Qualitative Higher Education for All: Role of ICT

Dr. Aisharya De*

Abstract:

To meet the rising demands of quality education for all, swift advancements in information and communication technology (ICT), especially in the field of higher education are important. Education sector includes online, distance and part time education. ICT improves classroom teaching learning, provide e-learning and enhances distance learning. To disseminate knowledge, T.V, radio, internet, mobile phones, computer, laptop, tablets and many other hardware and software programs are available in modern world as ICT tools. ICT plays a big role in successful implementation of 'Education for All' by providing additional learning materials and activities not readily available in the classrooms. To foster innovation, critical thinking and active involvement in teaching-learning, the need of ICT is unavoidable. The adoption of ICT has a positive impact on teaching, learning and research. Education for all is achievable in real terms if we can use ICT as it provides access to education regardless of time and geographical barriers. For democratization of education and for transforming higher education, the role of ICT must be given due importance. However, the adoption of ICT for lifelong quality education is not without its challenges and obstacles. The present paper focuses on the role of ICT in providing qualitative higher education and in fulfilling the dream of education for all along with the consideration of its availability, access and demand.

Keywords *- Quality, education, ICT, higher education, online, distance education, ICT tools, democratization, challenges.*

1. Introduction :

Education is a socially oriented activity and it is the backbone of a nation. So, education must be acquired by all irrespective of class, caste, creed, sex, religion etc. higher education occupies the apex of the educational pyramid and should meet the objective of quality. After completing secondary education from a school, an individual enters into an educational level, called higher education. It includes teaching, research, applied work and social services. So, the scope and purview of higher education is wide as it includes transforming students by enhancing their knowledge, skill, attitude, abilities and by empowering them to become a reflective learner. Higher education also includes online, distance and part time education. In the last five decades higher education has grown exponentially to meet the rising demands of education, rather quality education and education for all.

2. Literature Review:

2.1 A brief about the previous studies in this field:

Students using ICTs for learning purposes become immersed in the process of learning and as more and more students use computers as information sources and cognitive tools

*Assistant Professor, Department of Education; Chandraketugarh Shahidullah Smriti Mahavidalaya. Email : aisharyade@gmail.com

(Reeves & Jonassen, 1996)[1], the influence of the technology on supporting how students learn will continue to increase. The use of ICT will not only enhance learning environments but also prepare next generation for future lives and careers (Wheeler, 2001)[2]. Changed pool of teachers will change responsibilities and skill sets for future teaching involving high levels of ICT and the need for more facilitative than didactic teaching roles (Littlejohn et al; 2002)[3].

Internet usage in home and work place has grown exponentially (Mc Gorry, 2002)[4]. ICT has the potential to remove the barriers that are causing the problems of low rate of education in any country. 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 (Mc Gorry, 2002)[5]. ICT can be used for non-formal education like health campaigns and literacy campaigns. (UNESCO, 2002)[6]. ICT can be used to remove communication barriers such as that of space and time (Lim and Chai, 2004)[7]. The swift advancements if ICT in the spectrum of higher education is bringing quality in education for all. Use of ICT has undoubtedly affected teaching learning and research (Yusuf, 2005)[8]. ICTs have the potential to accelerate, enrich, and deepen skills, to motivate and engage students, to help relate school experiences 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 Yusuf, 2005)[9] ICTs also allow for the creation of digital resources like digital libraries where the students, teachers and professionals can access research materials and course materials from any place at any time. (Bhattacharya and Sharma, 2007)[10]. People have to access knowledge via ICT to keep pace with

[1] Jonassen, D. and Reeves, T. (1996). Learning with technology: Using computers as cognitive tools. In D. Jonassen (Ed.), Handbook of Research Educational on Educational Communications and Technology (pp 693-719). New York: Macmillan. Retrieved from http://members.aect.org/edtech/ed1/index.asp

[2] Wheeler, S. (2001). Information and communication technologies and the changing role of the teacher. J. Educ. Media, 26(1):7-17. Retrieved from https://simplybax.edublogs.org/files/2011/09/ICTs-and-The-Changing-Role-of-The-Teacher-2klagc3.pdf

