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Impact of Information and Communication Technology (ICT) on Education

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Abstract

Various new initiatives have been taken by the government of India for improving the quality of higher education system. During the past few decades, ICT has provided society with a vast array of new communication capabilities and has fundamentally changed the way of life. ICTs provide a platform of powerful tools that may help in transforming the present isolated, teacher centered and text bound classrooms into rich, student focused interactive knowledge environments. The object of the paper is to explain the term "technology" and its need and importance in the higher educational system of India. Some previous researches examining ICT efficiency and the impact of ICT on educational output/outcome as well as different conceptual and methodological issues related to performance measurement are considered. Efficiency of ICT and its impact at national as well as International level is also being considered. Moreover ICT provide opportunities to distribute and share learning recourses and developments in the field of research more effectively. In fact over the next few years e-learning and use of ICT based technologies in education will grow fifteen fold.

Keywords: Information and Communication Technology (ICT), VPN, GER, ODE, MHRD

Introduction

In the 21st century, the world of higher education is seeing sea changes. The present educational system is greatly influenced by the rapid technological changes. Information and communication technology is basically an umbrella term that encompasses all communication technologies such as Internet, wireless networks cell phones, satellite communications, digital televission.etc that provide access to information. During the past few decades ICT has provided society with a vast array of new communication capabilities and has fundamentally changed the way of life.Since the introduction of information and communication technologies (ICT), their integration into education and the associated financial investments have been policy concerns in many countries. The initiatives that were taken to give ICT a place in education have resulted in a need to monitor these developments, using reliable and valid indicators. Once these indicators are available through standardized international data collection efforts, policymakers can review progress of their countries over time in comparison with their nationally defined targets and other relevant reference countries. It is believed that the use of ICT in education can increase access to learning opportunities. It can help to enhance the quality of education with advanced teaching methods, improve learning outcomes and enable reform or better management of education systems.

The State of Indian higher education has always been question, more specifically for its quality. When it is compared with the required skills set and with the higher education system of the other develops countries. According to the London Times Higher education World University Rankings powered By Thomson Reuters (2014—2015), no Indian University features among the top first 100,only two Indian universities ranked in 250to 300 .India has the third largest system of education in the world, next only to U.S.A and China, with more than 500 hundred universities and around 30,000 colleges. To introduce ICT enabled education in such a large system one needs to have high quality multimedia in enriched content in different disciplines for various courses including its multilingual conversion, capacity building of teachers and students in ICT skills and state of the art infrastructure along with networking and Internet connectivity via virtual private network **(VPN) /**

Broadband connectivity for disseminating the content and affordable access devices so that it reaches the doorsteps of the learner.The ongoing national mission on education through ICT (NMEICT) is a major initiative of the government of India in this direction with an aim to leverage the potential of ICT in providing high quality personalized and interactive content, free of cost, to all the learners.

If ICT used creatively, can make a big difference in the way teachers teach and students learn and can help students acquire 21st century skills like digital literacy, innovative thinking, creativity, sound reasoning and effective communication.ICT can help in enhancing the quality of education through blended learning by supplementing the traditional talk and chalk method of teaching. ICT enabled education can also be a solution to the growing demands for enrolment in higher education in India and thus help increase the gross enrolment ratio (GER) as compared to the world average. In case of open and distance education (ODE) system where "Anyone, Anywhere and Anytime", that is 3A's is the main philosophy, ICT- enabled education can do wonders that no one can imagine and help pave way for the creation of virtual universities in the long run. ICT can also contribute in managing the governance in the colleges and universities.

Aim of the Study

1. To evaluate the role of ICT for Improving the Present educational system in India.
2. To Study the changes occurred in the educational system of country with the use of Technology.
3. To Review that how the information and communication Technology help us to change the Age old Educational system of our country

Review of the Literature

Various Articles of University News, A Weekly Journal of Higher Education, Vol. 53 No.17, April-May 2015, No18,19,20 May, 2015, No.22,24 June, 2015, No.27,28, 30 July–August 02, 2015, No. 31,32, August,2015, No36,37,38. September, 2015, No.47 November, 2015 and Vol.54 No. 02,03,04 January 2016.

