

Emerging profile of ICT-enabled Commerce and management education in India

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Abstract

This paper emphasizes that Business and Commerce are performing arts requiring inculcation of professional operative skills. The introduction of ICTs in the higher education has profound implications for the whole education process ranging from investment to use of technologies in dealing with key issues of access, equity, management, efficiency, pedagogy and quality. In this regard the paper addresses the opportunities and challenges posed by integration of ICTs in various aspects of higher education in the present scenario. The paper argues for addressing the issues through formulation of policies and strategies to accrue following potential future developments in ICTs and to integrate them in education sector to transform higher education.

Higher education systems have grown exponentially in the last five decades to meet the demands of quality education for all. Information and Communication Technologies (ICT) have become common place entities in all aspects of life. Across the past 10 years the use of ICT has fundamentally changed the practices and procedures of nearly all forms of endeavour within business and governance in India. In India, within education, ICT has begun to have a presence, but the impact has not been as extensive as in other fields. The use of ICT in education lends itself to more student-centred learning settings and often this creates some tensions for some teachers and students. But with the world moving rapidly into digital media and information with ultra-modern devices and utilities of ICT, the role of ICT in entire system and all channels of education in India is becoming more and more important and this importance will continue to grow and develop in the 21st century.

This paper highlights the emerging trends in and various impacts of ICT on higher education in general and commerce and management education in particular, analyses opportunities, explores potential future developments and suggests adoption of suitable strategies. The paper advocates the role of ICT in transforming teaching and learning and seeks to explore how this will impact on the way programs will be offered and delivered in the universities and colleges of the future. This combination of traditional teaching pedagogy coupled with digitized learning is one of the ways we can prepare our upcoming generations to become global contributors who can communicate across culture, time and geographies.

This paper examines the significance penetration and usage of ICT to bring about the widely anticipated transformation of business education. It argues that whilst business collapses and institutional resistance have impeded the uptake of ICT, a more significant reason for its slow progress is the absence of a clear linkage between the deployment of ICT and the enhancement of educational outcomes. The article develops this argument using a heuristic which juxtaposes the unique educational capabilities of ICT with the characteristics of value-adding business education. It shows that the investment in ICT-enabled education to date has favoured capabilities that create insufficient additional educational value and little incentive for consumers to switch from existing

products. The article explores why this situation has come about and suggests ways in which future investments in ICT-enabled commerce and management education can be better targeted at the value creation.

1. Introduction

“The real wealth of a nation is its people. And the purpose of development is to create an enabling environment for people to enjoy long, healthy and creative lives. This simple but powerful truth is too often forgotten in the pursuit of material and financial wealth.” These are the opening lines of the first *Human Development Report*, published in 1990, (UNDP, Oxford).

It is now universally acknowledged that the goal of Plan efforts is *human development*. Human Development Reports 1990 to 2010 explore in detail the complex relationship between economic growth and human development. It provides both a mirror, reflecting present patterns of global imbalance, and a telescope, showing the more positive futures possible. The central message of the Human Development Report is clear that there is no automatic link between economic growth and human development, but when these links are forged with policy and determination, they can be mutually reinforcing and economic growth will effectively and rapidly improve human development. Higher education occupies an important place in the educational process of a country. In independent India higher education is considered as the important tool for national development. Education is the process of the perfection of the mankind. Education is for the comprehension of life, enlightenment of the people. Higher education is the main instrument for development and change. It has the important task of preparing leaders for different walks of life-social, intellectual, political, cultural, scientific and technological, etc. The intellectual dynamism, resourceful and economic prosperity of a country are reflected in quality of higher education.