[3] Littlejohn, A., Suckling, C., Campbell, L. and McNicol, D. (2002). The amazingly patient tutor: students' interactions with an online carbohydrate chemistry course. British J. Educ. Technol. 33(3): 313- 321. Retrieved from https://www.academia.edu/12241294/The_amazingly_patient_tutor_students_interactions_with_an_online_carbohydrate_chemistry_course

[4] McGorry, S. Y. (2002), 'Online, but on target? Internet-based MBA courses: A case study', The Internet and Higher Educ..5(2): 167-175

[5] Ibid; *(Footnote-4)*

[6] UNESCO (2002) Information and Communication Technology in Education–A Curriculum for Schools and Programme for Teacher Development. Paris: UNESCO.

[7] Lim, C. P. and Chai, C.S. (2004), An activity-theoretical approach to research of ICT integration in Singapore schools: Orienting activities and learner autonomy', Computers and Educ. 43(3): 215--236.

[8] Yusuf, M.O. (2005). Information and communication education: Analyzing the Nigerian national policy for information technology. Int. Educ. J. 6(3): 316-321. Retrieved from https://files.eric.ed.gov/fulltext/EJ854985.pdf

[9] Ibid; *(Footnote-8)*

[10] Bhattacharya, I., Sharma, K. (2007), 'India in the knowledge economy – an electronic paradigm', Int. J. Educ. Manage. 21(6): 543-568. Retrieved from https://www.researchgate.net/publication/249360041_India_in_the_knowledge_economy_-_An_electronic_paradigm

the latest developments (Plomp, Pelgrum & Law, 2007)[11]. It can provide speedy dissemination of education to target disadvantaged groups. (UNESCO, 2002; Chandra and Patkar, 2007)[12]. ICT presents an entirely new learning environment for students thus requiring a different skill set to be successful. Critical thinking, research and evaluation skills are growing in importance as students have increasing volumes of information from a variety of sources to sort through. (New Media Consortium, 2007)[13].The various kinds of ICT products are available and are having relevance to education. Such as teleconferencing, email, audio conferencing, television lessons, radio broadcasts, audio cassettes and CD ROMs have been used in education for different purposes (Bhattacharya and Sharma, 2007)[14].

2.2 Recommendations of NPE 1986 Policy Regarding The Use Of ICT:

The emphasis of the NPE 1986[15] was the equalization of educational opportunities, recognition of talent and widening technological and science education and research, linking it with industry. To improve the quality of education, The National Policy on Education 1986, as modified in 1992, stressed the need to employ educational technology. For paving the way for a more comprehensive centrally sponsored scheme – Information and Communication Technology, The policy statement led to two major centrally sponsored schemes, namely, Educational Technology (ET) and Computer Literacy and Studies. In another scheme on up gradation of science education, educational technology also found a significant place. In Government of India's flagship programme on education, like in Sarva Shiksha Abhiyan (SSA), use of ICT for quality improvement has figured. To improve access, quality and governance of higher education, and distance learning programmes, the emphasis was on the introduction of new technology. Many Central government programmes were evolved as a part of the educational policy, like the Computer Literacy and Studies in Schools (CLASS), adoption of information and communication technology (ICT) in schools etc. The policy also emphasized over the fact that job-oriented courses in ICT will be developed and established for students of the vocational stream at the higher secondary level by linking them with the need of ICT enabled industries/establishment in

[11] Plomp, T., Pelgrum, W. J. and Law, N. (2007), 'SITES2006— International comparative survey of pedagogical practices and ICT in education', Educ. and Infor. Technol. 12(2): Retrieved from file:///C:/Users/CSSM/Downloads/India_in_the_knowledge_economy_-_An_electronic_par.pdf

[12] Chandra, S. and Patkar, V. (2007). 'ICTS: A catalyst for enriching the learning process and library services in India', The International Information and Library Rev. 39(1): 1-11. Retrieved from- https://www.researchgate.net/publication/222578377_ICTS_A_catalyst_for_enriching_the_learning_process_and_library_services_in_India

[13] New Media Consortium (2007).||Horizon Report, retrieved July 1, 2007. Retrieved from www.nmc.org/pdf/2007_Horizon_Report.pdf

[14] Ibid; *(Foornote-10)*

[15] Ministry of Human Resource Development.(1986). *National Policy on Education 1986* . Retrieved from http://dietaizawl.weebly.com/uploads/3/1/0/2/31022827/npe86.pdf

the neighborhoods. The policy recommended for the use of ICT to open out alternate possibilities for students who have dropped out and cannot continue formal education in case of 'Open and Distance Learning'.