Impact of ICT on Education

India's higher education is managed by the University Grants Commission and the Various Councils are insisting on all higher education institutions----colleges and universities----to integrate information and communication technologies (ICTs) in all their educational and administrative operations. Ministry of Human Resource Development **(MHRD)** defines ICT based education as" Information and Communication Technologies are defined as all devices, tools, content, resources, forums and services, digital and those that can be converted into or delivered through digital forms, which can be deployed for realizing the goals of teaching learning, enhancing access to and reach of resources, building of capacities, as well as management of the educational system. These will not only include hardware devices connected to computers, and software application, but also interactive digital content, Internet and other satellite communications devices, radio and television services, web based contents repositories, interactive forums, learning management systems, and management information systems. These will also include processes of digitsation, deployment and management of content, development and deployment of platforms and processes for capacity development, and creation of forums for interactions and exchange."

Thus ICTs in education are being used such as developing course material; delivering content and sharing content; communication between learners, teachers and the outside world; creation and delivery of presentation and lectures; academic research; administrative support, student enrolment etc.

Availability of on Line Resource

On line resources widely help the teacher to enhance the knowledge and this is the platform where one can get much information. Now it is the responsibility of the teacher to extract best from the bulk Material. One can get million of information, a student have to choose best durable and comfortable at every aspect. There are several top class websites and tools available on the Internet which can provide information much better.Facility of Open DOAR (Directory of Open Access Repositories) This Development of technology has brought enormous opportunity to bring the results of research primarily to although digital Communication,--anyone, anywhere and anytime. The concept of open access came in 1991 a tool for the scholarly Communication. Budapest Initiative Definition is somewhat elaborate which states "it is free availability on public internet, permitting any users to reed, download, copy, distribute, print, search or link to the full text of these Articles them for indexing, pass them as date to soft ware or use them for any other lawful purpose, without financial legal or technical barriers other than those inseparable gaining access of internet itself". Open access can achieve the maximum and instant visibility and Impact worldwide to the literature as soon as it was published some times before its publication.

Provide on Line Learning Environment for Today's Learner

Technology is the life line of the online education and the acceptance of technology by both the students and faculty plays a crucial role in its success (Gibson 2008) Various researches in the last few years have focused on the issues faced by students and faculty on the success of on line Education while students and faculty on the success of on line education. While students and faculty Characteristics like self discipline, Self esteem, faculty approach etc have had a significant Impact on the Quality of on line Education, the one major factor that can become the deciding factors in the success of an online program is the use of technology. Technology is rapidly advancing and it often outpaces the developments of teaching process(Johnson &Bakers 2002).new technologies have the potential to change the way teachers teach and learners learn

Technology can help foster student engagement in the on line learning Environment When technology is appropriately in an online module, It can create an interactive learner centered environment that also fosters student engagement. When technology is appropriately integrated in an on line module, it can create an interactive learner-centered environment that also fosters student

engagement. Some of the popular courses management systems that instructors use are Black board Web CT or Moodlee, Chat sessions ,Blogs ,Wikis, Group tasks, peer assessments as well as free web based applications that are relatively new to academia ,such as Twitter feeds ,Google E – mail/calendar/Tasks/documents/audio and video technologies, collaboration tools and online contents.(social Networking sites, Podcasts ,mobile/Electronics Tablets.

Good Practice in the Student Learning or Self Initiated Learning

Students take charge of their own data rather than the teacher transmit or prescribe it; they analyze, interpret and synthesize the data in the context of the problem. They experience the higher order skills involved in the Process of learning.

