



# ENHANCING TEACHING AND LEARNING PROCESS USING ICT AND CHALLENGES OF ICT

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## ABSTRACT

ICT in higher education is not merely a technique for educational advancement; however, additionally, a way of socio-economic development of the country. The world is relocating rapidly into digital media and information, the part of ICT in education is ending up being more and more necessary as well as this value will undoubtedly continue to expand as well as develop in the 21st century. The premium and efficiency of education rely on the quality of teacher education. Even today, our class processes are usually based on chalk as well as talk. Thus there is an immediate need for adapting the teachers in ICT abilities as well as plan. The educators must be trained in making use of present-day tools if ICT and also on-line electronic sources. This paper provides the uses, challenges, roles and benefits of ICT. And also discusses of enhancing teaching and learning process using ICT.

**Index Terms :** ICT, higher education, teaching

## I. INTRODUCTION

Traditionally, the teacher utilized to be the resource of knowledge for the trainees. There is some teamwork one of the students to look into brand-new experience. In most cases, the teachers do not possess enough know-how to nutritional supplement the sight of the pupil. And the primary source of knowledge continues to be limited to text message publication. The rapid advancements in technology have created significant adjustments in the means our company stays, along with the needs of society. Relevant information and interaction modern technology have ended up being, within an incredibly short time, some of the necessary foundations of the contemporary community. The possibility of ICT to improve efficiency, foster sustainable growth, empower people including women and youth, lessen poverty, create ability and also skill-sets, and also bolster preferred involvement and educated choice making in all levels is significant. The impacts of globalization and also neighborhood social, political demands have induced rapid modifications in many countries in various components of the planet, given that the convert of brand new thousand years. In such a time of quick transformation, education reform becomes required, and teacher education institutions need to experience various brand new complications as well as obstacles climbing coming from their environment. Teachers are the essential stars to execute the academic strategy as well as instructional reform. Generally, teacher education frequently strives to outfit teachers along with the needed competence to deliver know-how and skills to students such that pupils can endure a neighborhood or meet the labor force needs of a societal progression. India has created exceptional strides in the treatment of ICT recently, and this is demonstrated in its own vivid and quick growing economic situation.

Know-how has become the key think about economic development. The understanding revolution has also caused a raised fee of events and a much shorter item lifecycle. The development of brand-new financial situation based on sophisticated innovations and even globalization mixed along with aspects such as transformations in the expertise criteria as well as competitors have enhanced the pressure on getting general skills through all people in the current time.

Education has a critical job in creating culture. It is just one of the essential requirements for the magnificent creature of specific and society. Quality education helps in enabling the country in every facet. There are several ways to enhance the learner's know-how, as well as innovation is one of the most reliable methods. ICT is an acronym that represents Info Communication Technologies, which consists of all modern technologies for the manipulation and communication of info. A broad interpretation of ICT features broadcast, television, satellite, cellphones, computers, and the internet. It could be separated into two teams; conventional ICT such as radio, tv as well as the brand-new ICTs like the net and also telecommunications. Learning with brand new ICTs is also referred to as e-learning. Information and even communication modern technology (ICT) is an essential component of the contemporary world. It is a force that possesses lots of facets of the technique we live, and likewise an electronic way of recording, handling, saving, and also connecting relevant information. The potential of pertinent details and interaction modern technologies today, coming from the time our company stirs up in the early morning to the moment before we sleep, we are encompassed through media, including newspapers, radio, tv as well as computers. Occasionally our experts are certainly not even conscious that these media border us. All these media come under the overall sunshade of ICTs. The effect of ICT on education includes two things-ICT and also training. It consists of any communication device, application, or even solution utilized to instructional purposes to support and also strengthening the learning of the pupils. ICT can be considered as a sub-industry of modern educational technology. According to UNESCO: ICT is a scientific-technological and even engineering discipline as well as a control method made use of in handling details in the application as well as organization with social, economic, and also cultural aspects. Appropriate use of ICT can quickly transform the whole teaching-learning methods leading to an ideal shift in both materials and also teaching strategy.

Learning continuously is needed to link the skill-set void between the needs and competence of the people. Around the world, information and communications technologies (ICTs) are transforming the skin of education. Our globe is changing, as well as news, as well as communication technology, which is core to this adjustment. ICT, as well as higher education modifications, are happening for remodeling, technology, and improvement. It has passed through to all the components to learning and also teaching methods. The impact of ICT on traditional informative theories and techniques are significantly credible. It has transformed and also broadened the conventional borders of education. Innovations including digital universities, research laboratories, as well as universities are creating a significant quantity of additional regions of study neighboring this technology.