2.3 National Curricula Framework (NCF) [16] for ICT in Education:

Learning to computers should be one of the important objectives of the curricula which includes learning to create using a variety of hardware and software tools. In the curricula there should be ample opportunity for hands on learning and open-ended exploration of ICT applications. A heightened awareness of the social, ethical and legal aspects of its use should be the part of a healthy ICT environment. Full utilization of infrastructure and resources and its integration with the school's programme should get a priority in the curricula. Innovative ways of reaching the unreached shall be promoted.

2.4 Recommendations of NEP 2016 Regarding the Use of ICT in Education:

NEP 2016[17] recommended for a concerted effort to make ICT an integral part of education across all levels and domains of learning. According to the policy, the integral part of the teacher education curricula will be the courses on the use of ICT as a tool for enhancing the teaching – learning process. For monitoring teachers and student's attendance, performance evaluation of teacher and school administrators, performance of students and also for administrative functions like maintenance of records and accounts, IT based applications will be used. The policy also recommended that IT reporting system will be a powerful tool to better school management and performance. However, the policy also highlighted the fact that ICT has to be seen along with other infrastructure issues, like, availability of proper rooms, reliable electricity network, connectivity, security of school premises, maintenance of infrastructure etc. Another important recommendation of NEP 2016 was for MOOC. The policy emphasized over the fact that MOOC, another application of ICT may help in enhancing the ICT enabled education at secondary and higher education levels, especially for enhancing access to quality education at an affordable cost.

2.5 Recommendations of NEP 2019 Regarding the Use of ICT:

This policy aims at appropriately integrating technology into all levels of education to improve teaching, learning and evaluation. The policy emphasized over the fact that technology in education is to be used to support teacher preparation and continuous teacher professional development. The policy emphasized over the fact that use of technology is important to

[16] National Council of Educational Research and Training (NCERT). (2005). *The National Curriculum Framework*. Retrieved from https://ictcurriculum.gov.in/mod/page/view.php?id=311

[17] Ministry of Human Resource Development.(2016). *National Policy on Education 2016*. Retrieved from http://www.niepa.ac.in/download/NEP2016/ReportNEP.pdf

enhance educational access to disadvantaged groups. And also, to streamline educational planning, administration and management, this policy emphasized over appropriate integration of technology in education.

NEP 2019[18] also recommended for the formation of 'New National Educational Technology Forum', an autonomous body, which will be used as a platform for the free exchange of ideas on the use of technology to improve learning, assessment, planning and administration. This forum will also facilitate decision making on induction, deployment and use of technology. The policy also recommended for 'National Repository of Educational Data', which will maintain all records related to institutions, teachers and students in digital form.

2.6 Recommendations of NEP 2020 Regarding the Use of ICT in Education:

Usage of technology has been emphasized by NEP 2020[19]. This policy emphasized over the development of e courses in regional languages and virtual lab. and a National Educational Technology Forum (NETF) is being created. The Policy notes that one of the central principles steering the education system will be the '*extensive use of technology in teaching and learning, removing language barriers, increasing access as well as education planning and management*'. This policy also talked about the introduction of coding in school curriculum as an important skill for the children. The Policy also notes that technology can be an effective tool in facilitating teacher education and encourages the utilization of technology platforms for online teacher-training. In Professional and Higher Educational system, the policy recommended for the incorporation of technology to expedite the aim of achieving 100% literacy. (by introducing quality technology-based options for adult learning).