For on and off Campus Education and learning

Information and communication technologies are useful in education and learning especially for lowering overall costs and improving quality of the learning experience both on and off campus.

Benefit for Teacher as a Learner

Traditional education focuses on teaching and learning. It incorrectly assumes that for ounce of teaching there is ounce of learning by those who are taught .ICT have recently gained grounds well of interest. The nature has highly changed the face of education over the last few decades. Whenever we are talking about the using ICT in the Era of Globalization, the big Question arise in the mind that The ICT must be for the learner only and they can benefited more than the traditional method of teaching. Now the question arises that the ICT is only for the learner or it has equal value for the teacher also .it is the tool for teachers first. Now before moving towards teaching with ICT, must teacher learnt.

With the tremendous use of ICT in education the role of teacher in the era must be increased and technology can never replace the teacher and it's Philosophy of the subject and content knowledge. Though using ICT by teacher can enhance the skill of teacher but the traditional root of learning and teaching must be follow. One cannot change the whole system for the ICT but one can do better with the help of these tools.

ICT generally has a positive impact on teaching and learning situations, but compared with the Ideal expectations; the impact of ICT on teaching and learning must still be considered to be limited. Most teachers consider themselves lifelong learner. Teachers are skilled learners. As professional, they are required to combine studying and improving their crafts. A teacher should go into the class not for teaching but for learning.

Status of Teacher in India

There is no much change in the status of teachers in India in this number of years we have passed after independence. We do not have a sustainable Teacher Education Policy or Programme .Although, on November 28, 2014 the National Council for teacher Education Released Brought out a Gazette of Norms which again floated a sea of doubts and question in the minds of the Stakeholders.

But the introduction of ICT in Education helps the prospective teacher educators in the following manner:

1. Appreciate the educational possibilities and opportunities of ICT
2. Use ICT as a medium of learning.
3. Develop perspectives and approaches on ICT supported assessment.
4. Design an Individual website
5. Use open source software for educational purposes.

Professional development of Teachers

In the 21st century, the emergence of Knowledge based economies has placed increasing emphasis on the development of Professional skill. Rapid technological developments in the various fields like computers, internet, increased Professionalization and Globalization of economies demand ongoing skill development of the workforce. Thus globalization gave birth to Professional or people working for payment.

With the Introduction of ICT in Education, Teaching has become one of the most challenging jobs as teacher has to go through various transitional phases of education. To face the challenges the teacher has to develop his professional field. A teacher cannot confine himself to the teaching only rather he has to take active part in the curriculum framing and other administrative work.Moreover, to meet the need of the fast generation learner he should take the help of new pedagogy, he should have the knowledge of smart classrooms, Knowledge of recent technological development as well as their application in the classroom situation to facilitate learning. Thus teacher like other professionals need to stay informed about new knowledge and technologies.

ICT Enhancing Teaching and Learning Process

Information and communication technology has become an Integral and accepted part of everyday life for many people. Technology is increasing in importance in people's lives and it is expected that this trend will continue to the extent that technology literacy will become a functional requirement for people's work, social, personal lives and education. This creative uses of ICT in education the capacity to increase the Quality of people's lives by enhancing teaching and learning in addition computer technology will increasing penetrate all areas of life, including education. it is remember that technology of education and technology of communication are two sides of the same coin

ICT can be extra, useful tool for learning except some conventional tools such as books, pens, pencils, rulers and so on. In the past, Students were introduced and sometimes reluctantly too many such tools from slates to slide rule. However, it is time to embrace new technologies and use them to change and improve pedagogy.

Impact on Teacher Skills and Motivation

The introduction of ICT in Education proved itself as a way of providing teachers with new skills and introducing new pedagogy into the classroom. The evaluation of *t*he World Links program found that a large majority of teachers and their administrators reported that teachers learned these new computer

and teaching skills, and gained more positive attitudes about technology and about teaching.