The Radhakrishnan Commission (1948-49) observed: *“Welfare and betterment of humanity is the ultimate goal of higher education”*. It is not without significance that the report of the Education Commission (Kothari Commission) 1964-66 has been titled as *‘Education and National Development.’* The Commission observed, *“If the pace of national development is to be accelerated, there is need for a well-defined, bold and imaginative educational policy and for determined and vigorous action to vitalize, improve and expand education.”* The Commission further observed *“education could not be considered in isolation or planned in a vacuum. It has to be used as a powerful instrument of social, economic and political change and will, therefore, have to be related to the long-term national aspirations, the programmes of national development on which the country is engaged and the difficult short-term problems it is called upon to face.”*

2. Role and Dimension of Higher Education

Higher Education has potentials to contribute to social development, which is well comprehended by the planners and policy makers. History of educational reforms including the underlying debates is a testimony to this knowledge. Looking back into our immediate past, there is a legacy of 1968 National Policy of Education. That marks a significant step forward in the history of education. The 1968 policy document aimed, *“to promote national progress, a sense of common citizenship and culture, and to strengthen national integration. It laid stress on the need for a national reconstruction of the education system, to improve its quality at all stages, and gave much greater attention to science and technology, the cultivation of moral values and a closer relation between education and the life of the people”*.

The National Policy on Education (NEP) (1986) characterizes higher education as a *“crucial factor for survival”* providing the Indian people with an *“opportunity to reflect on the critical*

social, economic, cultural, moral and spiritual issues". It is envisaged in the NEP 1986 and POA 1992 that education will be used as an agent of basic change in socio-economic status of people.

UNESCO's policy paper titled '*Strategies for Change and Development in Higher Education*' has four themes: (i) Views on Trends and Challenges: Interpretations of Context and Setting; (ii) Responses Relevance for Higher Education; (iii) Quality in Higher Education; and (iv) Internationalization of Higher Education.

Higher education in India is being put to a test at the moment. In the changed environment of the day, the system of higher education faces two major imperatives. These are: (a) need to cope with inadequacy of resources, and (b) need to respond to the demand for providing competent manpower and high quality R & D support. In this backdrop, the system of Higher Education should be prepared to respond adequately to the emerging challenges. Over the last five decades there has been phenomenal expansion of the higher education system. Yet in the fast changing socio-economic context, the higher education system will be exposed to still greater pressure for expansion.

3. Business and Commerce Education

Basically, education in business is education in managerial economics. Business and commerce are performing arts. However, acquiring a skill requires some basic foundation in theory. Digesting a theory sharpens the human faculties of mind and intellect which enable a person to think independently with freedom from borrowed thoughts. The applied aspect of Business Management should be hypothetical as well as based on experience which a person may get by undergoing on-the-job apprenticeship training which is again the responsibility of business to provide. Imparting of such apprenticeship training in applied business science is a part of social responsibility of business. It is a dimension to the center prevalent business philanthropy, e.g. one can imagine Telco financing and running training and making aspiring but inexperienced people aware of the fundamental micro and macro situations which create several challenges in managing a business.

Though, business secrets need not be disclosed, instruction in fundamentals of language, logic and simple mathematics can be provided in an atmosphere where the principles are applied to gain practical experience. Moreover, a business unit imparting instruction and conducting training need not commit that the persons so trained in managerial economics and managerial skills be absorbed in the business unit itself. This is a philanthropic work in Human Resource Development for other industries which face various problems at the stages of promotion, survival and development.

4. Awareness about the Challenges

Today, management is becoming increasingly divided. There are those who are sticking with and are stuck with the ways that used to assure top performance and profits. And there are those who have learned to employ personal styles and professional strategies that satisfy the demands of a maturing corporate world and the technology, economy and society of today.

Based on the experiences and lessons of leading corporations all over the world, The Managerial Challenge is designed to give every executive a clear understanding of the problem areas and the possible paths to success in today's changing business world, such as :

- (a) Matching the job to the individual;
- (b) Objective performance appraisals;
- (c) Acquisition of skills, training and role of the Manager;
- (d) Negotiation and managing;
- (e) Management with emerging trends in Information and Communication Technology (ICT);

(f) Multinational business.

