

Information Communication Technology and Education

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Abstract: Economic and social development in any country depends on good education of the citizens of a nation. Therefore it is necessary to find ways to make education of good quality, accessible and affordable to all, using the latest technology available. In the last two decades there has been a rapid development of ICT. ICT has changed the dynamics of various industries as well as influenced the way people interact and work in the society. Internet usage in home and workplace has grown exponentially. ICT has the potential to remove the hurdles and increases the rate of education in any country. It can be used as a tool to overcome the issues of cost, non-availability of teachers, and poor quality of education as well as to overcome time and distance barriers. India in recent decades has been focusing on the development of its educational sector. Higher education drives the competitiveness and employment generation in India. There is a severe constraint on the availability of skilled labour. There exist socio-economic, cultural, time and geographical barriers for people who wish to pursue higher education. Innovative use of ICT can potentially solve this problem.

Key words: ICT, Education.....etc.

Quality Education through ICT:

Quality has both absolute and relative connotations. The concept of absoluteness in quality pops up the morale of our education system at the delivery end i.e. institutional, and at the receiving end i.e. students. Quality dimensions seem to have two implications, i.e., functionality of the output and meeting the basic standards. Hence, the quality of our education system may be seen from the point of view of norms and standards, which may evolve depending on the need of the hour. In the 21st century, it is crucial to identify the relative norms for different components of our education system. The alternative dynamics for teacher preparation and the sustaining quality in teacher input, like: Curriculum design and development; Curricular practices vis-à-vis emerging principles of pedagogy; Evaluation of learner's performance and progress vis-à-vis curriculum evaluation; and, Quality management practices become crucial. The quality of these components may also differ from institution to institution. Therefore, sharing of the experiences among institutions on quality issues may generate ideas for evolving norms and strategies for their quality assurance of management processes, curricular inputs and practices and the evaluation system as well. Of late, various developments have been witnessed relating to quality assurance mainly through the intervention of

information and communications technologies (ICT) in education, like networking of the open learning system with traditional Universities, interdisciplinary interactions at intra-institutional and inter-institutional levels, networking of institutions globally, data based management of higher education, the orientation of institutions by incorporating self-financing in their financial management, assessment and accreditation of higher education institutions and creation of different statutory and regulatory bodies at the national level.

Challenges in Education:

The major challenge before the Indian education system is to bring equity in quality of education across the length and breadth of the country. This is more close to the heart of students in rural, semi urban and urban areas, because they also wish to be able to participate in the new economic revolution. The rapid developments in science and technology and the challenges of globalization are posing additional challenges to the education system in the country. This is also the time when parental care to the children is on the wane. The adverse effects of the media on the mental development and moral values of the younger generation are being felt increasingly in all spheres of life. Gross consumerism has distorted the outlook of persons into one of equating possessions with richness. Exploitation of natural resources is proceeding without reference to sustainability. The hiatus between the rich and the poor is getting wider. While the education system needs to keep pace with the scientific and technological developments in terms of building the skills and knowledge, it also needs to address the more fundamental issues of the social and moral consequences of such unregulated activities. In this context, there is now a growing demand to lay greater emphasis on education to inculcate, nurture and develop values, particularly among the youth of the country.

Today, the world economy is experiencing an unprecedented change. New developments in science and technology, media revaluation and internationalization of education and the ever expanding competitive environment are revolutionizing the education scene. A paradigm shift has been noticed in higher education now a day, from 'national education' to 'global education', from 'one time education for a few' to 'life-long education for all', from 'teacher - centric education' to 'learner - centric education'. These changes make new demands and pose fresh challenges to the established education systems and practices in the country. Because of interdependence and integration of world economy in recent years, the Indian higher education system has a new role and a challenge to provide to the nation and the world at large, skilled human power at all levels, having breadth of knowledge and confidence to effectively confront the social and economic realities.

Innovative teaching & learning through ICT

It is often said that if someone from the 19th century were to travel forward in time, he or she would find a revolutionary change in nearly every dimension of society, with the exception of the classroom; with a teacher at the front, writing on a board, and pupils in rows of desks taking notes. Our education systems continue to reinforce traditional approaches to teaching. Changing this will require leaders to develop a compelling vision of 21st century learning, communicate it with passion, and ensure that it is translated into

action at all levels of the system. The transformation will need to be holistic; from government ministries to principals and classroom teachers. It will also require a holistic reform of education delivery, to align incentives and provide resources for teacher training, curriculum development, accountability, and assessment.