## II. ENHANCING TEACHING AND LEARNING PROCESS BY ICT

The area of education has been had an effect on by ICTs, which have most definitely influenced teaching, learning, and examination. ICTs possess the prospective to raise, improve, as well as likewise build up abilities, to inspire in addition to involve students, to aid relate educational institution adventure to function strategies, generate financial reliability for tomorrow's employees, along with bolstering teaching and also helping universities modify. In a promptly affecting planet, general education is vital for a private can receive access to and also use pertinent information. Such a role needs to locate feature ICTs in the worldwide neighborhood.

Traditional teaching has a pressured component. For several years the qualifying course has been made around textbooks. Educators have instructed using talks and also discussions spread along with tutorials and also learning tasks created to blend and also experience the material. Contemporary environments are, in fact, immediately favoring the course of studies that market expertise as well as productivity. Curricula are beginning to highlight capacities and likewise to become regarded a lot more with how the relevant information is going to undoubtedly be made use of than along with what the information is in fact. Contemporary ICTs possess the capability to deliver substantial help for all these demands. Additionally, there are currently great deals of exceptional cases of top quality environments for capacity, and likewise, performance-based curricula that make sound use the affordances of these developments. The digestion of details and also modern communication technologies may help renew instructors as well as trainees. This may aid in improving as well as cultivate the top quality of education via supplying curricular help in demanding styles. To get these functions, teachers need to come to be associated with joint projects in addition to the advancement of interference alteration approaches, which would undoubtedly feature teaching partnerships along with ICT as a resource. Relying on to [4], three wellness problems are needed for trainers to supply ICT right into their classrooms: teachers have to rely upon the performance of modern technology, instructors must strongly believe that making use of technology are most likely to not cause any conditions, along with last but not least teachers ought to think that they possess command over innovation. However, analysis study research studies provide that lots of teachers perform not use the capacity of ICT to help in the costs of learning settings, although they value this possible pretty significantly supplied case history in 3 significant as

well as three secondary schools, which kept an eye on inventive training procedures including ICT. [5] ends that the perks of ICT are going to undoubtedly be gotten "... when self-assured coaches would like to explore new opportunities for enhancing their class method by using ICT. As a result, using ICT will certainly not merely boost learning setups yet also all set the most up-to-date creation for future lives along with occupations. The enhanced diving pool of educators is going to come fine-tuned liabilities as well as the ability for potential teaching, including higher degrees of ICT, along with the demand for added facilitative than nit-picking teaching functionalities.

Relying on to [6], "the flexibilization time-space made up due to the combination of ICT into teaching and learning approaches produce to improve the communication along with the functionality of information. Such options recommend enhancements in the communication concepts and likewise the teaching as well as learning techniques used via coaches, accepting new circumstances which favor both certain and also cumulative learning". Using ICT in educational settings, by itself, acts as a stimulant for remodeling within this domain. ICTs, through their actual attribute, are units that urge and also assist private learning. Pupils using ICTs for learning objectives become participated in the procedure of learning and likewise as an expanding variety of apprentices, take advantage of pcs as info sources as well as also intellectual tools, the effect of the advancement on sustaining specifically just how trainees discover will undoubtedly stay to improve. In the past, the conventional method of teaching has rested on educators managing as well as leading pupils via a collection of training patterns to accomplish the desired learning result. Generally, these kinds of education have actually focused on the looked at transmission of a body of knowledge complied with by some types of interaction along with the web information as a means to combine the expertise procurement. Contemporary learning concept is, in fact, based on the idea that learning is an effective method of making know-how instead of receiving understanding. Likewise, the path is the operation where this understanding construction is helped as opposed to a technique of knowledge transmission. Within this domain, name learning is regarded as the property of significance rather than as the memorization of simple facts. Learning comes close to using modern ICTs offer tons of chances for constructivist learning through their requirement and also help for resource-based, apprentice focused settings along with by permitting education to end up being linked to the scenario and also to carry out. As specified earlier, any sort of use ICT in learning environments may act to assist many features of knowledge property as well as building and construction. As a growing number of pupils take advantage of ICTs in their learning procedures, the so much more evident the result of the species is going to come to be. Educators generate purposefully and also involving learning understanding for their students, tactically utilizing ICT to enhance learning. Pupils appreciate learning, and likewise, the independent analysis which innovative, along with the necessary use of ICT, can efficiently market. They start to receive the required 21st-century capabilities which they will need in their future lives.