In the developing economy of India, the challenges are created and aggravated because of the uncertain and tricky Government policies and the beurocracy. The whole system works in an atmosphere of uncertainty which is man-made rather than nature. If business and commercial activities amount to risk-taking; i.e., decision making against uncertainty, then such business education as would enhance the operative skills and adaptability of human character would be necessary. Adaptability for character-building and image-building is a quality that can be achieved through formal education and experience gained through involvement in problematic situations. Thus, the orientation of business education in future is a manoeuvre. Adaptable personality is a personality which is oriented to finding out solutions to problems rather than problems to solve. This is possible when the process of teaching, learning and research are grass-rooted, have relevance to the local political problems.

Basically, there is a problem of Indianisation of business education with reference to the culture of a business unit, the social culture, the value system and the basic ethics. After formal learning, the individual should get the necessary exposure to the social and economic systems which are genuinely Indian. Business education should enable creation of awareness among individuals about the different developments around, which are the result of policy changes at the macro and micro levels. When such awareness is created the apologetic tendencies in human behaviour, fear-complex and frustration can be removed. Therefore, the basic objective of business education is to inculcate such habits, as would develop the free enlightened personality prepared to face various economic challenges without apology. The basis of such a personality is character having no fear-complex of any kind.

Business education is not a matter of formal training brought about by a set process of learning and teaching. Learning from experience and developing positive values and attitudes should be the outcome of business educational system. Ability to criticize without being cynic, ability to get exposure without being a hypocrite and adaptability to face the old and new challenges without indulging in ugly compromises are the aspects of personality development for businessmen. Such a character building through business education is necessary for HRD which is fundamental to any developed or developing country. A man, who has acquired business skills through business education, is an asset to the society, because through the communication and leadership skills acquired, he can remove the forces which create a hurdle in building up a harmonious society. Basically an educated mind is the powerful force behind development of a spirited individual and the society.

5. History of Technology in Education

It would be justified to refer to, at this juncture, the history, stages in the evolution of **Technology in Education:**

<u>Year</u>	<u>Development</u>	<u>Year</u>	<u>Development</u>
105	Paper Made in China	1970	TV VCP 1980 TV VCR + Audio Tape
382	Manuscript Transcription	1990	Computer Age
1450	Gutenberg Printing Press	1991	Computer Age: First Smart Board
1600	Public Education		Interactive White Board
1700	Public Education : Blackboard,	1995	The Digital Age
1800	Public Education Chalk-board, Slates	2000	The Interactive Age, Internet Connectivity
1900	Audio-visual Age		Smart Response, Laptops etc.
1920	Radio		2-G, 3-G, 4-G Mobile Communications.
1930	Film Strip Projector		
1940	Overhead Projector		
1960	Information Age TV		

(Source: - www.youtube.com)

6. Information and Communication Technology

Information and Communications Technology or Information and Communication Technology, usually abbreviated as ICT, is often used as an extended synonym for Information Technology (IT), but is usually a more general term that stresses the role of unified communications and the integration of telecommunications (telephone lines and wireless signals), computers, middleware as well as necessary software, storage and audio-visual systems, which enable users to create, access, store, transmit, and manipulate information. In other words, ICT consists of IT as well as Telecommunication, Broadcast Media, all types of Audio and Video processing and Transmission and Network based Control and Monitoring functions.

The UNESCO uses the term ICTs to describe: *"...the tools and the processes to access, retrieve, store, organize, manipulate, produce, present and exchange information by electronic and other automated means. These include hardware, software and telecommunications in the forms of personal computers, scanners, digital cameras, phones, faxes, modems, CD and DVD players and recorders, digitized video, radio and TV programs, database programs and multimedia programs"* (UNESCO, Bangkok, 2003; Bairagi et al., 2012).

"The foundation of every state is the education of its youth"-Denis Diderot (1713-1784), French Author & Philosopher.