The Policy encourages the Higher Education Institutions ("HEIs") to set up start-up incubation centers and technology development centers, and a National Research Foundation to cultivate a culture of research. For free exchange of ideas on the use of technology to enhance learning, assessment planning and administration for school and higher education, the establishment of the National Educational Technology Forum ("NETF**"**) is being encouraged by the policy. Investment in digital infrastructure, development of online teaching platforms and tools, creation of virtual labs and digital repositories, training teachers to become high quality online content creators, designing and implementing of online assessments, establishing standards for content, technology and pedagogy for online teaching-learning, all have been recommended by this policy. The creation of a dedicated unit for the purpose of devising the development of digital infrastructure has been initiated by the policy. The Policy envisages digital content and capacity building to supervise the e-education needs of both school and higher education. The overall emphasis has been put over making India a digital India.

[18] Ministry of Human Resource Development.(2019). Draft *National Education Policy 2019* . Retrieved from https://www.education.gov.in/sites/upload_files/mhrd/files/Draft_NEP_2019_EN_Revised.pdf

[19] Ministry of Human Resource Development.(2020). *National Education Policy 2020.* Retrieved from https://ruralindiaonline.org/en/library/resource/national-education-policy-2020/?gclid=Cj0KCQiA0rSABhDlARIsAJtjfCe4qlsLGeOvTYThQOPxvGoApPrapHJuJMxEvkmJ3gXBEfxwjeMRn4oaAhhsEALw_wcB

2.7. Initiatives by MHRD for Empowering the Role of ICT:

Following is the list of some of the initiatives by MHRD along with their access links[20] :

i) SWAYAM[20] online courses

It provides free of costs access to best teaching learning resources by the students without any registration which were earlier delivered on the SWAYAM Platform.

ii) UG/PG MOOCs[21]:
It hosts learning material of the SWAYAM UG and PG (Non-Technology) archived courses.

iii) e-PG Pathshala: epgp.inflibnet.ac.in
In 70 Post Graduate disciplines of social sciences, arts, fine arts and humanities, natural & mathematical sciences, it hosts high quality, curriculum-based, interactive e-content containing 23,000 modules (e-text and video)

iv) e-Content courseware in UG subjects[22]: e-content in 87 Undergraduate courses with about 24,110 e-content modules is available on the CEC website at http://cec.nic.in

v) SWAYAMPRABHA[23]: is a group of 32 DTH channels for all teachers, students and citizens across the country interested in lifelong learning for providing high quality educational curriculum based course contents covering diverse disciplines such as arts, science, commerce, performing arts, social sciences and humanities subjects, engineering, technology, law, medicine, agriculture etc.

vi) CEC-UGC YouTube channel:[24] Here one can have absolutely free access to unlimited educational curriculum-based lectures

20 *UGC.(2020).* ICT INITIATIVE OF MHRD-UGC FOR ONLINE LEARNING. *Retrieved from* *https://www.saurashtrauniversity.edu/university-news/ict-initiative-of-mhrd-ugc-for-online-learning/*

vii) National Digital Library[25]:
Is a digital repository of a vast amount of academic content in different formats and provides interface support for leading Indian languages for all academic levels including researchers and life-long learners, all disciplines, all popular form of access devices and differently-abled learners.

[20] https://storage.googleapis.com/uniquecourses/online.html
[21] http://ugcmoocs.inflibnet.ac.in/ugcmoocs/moocs_courses.php
[22] http://cec.nic.in
[23] https://www.swayamprabha.gov.in
[24] http://www.youtube.com/user/cecedusat
[25] https://ndl.iitkgp.ac.in

viii) **Shodhganga [26] :** is a digital repository platform of electronic theses and Dissertations for research students, where they can deposit their Ph.D. theses and make it available to the entire scholarly community in open access.

ix) **e-Shodh Sindhu[27] :** it is a repository of current as well as archival access to more than 15,000 core and peer-reviewed journals and a number of bibliographic, citation and factual databases in different disciplines from a large number of publishers and aggregators. All institutions including centrally-funded technical institutions, universities and colleges that are covered under I2(B) and 2(f) Sections of the UGC Act are its member institutions.

x) **Vidwan[28]:**
Is a database of experts for providing information about experts to peers, prospective collaborators, funding agencies policy makers and research scholar in the country.