### III. ICT TOWARDS FIELD OF EDUCATION: BENEFITS AND ROLES

The appearance of innovation has actually been even further put on details, which has reinvented the procedure of the gearbox of info. Discussing as well as alternating info including expertise, mental abilities, electric motor abilities as well as perspectives via making use of mass media, particularly electronics. Achieving success within this sharing as well as swapping using communication which consists of Acquiring, i.e., hearing or even viewing; Approving as absolutely nothing can transform unless relevant information is allowed as well as Getting some Action, i.e., transforming efficiency or even actions. Data Processors are a crucial element in Information Technology in the processing of data. In Communication Modern technology, today, the riches of details that are being actually moved around the Web are impressive. Various systems, the Internet (information superhighway) web browsers, email as well as information teams have actually been actually set up to allow people to gain access to, deliver or recover information across the planet. Web browsers like Netscape as well as MS Net Traveler enable - looking, watching, and featuring the details to someone interested in everything. Pre- solution training for the additional stage is all the more essential because additional education is a hyperlink between the elementary and also higher second phase of education and occupies an essential placement in the system of education, as general education cancels below and also the pupils at this level prepare for making choices via proper variation certainly like expert, fine arts and science programs. At this phase, our experts require a vision to furnish our students to fulfill the developing patterns. The survival of this particular type of pupils in today's modern and also competitive society is going to only be via the knowledge of ICT. It has determined all elements of Teacher Education. It provides the capacity to the establishment, to fetch, and also to refine e-content both quickly in addition to correct. ICT is the medical as well as technological specialty, which manages the selection, stashing, circulation of details to the individual or even group. ICT includes the storing and communication of relevant information largely. The planet is exchanged tiny global pill, and anyone prehensile of relevant information would discover it just a click on the way. ICT is a modern technology that assists in the storage of data, access as and when needed, telecommunication, exploring for info and spares opportunity, effort, newspaper, amount of money, and information. ICT exemplifies one of the present treatments of technology in Teacher Education. "Information and also Communication Modern Technology (ICT) is the scientific, technical and also engineering discipline

and monitoring methods used in info handling and also processing, their treatment; personal computers and their communication along with men as well as equipment and also associated social, affordable as well as cultural issues" (UNESCO). Depending on to Toomy, "ICT normally relates to those innovations that are made use of for accessing, party, controlling and also offering or even connecting information" It implies ICT put on the production, storage space, assortment, improvement, and circulation of details of several kinds. So ICT is a specific term that features any interaction tool or even request including broadcast, tv, cellular phones, computer as well as network, software, and hardware of ICT, gps bodies along with them a variety of solutions and also requests linked with all of them, like videoconferencing and also distance learning. The application of ICT is mainly planned on the teaching-learning procedure. The request of ICT gives large selection of effective resources that may help in changing today isolated, teacher-centered and text-bound class in to abundant In 1998, the UNESCO in its Planet Education Document "Educators and Teaching in a Modifying World" explained the extreme effects of ICT in the traditional teaching-learning pm. Right now in the here and now circumstance, ICT has become a vitally essential component of the educational program of Teacher Education. The following essential conditions should be actually met for the regular use of 101' in the teaching-learning process. Students, as well as instructors, have to have ample access "to electronic innovations and the Internet in their classrooms, universities, and Teacher Education principle; Excellent quality, significant, and culturally reactive digital material has to be offered for teachers and learners. Teachers have to possess knowledge and skills to use the new electronic devices and also sources to assist all students in accomplishing higher academic specifications. Using ICT can create a considerable adjustment in education and also instruction, mainly in two means. First of all, The rich depiction of details adjustments student's impression as well as an understanding of the web content. Second of all, the extensive distribution, as well as effortless access to relevant information, may change the connection between educators and also trainees. ICT can easily also provide highly effective support for educational advancements. By utilizing ICT modern technologies like Pc, Laptop, Digital Cam, Video, Internet, Websites, CD-ROMs, Videos, treatment of program such as word-processing, spreadsheet, e-mail, digital libraries, computer resolving conferencing, videoconferencing, projectors, etc. we can beat all barriers in interaction as well as direction. ICT may be made use of as a device for instruction and also the support of instructors, regardless of geographic distribution.