"The principal goal of education is to create men who are capable of doing new things, not simply of repeating what other generations have done." -Jean Piaget (1896-1980) Swiss cognitive psychologist, (Bhunia, 2011).

"For India to emerge as a super power of the world in the shortest possible time it is important to convert our demographic merit into knowledge power hose by nourishing and uplifting our working population into knowledge enabled working population." -Mission Document NMECIT-MHRD (2007), (Dutta, 2011).

"We have only one country in this universe, and that is world". -Rabindranath Tagore (Bhunia, 2011). Tagore's such powerful philosophy may ultimately be realized if today's tenet of "one world one village" is implemented.

7. Significance of Usage of ICT in Commerce and Management Education

Modern developments in Information and Communication Technologies (ICT) provide exciting possibilities to enhance the quality of Commerce and Management education. Interactive Commerce and Management education software, open access digital libraries, and cheaper and more intuitive technology may facilitate new forms of interaction between students, teachers, non-teaching employees and the community and enhance the quality of Commerce and Management education by making it more accessible.

Commerce and Management Education may be enriched by integrating such technologies into traditional educational activities. However, it must be recognised that ITC may never displace the relationship between teacher and learner which is crucial to the learning and development process.

ICT has the capacity to enhance the learning process and facilitate communications within Commerce and Management education institutions and between educators and learners but it must be used in education institutions under the supervision of qualified well-trained professionals with the expertise in pedagogy and in education to ensure that its impact does not damage or undermine the learning process or the development of learners.

Commerce and Management education institutions should:-

- (i) support the use of ICT as an integral part of the provision of quality education in Commerce and Management stream for all. They should advocate for the use of ICT in Commerce and Management education as a key modern aid to teaching and learning;
- (ii) advocate for free access for all teachers and learners, support professionals and administrators in Commerce and Management education, to high quality dedicated ICT;
- (iii) insist that ICT in Commerce and Management education is appropriate to the learning requirements in the curriculum in each subject, is supportive of the work of teachers and learners, and of administrative and professional staff in education;
- (iv) insist that educators are consulted about the introduction of ICT into Commerce and Management education institutions and involved in the design and development of appropriate ICT for Commerce and Management education purposes;
- (v) monitor the implementation of any agreements entered into by Governments and Apex authorities in Higher Education for the provision of ICT by commercial companies.

Governments and Apex authorities in Higher Education should:-

- (i) develop national plans for the use and promotion of ICT in education in consultation with education unions and education community interests and others with relevant expertise;
- (ii) allocate the necessary funds to develop appropriate ICT for schools and education institutions and ensure that the outcome of such development work is available freely to all; allocate the necessary funds to ensure that every education
- (iii) institution has access to high quality ITC, both hardware and software, irrespective of where it is situated;
- (iv) allocate the necessary funds to provide continuous professional development in the use of ICT for teachers and other education professionals;
- (v) ensure that high quality internet access is available to all Universities, Colleges and Higher Educational-Management institutions.

Where commercial ICT companies are engaged by Governments and Apex authorities in Higher Education to contribute to the provision of ICT in Commerce and Management education or become voluntarily involved in such provision, that engagement should be subject to agreements which:-

- (i) recognise the professional integrity and independence of the Commerce and Management education institutions and personnel who are affected;
- (ii) ensure that the primary purpose of the engagement is to provide support for teaching and learning;
- (iii) ensure that consultative processes with professional education staff are an essential element in the development of the software and hardware provided; and
- (iv) Include provision for monitoring mechanisms for the implementation of any such agreements which include professional education staff.

8. Justifications for ICT Based Commerce and Management Education

Today ICTs—including laptops wirelessly connected to the Internet, personal digital assistants, low cost video cameras, and cell phones have become affordable, accessible and integrated in large sections of the society throughout the world. It can restructure organizations, promote collaboration, increase democratic participation of citizens, improve the transparency and responsiveness of governmental agencies, make education and health care more widely available, foster cultural creativity, and enhance the development in social integration. It is only through education and the integration of ICT in education that one can teach students to be participants in the growth process in this era of rapid change.

