commercialisation", "exploitation") to the end of ensuring higher education for all through a variety of means through both state and private finances, but with proper regulation aimed to ensure high quality and standards, not just in private institutions, but in public institutions as well. Proper use of ICT in larger perspectives is needed for a qualitative growth in the manpower profile.

Abbreviations:

CARE	: Credit Analysis and Research Limited
CRISIL	: A Standard and Poor Credit rating company in India
EDUSAT	: Educational Satellite
EU	: European Union
GATS	: General Agreement on Trade in Services
HRD	: Human Resource Development
ICRA	: Indian Credit Rating Agency
ICT	: Information and Communication Technology
IGNOU	: Indira Gandhi National Open University
IIT	: Indian Institute of Technology
IIM	: Indian Institute of Management
IT@ School	: Information Technology at School
JKC	: Jawahar Knowledge Centre
TDCC	: Training and Developmental Communication Channel
VICTERS	: Virtual Classroom Technology on EDUSAT for Rural Schools
WTO	: World Trade Organisation

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