The key drivers at the global level, the rapid pace of economic integration, technological advances, global competition for talent, the persistence of underachievement especially among the minority and marginalized populations, increasingly diverse classrooms and heightened expectations for schooling among key stakeholders. We have drawn attention to the differences, at the national level, to context, social trends and issues, culture and education histories. National school systems confront simultaneously the need to attend to national educational issues as well as to ensure that international research and best practice on persistent educational problems can be brought to bear on national problems. Education reform, new opportunities for more engaged learning, greater involvement of key stakeholders, among others; provide an alternate environment for major changes in the way we prepare teachers. How well the education and policy community meets this challenge will determine how well our societies are able to prepare our young for complex and demanding futures. However, the plan panel has set steep targets. For instance, the plan is to target 100% adult literacy, universalize secondary education and increase in gross enrolment ratio in higher education to 20% by March 2017.

Revolution through ICT:

The swift emergence of a global "information society" is changing the way people live, learn, work and relate. An explosion in the free flow of information and ideas has brought knowledge and its myriad applications to many millions of people, creating a number new choices and opportunities in some of the most vital realms of human endeavour. Yet too most of the world's population remains untouched by this revolution. The "digital divide" threatens to exacerbate wide gaps between rich and poor, within and among countries. The stakes are high indeed. Timely access to news and information can promote trade, education, employment, health and wealth. One of the hallmarks of the information society openness is a crucial ingredient of democracy and good governance. Information and knowledge are at the heart of efforts to strengthen tolerance, mutual understanding and respect for diversity. To bridge the digital divide, the only sustainable route is to reduce poverty. In the long run governments need to do much by enhancing access to education and health care through distance learning and telemedicine. ICT can improve the quality of life for poor rural communities who do not have access to these facilities. The world is in the midst of a knowledge revolution, complemented by opening up entirely new vistas in communication technologies. Recent developments in the field of information and communication technology are indeed revolutionary in nature. Hundreds of millions of dollars are being spent on Information and Communication technologies, reflecting a powerful global belief in the technologies. By definition, Information and Communication Technologies are a diverse set of technological tools and resources to create, disseminate, store, bring value-addition and manage

information. Interestingly, ICT, when used as a broad tool for amalgamating local knowledge incubated by the communities with information existing in remote databases and in public domain, heralds the formation of a new class of society - the Knowledge Society. Knowledge thereby becomes the fundamental resource for all economic and developmental activities in the knowledge society of the people, with the global pool of knowledge with the scope for further enrichment lays the genesis for knowledge networking. Knowledge networking opens up a new way of interactive communication between governments bodies, NGOs, academic and research institutions, and the civil society. It helps communities, both men and women, to take appropriate steps to recognize and document the knowledge they possess and in reflecting this knowledge in a wider social domain for directed change through the use of information and communication technologies.

ICT and its Access:

India is a major contributor and developed nation in terms of ICT infrastructure. The reduced tariff of telephones, the charges had drastically reduced attracting many users on to the mobile era. These reduced charges had brought a revolution towards mobile phones and internet access by bringing more people on to the network. After identifying the need to develop the rural area, India had taken major steps towards the development of rural people. Community Internet centres was established all over the country, connecting the isolated villagers to the knowledge base. An information and communication technology appeared as a combination of information technologies (IT) and communication technologies (CT) and presently involves a variety of computer and internet technologies and related software and applications. ICT provides the opportunity together, store, retrieve, process, analyze, and transmit information. Improvement and dissemination of ICT has begun to change the traditional class image. ICT is regarded as an integral component of education and curricular reforms. As an alternative to traditional teacher centered classroom, it allows the formation of learner-centered classrooms. It has brought about changes not only in learning methods for learners, but also in the teaching approaches of instructors. ICT is a tool that can be used across the curriculum or in separate subjects where the emphasis is on the development of ICT – related skills, knowledge, process, and attitudes. It enhances students' learning outcomes within the limits of the existing curriculum. It is also a potential tool to transform the teacher-based classrooms into learner-focused, rich and interactive learning environments. Teachers constitute the key element in this transformation based on the adoption of ICT learning and teaching tools in schools. Integrating ICT in the curricula requires and investment both in these technologies and in trained personnel.