"It is hoped, that these ICT initiatives, which cover a broad range of subjects and courses and have been prepared by experts, will provide an excellent ICT based learning experience for the learners.

2.8 International Scenario/ Global Perspective:

Worldwide Increasing faith in the power of technology has seen an enormous increase in the use of ICT in educational institutions. Consequently, a number of non-traditional HE providers have come in for the purpose of competing for the student population among themselves, and with the traditional university. Over the provision of higher education, the traditional university no longer has hegemony. To improve the quality of its operations, and also to reach for students in destinations beyond the traditional physical boundaries, it is turning to ICT. But the increasing use of ICT in higher education institutions is set within a context of wider economic, social, and political changes affecting countries world-wide. As a result, the rationales and choices made by institutions for their ICT applications are influenced by a variety of macro and micro environments, and consequent perceptions of competition and the need for collaboration. Issues such as the digital divides, literacy limitations, financial constraints (largely developing countries), changes (increases) in student enrolment numbers (which is a global phenomenon), global technological developments, and competition between and among HE institutions and the emergent providers of higher education (global phenomena), all are examples of the forces that drive change in the contexts of the use of ICT.

3. Why ICT :

Based on the above review of literature and the various recommendations of different Education Commissions / Committees and NEP 2020, it can easily be concluded that ICT affect delivery of

[26] https://shodhganaa.inflibnet.ac.in
[27] https://ess.inflibnet.ac.in
[28] https://vidwan.inflibnet.ac.in

education and enable wider access to the same. It has made education more accessible than the way it was few decades before. Thanks to online courses by means of which it is now possible for anyone to access formal educational courses. Practically all institutions of higher learning are now offering a number of online courses. Consequently, it has made it easy for anyone to access a desired educational course online which was limited in the past due to geographical barriers. So, it provides flexibility in learning so that the learners can have access to the education despite time and geographical barriers. Open and distance learning facilities are on the increase so that the facilities of higher education can reach to the remotest part of the country. With the help of ICT an aspiration for life- long education is being created and this is the main and foremost important determining factor for education for all. Education is regarded as an important bridge of social, economic and political mobility (Amutabi and Oketch, 2003) [21]. So, it is the right of each and every individual to have an access to education. For successful implementation of education for all, use and adoption of ICT is mandatory. Because of the rise of online courses anyone can learn at their own pace without being adhered to strict timelines. Individuals can learn from anywhere, whereas they had to travel to physical schools to access education in the past. Online learning provides ample flexibility to the learners to schedule their learning timetables as they wish. Due to online and virtual environments, facility of e-learning is accessible to all types of learners and the teaching community is also able to reach to remote areas to provide qualitative learning environment from anywhere and at any time. In both developed and developing world, without distance or virtual modes of learning, the demand for higher education cannot be met. So, ICT provides education to those who cannot come to the purview of formal system of education due to various constraints. Input, contents, curriculum, training and assessment, use of ICT is advantageous. Landlines, telephones, mobile phones, newspaper, radio, TV, computers and internets can be made accessible to the rural population and to the remote areas at their request. With these ICT tools, access to education to these backward areas is possible. EDUSAT can be used to train teachers in the latest topics and skills. It can also be used to impart lecture in accordance with the lesson plan. So, ICT enables informal learning where pupils will have access to information and learning materials anytime and anywhere. This includes open learning and distance learning. Internet promotes fast communication. Various collaborative projects can be used whereby students from different states, countries and continents can be involved across geographical barriers. In distance learning, students work on their own at home and communicate with faculty and other students via e mail, electronic forums, video conferencing, chat rooms, instant messaging and other forms of computer-based communication.

Education is now viewed as a lifelong process. Those days are gone when people would forget everything as soon as they stepped out of college. Education is the generation of skills throughout the life. In this knowledge driven world, it is required by the students to learn new skills and to sharpen these skills all the time. Various technology based educational course are there online by which pupils can learn almost everything anytime. Thus, technology has made education a lifelong activity.