ICT can be used as a tool in the process of commerce and management education in the following ways:

- (1) Informative tool: It provides vast amount of data in various formats such as audio, video, documents.
- (2) Situating tool: It creates situations, which the student experiences in real life. Thus, simulation and virtual reality is possible.
- (3) Constructive tool: To manipulate the data and generate analysis.
- (4) Communicative tool: It can be used to remove communication barriers such as that of space and time (Lim and Chai, 2004; Hattangdi & Ghosh, 2010).

Main benefits of using ICT in commerce and management education in India to the various stakeholders: Summarily, following benefits can be propagated:-

[A] To the Student:

- (1) Increased access,
- (2) Flexibility of content and delivery,
- (3) Combination of work and education,
- (4) Learner-centred approach,
- (5) Higher quality of education and new ways of interaction.

[B] To the HEIs:

- (1) High quality,
- (2) Cost effective professional development in the workplace,
- (3) Upgrading of employee skills, increased productivity,
- (4) Development of a new learning culture,
- (5) Sharing of costs and of training time with the employees,
- (6) Increased portability of training.

[C] To the Governments:

- (1) Increase the capacity and cost effectiveness of education and training systems,
- (2) To reach target groups with limited access to conventional education and training,
- (3) To support and enhance the quality and relevance of existing educational structures,
- (4) To ensure the connection of educational institutions and curricula to the emerging networks and information resources,
- (5) To promote innovation and opportunities for lifelong learning, (UNESCO, 2002).

Higher education in India is experiencing a major transformation in terms of access, equity and quality. This transition is highly influenced by the swift developments in information and communication technologies (ICTs) all over the world.

The optimal utilization of opportunities arising due to diffusion of ICTs in higher education system presents a profound challenge for higher education institutions. This aspect has further gained momentum due to swift advancements in Information and Communication Technology (ICT). Demand for skilled and competent labour is ever increasing in the contemporary globalised society. Competition in every sector ranging from access to quality in higher education has emerged as determining factor of economic growth and development. In order to increase the access to higher education and improving its reach to the remotest parts of the country contribution of open and distance learning facilities is on increase. In addition, it is catering to life long learning aspirations and that too at affordable cost. The last two decades have witnessed the inclusion of developments in ICTs in higher education systems around the world. Even then the challenge to develop a higher education system that is flexible and

dynamic so as to holistically integrate the technology in the management and delivery of learning programmes is daunting (Snehi, 2009).

ICT is unanimously acknowledged as a significant catalyst for social transformation and National progress of any country. India has enormous geographic disparity in ICT use but at the same time she has greater potentialities and possesses the largest ICT workforce in the world. She has recognized the importance of ICT in educational as early as 1984-85. The role of ICT is diverse in the delivery of good and highly competitive in all the four areas of education. It cannot be separated from any of the areas. Increasingly available ICT materials facilitate the learner as well as the teacher to enhance their horizon of knowledge in order to meet out the challenging competitive educational environment. Curriculum for the various levels should be modified in accordance with the changing ICT environment. The curriculum framer needs to update with the emerging trend. Educational programme consists of all the activities that are directed towards educating the citizen of the country in various modes of instruction and training. Information Communication Technologies are a very broad area in which every device facilitates learning. (S Sampath, 2011).

9. Restructuring of Commerce and Management Courses to penetrate ICT culture to make them ICT savvy and enabled

Recognizing the need to revitalize Commerce and Management education in view of increased expectations of the learners, curriculum changes in the discipline including the ICT changes are suggested.