ICTs are a potentially highly useful tool for stretching educational opportunities. Making use of ICT is creating significant variations in the learning of pupils and also teaching techniques. Numerous studies uncover that students using ICT centers primarily reveal higher learning increases than those that perform not make use of; in fact, it works as an assisting device. It delivers quicker as well as less complicated access to a lot more significant as well as existing relevant information. ICT may additionally be made use of to carry out intricate duties as it gives scientists along with a constant avenue for the circulation of investigation documents and seekings. [7] state-of-the-art three significant causes for details and communication innovation in education. They recommended that it is a tool for resolving difficulties in teaching and also learning circumstance, a modification solution, as well as leading force in economic competition. As an adjustment agent, it can transform the information, strategies, and total high quality as well as the amount of teaching and learning, thereby reducing teacher's work and guaranteeing inquiry-oriented class. Additionally, ICT a central interject economic and also social shifts that have modern technology skill-set important to future employment these days student. The function of technology in teaching and also learning is rapidly becoming one of the most important and extensively gone over issues in present-day education policy if ICT is expertly made use of; it secures fantastic assurance to strengthen teaching and to learn in addition to defining labor force chances. The authorities of India have actually realized the use of ICT for teacher training. Increasing the availability of high-quality educational materials in India, many initiatives are recurring for creating electronic databases as well as learning objects; the Sakshat Site of Federal Government of India, efforts like National Course of Technology Boosted Learning, the Mixed Media Educational Resource for Learning and also Online Teaching look for to generate high-quality digital web content for different amounts of education. The significant roles of ICT in education are actually:

1. To cultivate a range of academic companies and tools.
  2. To market equal opportunities to obtain a school as well as relevant information.
  3. To develop a system of accumulating and also disseminating academic details.
  4. To ensure innovation education and also support distance learning.
  5. To assist in discussing expertise and features with others.
  6. Aids in strengthening impressive teaching skills and also makes classroom teaching successful.
  7. Work as a supporting resource for teaching and learning on its own
  8. ICT aids instructors to stimulate trainees as well as create interest in learning.
  9. ICT is the outlet property of the school, given that all academic details can carefully keep through ICT.
- ICT assists instructors to communicate effectively along with their trainees. Thus ICT tide over in between teacher as well as pupils and participates in an essential role in trainee examination.

#### IV. ICTCHALLENGES

While using ICTs in teaching possesses some recognizable benefits, ICTs likewise provide problems. First is the high cost of getting, establishing, running, maintaining as well as changing ICTs. While possibly of great importance, the combination of ICTs in teaching is still in its early stages.

- The numerous other concern taken care of is actually that in many higher colleges, the essential demands as electrical electricity, telephone units, internet answer are certainly not available.
- Also, various colleges perform surely not have suited areas or even establishments, thereby relating to suit the development.
- Lack of instruction of the professionals of college worrying about taking advantage of ICT.
- Taking advantage of an illegal system could be quite frustrating, not only legitimately yet in the rates of upkeep, mainly if the pirated software program treatment differs in traditional styles.
- Positioning learning technology without assessing pupil needs and component routine;
- Establishing specialized physical bodies from scratch down without consisting of professors as well as trainees;
- Using unfit info from other areas of the world without modifying it accurately;
- It is making shoddy content that has poor instructional style and additionally, is, in fact, absolutely not conformed to the advancement being made use of (UNESCO, 2009).
- A considerable amount of personal computer bodies are not working correctly.
- Carry out not to have finances to rejuvenate the faulty pcs.
- Absence of appropriate regulation safely device including CCTV tracking, safety and security workers and so on.

<b>Knowledge Acquisition and Enhancement</b>	<b>Contribution %</b>
<b>Usage of Internet to supplement book information</b>	96.5%
<b>Usage of ICT-based communication among faculties and students</b>	69.2%
Usage of Power Point Slides for delivery of lectures	89.5%
<b>Evaluation of Test, Assignments and publication of results done electronically</b>	55.6%
Usage of Technology for research work and for expert discussions	84.9%
<b>Existence and extent of usage of Virtual library and Virtual learning (e-learning)</b>	62.2%
<b>Usage of computers for multimedia-based delivery</b>	76.7%

**Table 1 : Contribution of items towards ICT-based learning and teachingprocess**

It appears coming from the above info that both teachers, along with learners, make use of ICT-based tools for teaching-learning operation. There is a long term crave learning and also knowledge enhancement as well as likewise ICT acts as a helper with a resource for it. The information in the above table (Table 1) subjects that trainees take advantage of ICT-based units to the highest for nutritional muscling building supplement manual info and also in their evaluation task. Teachers take advantage of ICT-- based devices for providing talks. ICT may be used to improve the existing know-how through professional interactions as well as likewise with dialogue panel along with discussion forums. There is an

improvement arising from the typical learning body to the e-learning system in the college case. The analysis shows that there is a lot of range in the area of property virtual libraries in college institutions. Standard public library bodies are still out there to a significant level though PCS are taken advantage of for handling the day-to-day offers of the collection body. This analysis a lot more shows that therapy of ICT-based resources in the place of examination, as well as study, requires to possess remodeling.

