



INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) IN HIGHER EDUCATION: ROLE AND IMPORTANCE IN PRESENT ERA.

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Abstract

Information and Communication Technology (ICT) in present day world plays a very significant and pivotal role in every section of our society by enabling the users to send and receive the information without consuming time of users. In Higher Education system the ICT has a wider and prominent role to play and it is growing with manifold rate as the number of students connecting with ICT. The data collected for the research paper is purely from secondary sources. This research paper is divided into two parts, the first part of the paper provides a brief overview about the Information and Communication Technology (ICT) and Higher Education system. The second part of the paper studies and analysis the role and importance of ICT in Higher Education in present era by reviewing the various published and unpublished research papers, thesis, magazines, journals, books etc.

Key Words: Information And Communication Technology, Role, Higher Education, Prominent, Importance, Pivotal, Research Etc.

Introduction

The ICT (Information and Communication Technology) as defined by the UNESCO means, “as technology that help create, propagate and exchange information”. The development of ICT has primarily changed the practices of not only business, governance or education but every domain of human endeavor. The world is moving swiftly towards digital media, the role of ICT in higher education has become progressively vital and significant. The use and application of ICT in education, teaching, research and extension activities has shown an extraordinary growth and development. Nowadays, number countries consider the understanding of ICT and expertizing in the basic skills and concepts of ICT as a part of the core education. With an ever expanding field of knowledge, the knowledge and skill required by an individual to successfully lead life has also expanded, throwing up challenges of learning more and more throughout one’s life. The addition to those challenges and hardships of teaching being faced by the teachers to package more and more for the endorsement by the students within the stipulated amount of time available with teachers. At this juncture of time the need of ICT as a comprehensive tool in education system is available with us and hopes we could fully utilize it.

It is recognizable that the development and introduction of electronic and technology based educational gadgets, information resources, educational web resources, and e-learning-teaching in the educational process will increase the efficiency and interests of students only if they are applied in analysis and examination bases at their moralistic possibilities viz.; visualization of material, enhancing the interactivity of learning, assess to knowledge and swift control. An important component of informatization of the educational process is the accumulation of experience of ICT use in the educational process of higher education. Nowadays, it is necessary for every teacher in any discipline to be able to prepare and deliver a lecture with the use of ICT because an ICT-enhanced lecture is clear, colorful, informative, interactive, motivate and above all it saves the time of both teacher and learner.

ICT (Information and Communication Technology) role in higher education is solicited for improving quality, widening access and enhancing operational efficiency across all functions in higher education sector and to create new dynamics in higher education both at micro and macro levels (J. Meenakumari, Krishnaveni). Induction of ICT in the higher education has considerable insinuation for the whole education system ranging from investment in educational technology to deal with core issues like access, quality, efficiency, pedagogy, research and development, innovation and quality management. The emancipator and transformative potentials of ICT in higher education in India has helped increase the country’s requirement of higher education through part-time and



distance learning schemes (Uttam Kr Pegu 2014). It can be used as a tool to overcome the issues of cost, less number of teachers, and poor quality of education as well as to overcome time and distance barriers (McGorry, 2002). The differentiated ICT based education can be expected to provide greater reliability, validity, and efficiency of data collection and greater ease of analysis, evaluation, and interpretation at any educational level (Mooij, T (2007). The role and significance of ICT in education sector, especially higher education has become more important as the whole world is moving towards the digital media. The ICT has drastically transformed the way education is disseminated today in terms of how teachers and students interact with each other.

Objectives of Study

The review based research paper aims to achieve the following objectives:

1. To study and understand Information and Communication Technology (ICT) as an educational tool;
2. To study and understand role of Information and Communication Technology (ICT) in higher education.

Research Methodology

The paper is a review paper so the data required for the paper is secondary data. Secondary data were collected by reviewing thoroughly various published and unpublished papers, journals, books, articles, reports, magazines etc.

Concept of ICT in Higher Education

The Education sector especially higher education has grown exponentially in the last few decades to meet the demands of quality education for all. The aspect has further gained the momentum due to swift advancements in Information and Communication Technology (ICT). Demand for knowledgeable, skilled and capable people is constantly increasing in the modern technologically and industrially dominated globalized world. In this environment access to quality education for all has emerged as an influential factor for economic growth and development. To increase the access to quality higher education and improving its reach to the outmost remote parts of the country, the contribution of open and distance learning facilities is getting immense increase and importance. Apart from this, it is catering to life-long learning ambitions and that too at reasonable prices.