The following are some of the significant changes that are required to be made are:-

- (a) Inclusion of more and more Management subjects in Commerce courses be reconsidered in view of commerce courses becoming, look-alike courses (to BBM, MBA, etc.) but lacking the recognition and importance from Business and Industry. Commerce education must be given a distinct identity retaining the core nature of commerce, trade, accounting, auditing, taxation, documentation and other related subjects.
- (b) Technology changes especially in ICT that are bringing a paradigm shift in the way the businesses are conducted must be properly reflected and covered in the Commerce curriculum. Emerging and fast growing concepts such as E-Commerce, E-Business, E-Trade, E-Audit, International Accounting Standards, and Disclosure requirements of financial statements must be covered and updated from time to time to keep the teachers and students continuously updated.
- (c) Internship as in any professional course such as medicine, law, chartered accountancy etc. must also be initiated in the mainstream Commerce courses.
- (d) Capacity building exercises to develop teachers to carry out the changes and other development interventions must be seriously considered in view of formal and regular recruitment being stopped or delayed in most of the States.
- (e) Innovations in nomenclature, duration and content of commerce courses must be considered in view of manpower requirements of related sectors at various levels.
- (f) Five-year integrated courses after tenth class or plus-two level must be designed.
- (g) There must be a realistic framework to arrange for the interface with the trade and industry at the local, regional, state and national level are required to be worked out at the University level to avoid duplication and active involvement of the trade and industry. Universities and Colleges must concentrate on developing Commerce labs and making practical experience an inherent part of the curriculum requirements. Active learning with the involvement of students as in basic subjects like Mathematics, Physics and Biological Sciences should be given more emphasis. The soft skills, which are being emphasized in other disciplines such as Computers,

including in professional commerce courses as in CA must be developed relevant to Commerce courses.

(h) It is essentially required to thoroughly overhaul the examination and evaluation system, internal practical and for the introduction of some form of internship during the final year. Marks secured by the students in different components of the Course must be clearly stated to guide the employers to make realistic assessment of the knowledge, skills and abilities of the students. It is suggested that the course should have a utilitarian perspective even while maintaining the employment focus.

(i) Revamping and Restructuring of Commerce Courses with a specific focus on the sector / discipline, are required to be taken place, such as, [some suggestions]:

- B.Com – Retail Management with ICT
- B.Com – Tourism Management. with ICT
- B.Com – Financial Sector Management [Banking, Finance and Insurance] with ICT
- B.Com – Entrepreneurship with ICT
- B.Com – Marketing Management with ICT

Undoubtedly, ICTs are potentially a useful tool both for managing education and teaching. Application of ICT in managing educational institutions should be encouraged, as should use by instructors to gain access to educational materials. By teaching computer skills to youngsters, they may influence inward investment for the future society as well. ICTs are most likely to be cost effective when used to reach very large numbers of students; when used for research; and when used by administrators irrespective of time and place. Following are some major suggestions for ICT penetration in Commerce and Management education:-

(i) Assess skills of ICT professionals and meet gaps with targeted training programs to overcome the short-term skills shortage in the ICT industry and adopt continuing education and professional skills assessment and enhancement programs.

(ii) Encourage closer collaboration between academia and industry to align curriculum with market needs. Establish an ICT Center of Excellence with necessary long-term funding to teach and conduct research in advanced ICTs. Boost use of ICT tools in all levels of education, including ECDP, mass literacy, and lifelong learning.

(iii) Ensure access to education and research for people with disabilities and special needs using ICT tools. Establish multimedia institutes. Initiate diploma and trade courses to enable ICT capacity building for teachers. Teacher training institutes to be empowered with ICT capacity to meet the challenges. Create reliable and accessible national databases. Promote the use of ICT for the purpose of training in the public sector. Initiate development of a sizable resource of globally competitive ICT professionals in order to meet local and global market requirements.

(iv) Develop seamless telecommunication network for the unhindered implementation of ICT policy.

(v) Ensure public access to information through setting up of kiosks. Encourage the participation of private sector for ICT implementation.

(vi) Create an e-Education Cell for coordinating and mainstreaming ICTs in education system.