## V. ICT TO TEACHERS BENEFITS

1. ICT enhances the initial prep work by offering excellent teaching and training products, use simulators, recording, and responses in education.
2. With the help of ICT, educators may access, along with associates, universities, institutions, and educational institutions, knowledge, rich sources in the cyber area.
3. ICT enables interaction along with students over a physical range.
4. Preceptive software programs, as well as smart coaching systems, may significantly decrease the price of teacher training.
5. ICT delivers lifelong qualified development by providing programs in an online circumstance, training on demand, alignment, as well as a crash course utilizing videoconferencing and also online.
6. ICT assists in sharing of suggestions, expertise and also collaborating on jobs, and also exchange products with digital communities.

## VI. ICT'S ENABLED TEACHER EDUCATION MAJOR BARRIERS

The ICT's are actually amongst the crucial motive power for modern advancement. With the enhancement of ICT, one can remain in the global community despite array, countrywide, and also global restrictions. In this particular circumstance, teacher education companies need to have to must develop strategies and techniques to enrich the teaching-learning approach within teacher education training courses and to promise that all possible instructors are adequately prepped to take advantage of the brand-new devices for learning. However, the primary difficulties for incorporating particulars as well as communication innovations (ICTs) in India in pre-service teacher education systems are the following.

1. Lack of in-service direction and also fundamental knowledge/skills for ICT blend
2. Scarcity of appropriate program and even equipment parts
3. Absence of necessary monitoring as well as technological assistance
4. Lack of required course material as well as additional training bodies
5. Absence of your opportunity and modern-day innovation methods
6. Excess of chuck-full class
7. Reduced amount of ICT - related training programs
8. Lack of personal computers and also various other conversation devices in course
9. Deficiency of incentive of the teacher trainers & prospective coaches entailing the use of ICTs in their future instruction course.

Because of the beginning of the century, education has experienced a vast assortment of social, social, budget-friendly, and also concentrated difficulties. Improving the excellent quality of teaching as well as learning has been, in fact, an essential complication for teacher education. Teacher educators are the vital superstars to use the educational process as well as additional educational reform.

## VII. CONCLUSION

The information and communication technology (ICT) is among the crucial driving forces for contemporary growth. With the innovation of ICT, one can stay in the international town no matter of proximity, national and international boundaries. In this scenario, teacher education institutions require to develop tactics and also plans to improve the teaching-learning process within teacher education systems as well as to assure that all future educators are adequately prepared to utilize the brand new devices for learning. ICTs aid extends accessibility to education, inspire to learn, assists in the acquisition of simple skill-sets, as well as can quickly transform the learning setting, therefore, help to boost the quality of education. ICT has a tremendous ability for education. ICT makes it possible for a teacher to communicate

extensively efficiently and properly. This paper has provided the uses, challenges, roles and benefits of ICT. And also discussed about enhancing teaching and learning process using ICT

## REFERENCES

- [1] Collis, B. and Jung, I.S. (2003). Uses of ICT in Teacher Education. In B. Robinson & C. Latchem (Eds.), *Teacher education through open and distance learning*. London: Routledge Falmer. pp.171-192.
- [2] Gateway, D.R. (n.d). Defining ICT in Education. Retrieved on September 1, 2014, from: <http://www.rwandagateway.org/ICT4E/spip.php?rubrique6>
- [3] White, K. G. (2010). Beyond the Horseless Carriage: Harnessing the Potential of ICT in Education and Training. Retrieved on September 2, 2014, from: [http://works.bepress.com/gerry\\_white/11/](http://works.bepress.com/gerry_white/11/)
- [4] Jhurreev, V. (2005). Technology Integration in Education in Developing Countries: Guidelines to Policy Makers. *International Education Journal [Electronic]*,6(4):467483.
- [5] Chickering et.al (1996), Implementing these seven principles: Technology as lever. *AAHE Bulletin*, 49(2), 3–6. Retrieved September 21, 2005, from [http://2md.osu.edu/edtech/pdfs/seven\\_principles.pdf](http://2md.osu.edu/edtech/pdfs/seven_principles.pdf)
- [6] Chong Chee Keong, Sharaf Horani & Jacob Daniel, "A Study on the Use of ICT in Mathematics Teaching MOJIT, December 2005.
- [7] Demarest, M, "Understanding knowledge management", *Long Range Planning*, Vol. 30 No.3, pp.374-84, 1997.
- [8] Diem Ho, *Research, Innovation and Knowledge Management: the ICT Factor Submitted to UNESCO*, July 20, 2007
- [9] Douglas Osler, "The Use of ICT in Learning and Teaching: A Report by HM Inspectors of Schools: Scottish Executive Education, 2000