The last couple of decades have witnessed the inclusion of development in ICT in higher education around the globe, which led the way educational institutions carry out their activities and processes not only in teaching and learning but also in the process of monitoring student's progress through which it has an implication on educational administration and management process.

In 2013 **Adelaya** defined Information and Communication Technology (ICT) as technology that supports activities involving the creation, storage, manipulation and communication of information, the application and use of ICT has led to the emergence of different forms of microelectronic and telecommunications tools such as laptops and computers, computer networks, the internet digital printers and mobile technology, which enable administration to record, store, process, retrieve and transmit information (Kokt and Koelane, 2013). The application of ICT in higher education a great potential to accelerate, enrich, reshape and deepen skill, to motivate and engage students to relate school experience to work practices, create economic viability for tomorrow's workers as well as strengthening teaching and helping schools change (Davis and Tearle, 1999; Lemke and Coughlin, 1998; cited by Yousf 2005).

Role of ICT in Higher Education

Information and Communication technologies (ICT) have become everyday entities in all phases of social as well as professional life. The use of ICT from past two decades has fundamentally changed the work practices and procedures in almost sections business and governance. The application of ICT in higher education has manifold implications of the whole education system from investment to use in dealing with key issues of access, management, curriculum development, lecture delivery, research, innovation etc. ICT applications provide institutions with a competitive edge by offering enhanced services to students and faculty, driving competences and creating developed learning experience.



Role In Teaching and Learning Process

Higher Education sector is intended to build a knowledge storehouse of multidisciplinary subjects, as a tactic to counter the scarcity of faculty in higher education; EDUSAT will be used to share the available expertise through modular programme's. This will be done by networking institutions, formation of virtual laboratories, formation of database, access to professional lectures and technological developments in Industries and Research organizations etc. Teaching and learning can be additionally improved by substituting of conventional teaching instead of the usual traditional methods of chalk and talk for teaching by innovative and state-of-art methods like Power point presentations and animations, modeling and simulations, video clips and using Audio Visual aids, LCD projectors etc.

ICT in higher education change the view of learning from teacher centered to student centered learning system and the teachers are the facilitators, coaches and mentors were ICT support the learning environment to students. ICT use in higher education further facilitates the teaching and learning process by providing access to more modern and advanced technology based teaching learning aids and gadgets to allow the learners get to the vast knowledge and wisdom in more interesting and friendly atmosphere.

ICT in Virtual Learning Campus (VLC)

VLC (Virtual Learning Campus) is a method that splits the duty, responsibility and accountability of building, commissioning and running the diverse systems of Information Infrastructure for education like Broadband, EDUSAT and ERNET services, Synchronous class room environment, Servers and Portals, E-learning & Digital library, ERP management solutions etc. under centers of specializations in different Institutions of higher learning in different disciplines and research areas. Teachers and students in any college or university may access the services over the web. The universities and colleges itself needs to maintain basic e-learning and library portals for ease and convenience for providing convenient access to necessary required information.

ICT and Distance Learning Education

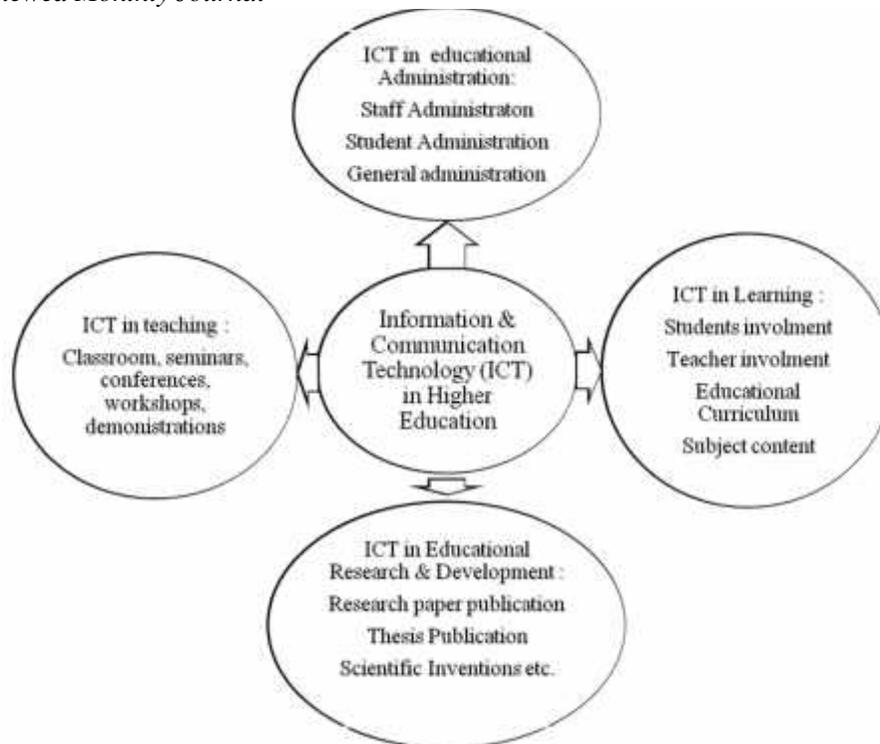
Distance Education Learning that type of education, where students/ learners study on their own at home or at the office and regularly communicate with faculty and other students via e-mail, electronic forums, video conferencing, chat rooms, instant messaging and other forms of computer-based communication. It is also known as open learning. Most distance learning programs include a computer based training (CBT) system and communications tools to produce a virtual classroom. This type education has an immense impact of ICT.