Impact on Classroom Practice

The use of ICT has often been thought to bring significant changes into classroom practice, use of computers depends not just on the availability of computers in schools but also on other factors such as administrative support, teacher training, and supportive plans and policies. The extensive teacher training provided by the World Links program resulted in teachers not only *learning n*ew skills but also changing their classroom practices. World Links teachers and students more often used computers to engage in a wide variety of new practices than did non-participating teachers who also had access to computers. These practices included conducting research projects, gathering and analyzing information, collaborating on projects with students in other countries, and communicating with parents and other community members However, there are also significant barriers to widespread ICT-supported change in classrooms in developing countries, such as lack of time in the curriculum and school day, lack of skilled personnel, and lack of infrastructure, including power, telecommunication access, and Internet service providers. National policies can address many of these barriers and make a difference in widespread use of ICT to change classrooms. When countries commit to coordinating the introduction of computers with changes in the curriculum, pedagogy, and teacher training, changes in classroom practices are more likely to be widespread.

Impact on Diverse Students

An important Millennium Development Goal is to achieve gender equity. If girls are to leave school ready to participate equally in the economy, they too will need the benefits of ICT: increased knowledge of school subjects and new skills, including ICT skills. However, much of the research in OECD countries shows a gap indicating that boys have more experience with technology than girls and that girls are more anxious about technology than boys. Fortunately, studies also show that greater experience with computers results in improved attitudes among girls. Many technology-supported programs in developing countries focus on including girls' use of computers, and data on impact often shows no gender gap.

Impacts beyond the Curriculum: Student Motivation, New Skills

ICT can also have an impact on students beyond their knowledge of traditional school subjects. A number of studies have established that computers can have a positive effect on student motivation, such as their attitudes toward technology, instruction, or the subject matter. Students using computer tutorials also had significantly more positive attitudes toward instruction and the subject matter than did students receiving instruction without computers

Impact On Learning of School Subjects

The ICT impact is that there is no consistent relationship between the mere availability or use of ICT and student learning. Students who *occasionally* used computers in schools scored higher than either those who never used them or those who used them regularly.

Impact on Schools

The introduction of ICT into schools can significantly transform school organization and culture. However, the causality in this relationship is likely bi-directional: the introduction of technology promotes organizational change in schools, and transformed school organization can increase the use and impact of ICT.

Impact on Communities

The introduction of ICT via community technology centers or multimedia centers, in a variety of geographical locations, can also address MDGs related to education and economic development, these programs utilize a mix of technologies—such a radio, video, computers, and Internet access—that are used by established community-based service agencies. They provide community members with information and services related to ICT skills, adult literacy, and education for out-of-school youth, especially girls. However, most of the literature in this area is descriptive and does not systematically assess the impact of ICT on education and community development. Impact research is needed. At the same time, it is important to note that many of these efforts are still in the early phases, and evaluations should be sensitive to fact that these services do not result in "quick fixes".

IT is a Tool for Knowledge Management in Libraries

Information technology is a tool for Knowledge management in Libraries. Knowledge management is the process of gathering, managing and sharing's Knowledge capital throughout the organization enhances existing organizational business process, introduce more efficient and effective business process and removes redundant process. It is Impossible to accomplish such important Tasks by using man's brains only in the modern society in which the Knowledge Changes with each passing day. It will be possible to link closely knowledge sources and knowledge workers by computer Networks, thus constructing knowledge networks in libraries based on realization of single point information. The main information technologies relevant to knowledge management includes: INTERNET, ITERANET and EXTRANET; storage architecture; database management systems, metadata; data acquisition and gathering: dissemination, messing; push and pull: information retrieval; information resources sharing; groupware; middleware, on line analytical processing; multidimensional analysis and data mining

Exploring ICT Through Multimedia in Education Towards Learning Solution

OR

Use of Smart Phone Application for Teaching Learning Process

Use of smart phone Applications, (Mobile technologies) are playing an increasing important role in college students' academic lives. Devices such as smart phones, tablet and e Book readers connect users to the world instantly, accelerating access to information and promoting interactivity with others. The increasing capability of mobile or smart phone

are positioning them as the technology of choice, replacing Pcs, for university students