(vii) Training for all levels of teachers, assistants who are involving in educational institutions. Establishment of lab facilities and internet availabilities for all the students, teachers and assistants is a must. Basic ICT course should be compulsory in all form of educations. Personnel with basic ICT knowledge should be appointed in all form of educational institutions. Use of ICT and multimedia in the education makes it interesting and fruitful Website of the institution should be compulsory along with regular updates.

(viii) Central registration system for the students should be implemented mandatorily. Use of student database, automated account in the institutions for faster administration should be employed. Facilitating electronic professional research journal and periodicals access to foster the level of technology savvy mind of the people and more importantly featuring the educators and students to access the emerging arena of knowledge.

(ix) Establishment of digital libraries or information repository may also be done by the educational institutions which may provide invaluable materials to the researchers, educators and students as well as other interested people.

(x) In disseminating ICT and new technologies which may improve the overall life style of the mass people may be acquainted through conferences, workshops and other technical gatherings arranged by the educational institutions in collaboration with other agencies.

(xi) Focusing on blended learning, rather than insisting on teaching students at my place at my pace using an industrial model that is now becoming obsolete is what they need to look at. Universities need to leverage their competitive advantage in term of the ICT revolution and the new model of e-education has to be relied upon in the future (DIGITAL-Learning, 2012).

(xii) Recognizing the importance of ICT in education, the integration of ICT in education curriculum, intrusion ICT culture in entire system and organization has no option or shortcut or alternative. The empirical studies and experiences strengthen the opinion that there is need for chalking out a curriculum including ICT.

(xiii) *"The foundation of every state is the education of its youth"*, Denis Diderot (1713-1784), French Author & Philosopher. This must be the only solution and suggestion for the developing nations to go for ICT based schools, colleges and universities.

(xiv) Technology is never an alternative for teaching. Without trained instructors, no electronic deliveries can accomplish good results, hence, the trained staff availability for ICT is prerequisite for penetration of ICT culture in the educational institution.

(xv) Only audio visual facility is not sufficient. Development of Computer Laboratory is minimum bare essential step in this endeavour. Computer Laboratory helps in developing scientific temper. Virtual laboratory is necessarily required to be developed using ICT. Lab facility maintenance of the computers, sizable class-room and computer lab for ICT and availability of one computer/student are minimum requirements. Charts, Posters used as teaching aids, Power Point presentations etc. necessary during their courses are prepared by the students out side the institutions. Various skills of using new technology such as presentation of the content of seminars using Power Point, or demonstrating content through Flash or sending assignment papers to moderators still need to be introduced and practised during the sessions. Web browsing is usually done outside the campus.

(xvi) Our Higher Education system, in the rural and semi-urban areas, small and medium level cities, is still to exploit the full potential of ICT for optimizing human learning on one hand and its use for educational management, i.e. e-governance on the other hand. Availability of educational web portals, blogs and wikis, face-books (where teachers and administrative staff can actively participate both as a beneficiary and benefactor), will be instrumental in development of ICT culture in admissions, teaching, learning, evaluation, educational management, financial management, general administration, etc. ICT can optimally play its role only when it is a part of Institutional Culture and that there are three broad dimensions that can generate ICT culture in education, namely:-[a] ICT Literacy and Skills for All in the Sector of Higher Education; [b] ICT Integrated Higher Education; and [c] ICT Supported Educational Management (ICICT, 2012).

- (xvii) To ensure digital empowerment, Students teaching and skill-training should encompass ICT skills along with a full understanding and complete mastery of ICT s as pedagogical tools. HEIs should be ensured with financial and human resources with training for successful incorporation of ICTs. It is also necessary to extend a stronger understanding of future learning needs and future environments for ICT skills. A constructive atmosphere must be there to provide an occasion for all stakeholders to form a part of the information society. Efforts should be taken to promote broadband, computers and internet access down the cost. Progress and planning is still needed in providing attractive learning content and learning technologies.
- (xviii) The last but not the least, it is necessary to minimize the 'DIGITAL-DIVIDE'.