ICT in Educational Administration

ICT in administration of Higher educational institutions play a most important role in effective and efficient utilization of existing available resources and streamlines the administration tasks (e.g. in student administration, staff administration, general administration etc.) by reducing the paper work and replaces the manual maintenance of record keeping to electronic maintenance of records which helps in easy retrieval of any information of students, staff and general with in a fraction of seconds can access the required information.

ICT and Research and Development in Higher Educational Institutions

ICT's Integration in higher education improves the quality and superiority of research and development work and increases the number of Researchers enrolled in the field of research work in universities and research institutions. ICT facilitates the links across the world in all subject matter and made social networking. It saves time, money and effort to the researchers in their research studies. The collection and analysis of large data becomes easier through the availability of various software. The unprecedented growth in bandwidth and computing power provide opportunities for download huge amount of data and can perform complex computations on them in a fast manner to get an accurate and reliability of data.



ICT works as an Agent of Change in Higher Education

The growth and development of higher education in India combined with the need to sustain and be competitive in a global scenario requires decisions to be taken quickly and effectively. This has enhanced the scope and complexity of administration, thus making it necessary to adopt different methods of higher education administration:

1. The increasing number of student in higher education enhanced the need for ICTs to process, store and retrieve data in a fast, precise and systematic manner. The focus of e-administration in higher education is on the creation of an efficient electronic administration by handling existing resources economically.
2. Learning is an active process of building the knowledge and wisdom, rather than attaining knowledge and that instruction is the process by which this knowledge building is supported rather than a process of knowledge diffusion.
3. ICT change the concept of teacher centered learning to student centered learning and teachers acts as coaches, mentors and knowledge facilitators and the learning environment focus on a real time problem solving methods.
4. The concept of moving the traditional classroom of desks, notebooks, pencils, and blackboard to an online forum of computers, software, and the internet intimidates many teachers who are accustomed to the face-to-face interaction of the traditional classroom.

Conclusion

Education is the driving force of economic and social development in any country. Higher education institutions are important actors in the community and can be perceived as models for society in the pursuit of sustainable development. Higher education should not only critically reflect on learning environments and learning processes for students, they should also reflect on their role in creating an infrastructure that supports and enhances lifelong learning processes. Considering this, it is very much important to find out the means and methods to make the education of higher quality accessible as well as affordable by utilizing the latest and modern technology available to all learners in general and students and researchers in particular. The wide adoption of ICT calls for mindsets and skill sets that are adaptive to change. ICT integration in higher education brings a change in student and teacher learning behavior and develops the higher order skills such as collaborating across time and place and



solving complex real world problems. To gain the optimum impact of ICT in higher education, certain issues: why teachers integrate technology; how ICT implementation could be effective; what the requirements are to achieve effective ICT implementation need to be addressed. Collaboration of all stakeholders in the institutions of higher learning universities and colleges by sharing the information for mutual benefit. Thus the successful integration of ICT in higher education depends on the collaboration of national policies and institutional policies. The action taken for the implementation of the ICT needs to be a proper action plan and training and development to enhance the skills of all the stakeholders involved in the process of integration to bring change on them.

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