Technologies used in E-learning:

Modern education based on knowledge management cannot be imagined without digital technologies and it can be stated that the role of E-learning is of immeasurable – importance. Though, of course, it does not change traditional learning, it only diversifies and perfects teaching process. Technologies are mediators between students and lecturers. ICTs can enhance the quality of education in several ways: by increasing

learner motivation and engagement by facilitating the acquisition of basic skills, and by enhancing teacher training. ICTs are also transformational tools which, when used appropriately, can promote the shift to a learner-centred environment. There is not only one definition of e-learning. Earlier it was associated firstly with multimedia CD-ROMs; nowadays e-learning educations are using usually internet technologies. The constant is the computer. As we define e-learning long-term systematic learning through computer use. The difference between e-learning and traditional teaching is only in the used material resources, all other factors can be preserved: objectives, teaching principles, curriculum, methods and forms. Based on this knowledge, we can express that application of e-learning brings one new problem to solve – insufficient computer literacy of students. Computer literacy is the human competency to use one's own knowledge, skills and abilities from the close sphere of the hardware and software computer equipment, as well as from the wider sphere of ICT, for the collection, storage, processing, verification, evaluation, selection, distribution and presentation of information in a required form and quality to achieve their relevancy to a specified destination. Teachers and e-learning establishment should encourage a strong sense of community among their online students. This will enable students to interact with one another the instructors, as well as with the resources provided, making for an enhanced educational experience.

Applications of Smartphone in M-Learning:

Education and training is the process by which the wisdom, knowledge and skills of one generation are passed on to the next. Today there are two forms of education and training: conventional education and distance education. Mobile learning, or 'M-Learning', offers modern ways to support learning process through mobile devices, such as handheld and tablet computers, MP3 players, smart phones and mobile phones. In particular, applications (i.e., apps) developed for smart phones are used as a method to deliver m-learning content. There are many observed benefits and affordances of m-Learning, including providing on demand learning and improving communication. Smartphone applications allow designers and developers to create tools that can be used anywhere. As it is found that most smart phones fit in an adult sized hand. The use of applications has the potential to transform traditional classrooms by enhancing current techniques and allowing access to learning from your pocket. Due to the size and low weight, smart phones are highly transportable. Access to Rich Internet Applications (RIAs) enables the user to experience desktop computer-like applications without the constraints of static locality. Most smart phones include a built in camera, video, and audio capturing tools, as well as GPS (i.e., global positing system). M-Learning focuses on the mobility of the learner, interacting with portable technologies, and learning that reflects a focus on how society and its institutions can accommodate and support an increasingly mobile population. This is because mobile devices have features and functionality for supporting learners. For example, podcasts of lectures can be made available for downloading. Learners are to expect to engage with these learning resources whilst away from the traditional learning spaces. Over the past ten years mobile learning has grown from a minor research interest to a set of significant projects in schools, workplaces, museums, cities and rural areas around the

world. The M-Learning community is still fragmented, with different national perspectives, differences between academia and industry, and between the school, higher education and lifelong learning sectors.

Conclusion:

The present's system of education is learner centred. Our aim is to make the teaching and learning process and interesting and non-monotonous one. Teachers have to adopt interactive teaching methods in order to involve students and make them more interactive in the teaching learning process. Teachers can emphasize more on thinking rather than just learning by using audio visual aids. One must not remain either at knowledge level or at comprehensive level only. One should be in a position to apply knowledge in order to innovate something new and achieve excellence. Especially we, the teachers should be aware of bloom's taxonomy, the learning levels and make our students excel. In way we are forced to work together for the excellence and excellence can be achieved by using ICTs. During the XI Five Year Plan, the Government of India launched a National Education Mission through information and communication technology (ICT) which will provide Broadband connectivity to all the institutions of higher learning and make available high quality e-content for dissemination. One of the main issues, which the World Bank cites for strengthening Indi's education system include using ICTs to meet the double goals of expanding access to end improving the quality of education. This exploratory paper discusses a range of issues in utilization and advantages of an ICT mediated higher education as autonomous learning and communicative competence are the advantages in this teaching reform. ICT has made many innovations in the field of education. The use of ICT in and for educations is now seen worldwide as both a necessity and opportunity. ICT covers anything that will store, retrieve, edit and receive information electronically in a digital form. This technology has made search, gathering, storing and receiving of information easier, cheaper and faster.

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