In the past only in physical actual meeting, teachers could deliver learning resources to the students. But, with the advancement of technology, it is easy for the teachers and the students

to stay in touch via email and other internet-based services like file sharing and instant messaging applications. Technology has given a means whereby students and teachers can remain in touch all the time. So, technology has changed the mode of interaction between teachers and students.
Institutions of higher learning can now test their learners and can assess their ability online. For this, the students are not required to be present physically in the assessment sessions. Not only this, but also, students can regularly gauge their performance with the help of e- assessment. This process saves money, time and other resources. So, online tests and assessments are other revolutionary changes in the field of higher education.

Learners can now access e-books from anywhere and at any time. Now, digital versions of many popular text books are available online. So, learners now can access contents online. Learners are not required to carry their own hard copies of text books. So, with the help of technology, learners are now able to access new contents easily in traditional lecture, most of the students do not participate actively. But, with the help of ICT a diversion in the attention of the students is possible and they can be involved in investment of energy in all three phases of the learning process. (Input, operation and feedback.) This active learning stimulates higher cognitive process and critical thinking with the help of various ICT tools like radio, TV, internet, mobile phones, computer, laptops, tablets and PCs. If a teacher adopts a blended method of teaching by combining old and new technologies, total time devoted to teaching can be decreased.

Use of ICT is possible at all levels of education, starting from the primary sector. Students at this level learn more via animated photos as they have strong interest in cartoons. They can be taught by showing pictures of animals, fruits etc. they can use ICT tools to listen to voices, sounds and movements of different animals and to learn many things. Language learning is also possible at this level via Multimedia projectors and computers to learn pronunciation. A child who is better equipped with technology from this level can share their thoughts about the future and can learn a lot with creativity. Classes, poetry, lectures and many more educational programs stored on computers or on other ICT tools can be easily presented to the students at anytime and anywhere. Such type of audio-visual teaching learning has long remained effects on the memories of the children and sharpen their cognitive abilities. At higher levels, knowledge about various subjects can be presented through a video. Films and related Multimedia materials are easily available on the internet through various sites. Internet helps teachers and students to find information about each subject. This makes lecture interactive and participatory. With the use of various forms of content, teaching learning is now fun and more meaningful than it was in the past.

At university levels, various functions like computers, electronic boards, EDUSAT facilities of various State Governments and other program related to learning can be used. ICT is used as an assisting tool while making assignments, communications, collecting data and documentation and conducting research. Different ICT tools like word processing, data base, and spread sheet etc. can be used. Online collaborative learning involves interacting with a faculty member or other learners via the web using technologies such as virtual classroom and /or chat rooms. Learners can also interact with their colleagues and faculty members through e-mail. All these

involve active and interactive learning. To improve curriculum and quality of education, ICT can be used. Productivity and retention power of the students can only be increased with ICT. 20% of what people see, 40% 0f what they see and hear and about 75% of what they see and hear at the same time. Teachers can build lessons, support collaborative learning and can develop cognitive skills of the students by integrating ICT in the classroom. Education providers can use technological applications to change the manner in which basic processes are conducted in offering education. This will drastically reduce cost in the amount of money institution spend. Learns also can reduce cost by applying various technological applications while accessing to education. So, the use of ICT in both formal and non-formal form of education can make pupils viable and useful part of the society.

4. Objectives of the Study:

The objectives of the present study are-

i) To focus on the concept of quality education.
ii) To determine the role of ICT in quality education for all.
iii) To find out the challenges in the adoption of ICT for lifelong quality education.

5. Methodology:

The study is a descriptive research method which reviewed published articles, research and studies on role of ICT in quality education. The research tool which is used for analyzing data obtained from different sources is content analysis. Content analysis is a research method that consists of organizing, classifying, comparing and extracting theoretical conclusion from papers and books (Cohen, Manion & Morrison, 2007) [22] **[29]**. The study is a systematic review of the collected literature. The entire identified sources have been reviewed and analysed by the author to determine whether or not they meet the criterion for inclusion. The study is based on the secondary data as books articles, journals, websites etc.