Increasing Role of media in Transforming society

The Term Media has been derived from the Word "medium" which means to transfer the information from one end to other. In general media refers to various means of Communication. For Example Television, radio and the Newspaper are different type of media. The term can also be used as Collective noun for the press or news reporting agencies. Media Includes Mass Media like T.V, News Channels, News Paper, Radio, Journals, Magazines and most Internet and Email. The sphere of media is increasing day by day, as the coverage of a small news articles is very wide these days and more importantly in the modern society .media plays the role of facilitator of development, disseminators of information and an agent of Change. Today, media is considered the fourth pillars of the state all over the world. More importantly this is very true in the context of the biggest democracy Like India. Media is Indispensable hand in hand partner of social activist, Political leaders and policy makers through which the try to change the waves of society.

It can be broadly divided as social media like facebook, whatsapps etc., Educational media (print and non print) Entertainment Media and Information media Comprising of news channels, Literature festivals etc. As far as educational Media is concerned whose purpose is to directly educate learner in a systematic manners. This has major role in influencing and smooth running of the educational institutions across the nation. The Primary function of educational media works in unique way and requires different kinds of attentive Skills include Listening, observing, noticing and paying attention depending upon its Types.

Mobile Technologies are playing an Increasingly Important role in the College Students' academic lives. Devices such as smart phones, Tablets, and E-books readers connect users to the world instantly, accelerating access to information and promoting interactivity with other. Applications that run on these devices let users not only consume but also discover, modify and produce content (Eden, 2012).Therefore it is inevitable that, they continue to transform the methodology of learning preferences both within and outside the classroom

Unlimited Opportunities for Innovation

With the use of IT in education, there is an unlimited opportunities for innovations, the role of innovations to improve the Quality of life and to spur rapid economic growth.

Changing the Perspective of education:

The use of new ICT tools can upgrade the education and change the perspective of education. There are various ICT tools available which can be utilize for the knowledge creation and dissemination in the modern world. Tools include Radio, T.V., Internet, Mobile Phone, Computers, Laptops, Tablets and Many other hardware and software applications. Certain ICT Tools like Laptops, PCs, Mobile Phones and POAs have their own implication in Education. These devices can be used in imparting Education and training for teachers and students Although, Many of the ICT Tools are much helped but have not given fruitful, results till now.

Peace Educations

ICT will bring Tremendous Comforts and benefits for the mankind and for the greater understanding of the world we live in, but it is all the more confronted with problems like war, crime, violence, terrorism, fear and tension, injustice, religious intolerance, anger and oppression against man and nature. Under this Scenario, it is essential to integrate peaceful attitude, values and skills in the teaching and learning Process in schools and make these components a part of total curriculum of school. Therefore ,for teaching peace education, teachers need to adopt interactive approach to learning, promote cooperative and collaborative learning techniques, use democratic methods of class management, empower students by learner centered approach to teaching and use teaching learning methods that problem solving, respect for differences and brainstorming together on compromises

Open and Distance Education

ICT is playing a vital role in the distance learning to meet the requirement and expectations of the learners' in large scale. It is difficult to perform the same using any traditional institutional system due to its limited resources.ICT has various proven tools and technologies to meet the requirements of a learner at various phases of learning cycle e.g. the admission phases, the learning phase, the evaluation phases and finally the certification phases as a services

The main Job of a Teacher in online Courses would be the creation of contents, or more specifically E-content which will be uploaded to be used by learners scattered throughout a wide geographical areas. Teachers will now delivered courses online, sitting possibly in front of a computer, to be consumed by learners lying at a Distance. Thus the paper text book business would be blown away by digital learning materials. One Might, however, get uploaded at the prospect of Knowledge, nay wisdom, being converted into scale information during the entire transaction. It is, therefore to be remembered that technology's not an end in itself and so the future teacher should take the responsibility of bringing in artistry and joy into the e-contents that they would develop apart from ensuring quality.