10. Summing up

Since time immemorial education has been considered a very powerful instrument of social, economic and cultural development. If education is to achieve this supreme end, it should be so planned and designed as to enable every individual in a society to develop his or her capacity and aptitude to the maximum extent. All our developmental programmes and schemes would be doomed to frustration if our human resources are not fully developed and utilized. India is steadily shifting to a fast tract of economic and industrial development, which leads to mounting demands on education and calls for a highly diversified human resource. India has been witnessing several paradigm shifts in the social, business and industrial environment. The shift from low tech to high tech, national to global, production to service economy, state to private sector, and the changing occupational patterns create demand for a new work force with a different skills profile than was demanded in the yesteryears. The onus of making available this resource lies on our system of higher education. This supply of competent human resource is vital for our economic restructuring and achieving global competitiveness.

If all the available human resources are to be discovered and developed, a system of education based on sound principle of social justice is very essential. Human development is the end economic growth a means. So, the purpose of growth should be to enrich people's lives. But far too often it does not. The recent decades show all too clearly that there is no automatic link between growth and human development. And even when links are established, they may gradually be eroded unless regularly fortified by skilful and intelligent policy management. Educational process is to be linked with production and employment. Re-orientation of the educational programme should be undertaken in such a manner that it helps to produce self-reliant and self-dependent citizens. India has recognized the need for fundamental educational reforms & restructuring of various courses. However, there is ill-planned restructuring and sudden introduction of Vocational Courses at first degree stage. Basic problems emanating from economic growth prevent of technology and the effect of globalization cannot be countered by restructuring and vocational education alone.

In a democracy the worth and dignity of every individual is to be recognized. The endowed potentialities of every individual must be discovered and developed to the fullest extent to enable him or her to become a potential worker and a creative citizen contributing to the all round progress of the society of which he is a member. No country can achieve full economic growth if it fails to make the most of all the talents of its citizens. The progress of a country largely depends on the fullest utilization of its manpower. Hence, it is high time to restructure and reorient the entire higher educational system, however, in a planned manner. Diffusion of ICTs in Indian universities and colleges would respond to the twenty-first century demands. The contemporary higher education systems are aiming for acquisition of ICT skills as part of the core education system, provision of infrastructure/ fully equipped labs, professional

assistance and other support needed to enhance quality of education. Application of ICTs in managing higher education institutions and use of the technology to homogenize quality of education in the highly diverse scenario across the colleges and universities established in the country would benefit many students. The arguments against the introduction of ICTs have pointed out that ICTs would benefit the urban and already advantaged sections of society at the expense of rural communities. The situation of limited budget allocations, which were barely enough to meet the salary expenditure leading to developmental activities taking a back seat, is improving. The time is right to push the driving forces hard as it is expected that implementation of initiatives to integrate ICTs bring about improvement in higher education organization and quality education through ICT would be realized.

India is making use of powerful combination of ICTs such as open source software, satellite technology, local language interfaces, easy to use human-computer interfaces, digital libraries, etc. with a long-term plan to reach the remotest of the villages. Community service centres have been started to promote e-learning throughout the country (Bhattacharya and Sharma, 2007). ICT in Education has come some distance in India. Starting with its integration in education (ICT Literacy and Skill Development) of late it has found major space in matters of governance (ICICT, 2012). Peter Drucker made a statement in his article *"The Death of the University"* that: *"Thirty years from now the big university campuses will be relics. Universities won't survive...."* so that higher educational institutes shake off their inertia and utilise ICT to its best. The Indian institutes of higher education should also critically appraise what he meant to say as educational institutions in the western world and think of making the best use of ICT for their respective institutions. Technology coordinators view the problems of insufficient hardware, software, and training as major obstacles.

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