Internationalization of higher Education

Internationalization of higher Education has been recognized as one of the most distinguished feature of the 21st century. This recognition as based primarily on four premises—Economic Gain, Supply Skilled workforce to meet the Global requirements, creating synthesizing and apply Knowledge for overall welfare of Human Beings Suitable to the multi cultural environment, and preparing for global citizenship

Rise of India as a Global Power

We are living in an information age where ICT occupies a prominent place in all our activities. Higher education institutions have begun using ICT enabled teaching but it is still only tip of the iceberg. It calls for a significant amount of investment and training of the teacher and staff of the institution. The future of education will be greatly shaped by digital learning courses and massive open online courses .There is a need to upgrade and develop high quality

ICT facilities to provide quality education of world standards. It will greatly contribute to the goals of providing quality education to all by enhancing accessibility and equity. Students, equipped with latest knowledge and technological skills set will be in a better position to face the challenges of the modern world

Changes in the Field of research and Innovation

Indian national growth is highly dependent upon the invention and discoveries. India is par behind the developed nations in terms of patents and copy rights. ICT will make India not only a manufacturing hub for the most industries but also emerge as innovation leader in future. There is an urgent need to develop our country on the frontiers of research by insuring commitment of resources and infrastructure. With the impact of ICT universities have become the centre for promotion of high quality of basic and applied research through active involvement of teachers and students. They will provide the required motivation, infrastructure and support for undertaking researches on contemporary issues relevant for society, industry and body of knowledge. Innovation clubs or centers will be opened which foster a culture of innovation by providing a place for experimenting with innovative ideas. These initiatives will definitely give a boost to creativity, quality of learning, as well as research publications and awards. Applied researches in science and technology will significantly contribute in the growth of all sectors of Indian economy-agriculture, manufacturing and services. Transition from teaching centric to research centric universities, Transition from qualification driven to knowledge driven, Knowledge based to skill based orientation, Internationalization of higher education: emergence of local to global prominence Institutional structuring: informal to professionally manages structure.

To provide Global Outlook

Globalization has created a world which is networked, operates in real time, and competes at the common level. In order to be an important player in the global arena, Indian higher education needs to adopt a truly global outlook in terms of its appearance and actions. It involves a serious rethinking towards restructuring of higher education to render supreme importance to quality driven innovative, realistic and result oriented teaching learning practicing, and research of global standard. International collaborations for teaching, research and training along with faculty-student exchange programmes should be a high quality. Our curriculum will be matched with the global standards. Government should pay the path of easy entry of foreign universities in India. Such initiatives will play a major role in boosting the image and position of India on the world map.

Conclusion

Emergence of new technologies in the sphere of education has given new direction to the domain of higher education. The use of ICT in education can increase access to learning opportunities. It can help to enhance the quality of education with advanced teaching methods, improve learning outcomes and enable reform or better management of education systems. ICT can have a monumental impact on the expansion of learning opportunities for greater and more diverse populations, beyond cultural barriers, and outside the confines of teaching institutions or geographical boundaries. Technologies can improve the teaching/learning process by reforming conventional delivery systems, enhancing the quality of learning achievements, facilitating state of the art skills formation, sustaining lifelong learning and improving institutional managements. However there is a risks and drawbacks with the introducing ICT in education but careful implementation of ICT may lead to change in empowering the teacher in their engagement with students in learning rather than acquiring computer skills.

The overall conclusion is this research has identified positive effects of ICT uses on pupil's educational attainment. The most substantial effects were observed when ICT was used in mathematics, science and English. This does not mean that the evidence for other subjects is negative; it is only an indication that not enough studies exist for other areas.

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