6. Need and Significance of the Study:

Present 21st century's education is a student centric education and the scenario of classroom is changing. However, one may easily notice a gap between the progress of the society and the instructional strategies of the teacher. Whereas, technology has revolutionized our society in this era of globalization, the instructional methods and contents on the other hand are far away from the use of technology. In majority of the cases, the teacher centric mode of teaching is being followed which is leading to one way communication and passive learning. Present system of education is child centric where the needs, interests, abilities, potentialities of the child should be given priority before applying any method of teaching. In present educational system a child is a knowledge explorer and should learn from multi sources. Present system of quality education must be accessible to all students despite time and geographical barriers. For this

[22] Cohen, Manion, & Morrison (2007). *Research Methods in Education*. Routledge. New York. Retrieved from https://gtu.ge/Agro-Lib/RESEARCH%20METHOD%20COHEN%20ok.pdf

reason, it is essential to use ICT and Multimedia in the field of education for fulfilling the goals of quality education and education for all. From this perspective the present study has a great need and significance as it shows the roles of ICI in education for all.

7. Quality Education:

Education that brings qualitative improvements in learners is highly demanding in the present educational system. In the contemporary globalized society, skilled and competent labour is highly demanding. Education must enable learners to think, to ask and to reflect on what has been taught. Quality must confirm innovation, inference and critical thinking. Quality must bring collaboration, production and sharing of knowledge and active participation in the teaching learning process. These are the major shifts in learner cantered environments in present decades. All these require something more in the process of education which is not readily available in the classroom. So, quality is expanded beyond the classroom. Pupils must be provided with additional learning materials and activities beyond classroom. Higher education means not only formal education but also distance, online and part time education. All sectors of higher education need an integration of something extra apart from traditional teaching learning. This extra which can lead to quality enhancement in higher education and which can bring democratization of education is the use and adoption of information and communication technology (ICT).

8. Challenges:

However, the adoption of ICT for lifelong, quality and effective education is not without challenges and obstacles. Insufficient qualification and education of teachers, outdated curriculum and problems of infrastructure in installing ICT are the basic and common problems. Lack of experience on the part of the teachers and their lack of skill are also creating obstacles in the installation of ICT. Many other serious challenges are there, like-

- Currently ICT is limited to a handful of elite schools. Majority of others have limited resources to buy books, stationary, furniture and other text books. Under such a situation installation of ICT is beyond their imagination. The rural population may not be able to pay large sum to use ICT resources for education. Under such a case, the dream of education for all cannot be reached to each and every one. Moreover, low awareness on ICT literacy is another major challenge in ICT based education. Sometimes with an increased urge of developing ICT skills, the primary goal of the learning process can be shifted.
- There is institution to institution differences in the access to ICT. Pupils from the private institutions are found to have better access to ICT than pupils from public institutions. So, another challenge is the digital divide between private and public institutions and also between rural and urban institutions. Even in an elite institution with technological assistance, in a class a digital divide may be created as students who are more familiar with the use of ICT can reap more benefits and can learn faster than those students who are not so technology savvy.

- Infrastructural problem is an all-time problem for the successful implementation of ICT. Expensive support infrastructure and costly and time-consuming online resources are another problem. Apart from physical infrastructure, there is problem related to the contents available online. If the contents are inflexible in terms of quality and validity, students' learning may be disrupted. Students can feel isolated if they are not provided with a class like environment. The bonding process between the teacher and the students can be affected and the transactional distance can be increased as ICT is only a communication tool, not a face-to-face interaction. Another problem is the potential of plagiarism which is high as students can copy and paste information. Such a potentiality can affect their learning and developing skills.
- Majority of rural population cannot speak English. So, if the contents are not developed in all the official languages, it will be a hard challenge for those people to grasp the matter from the internet. It is further very difficult to develop local language content as there is absence of script and font standardization. Since India is a multilingual country, the problem of standardization is always difficult.
- In an institution if a technological system is imposed from the top down without involving faculty and students, it will remain un-communicated and unused. From other regions if inappropriate contents are used without customizing it appropriately, it will lower down the quality of education. Moreover, contents having low and poor instructional design are also inappropriate. If learning technology is installed without reviewing students' needs and content availability, it will be fruitless for students.

9. Conclusion:

There are immense possibilities with the integration of ICT in the classroom. It not only upgrades classroom teaching- learning, but also provides the facility of e-learning, distance learning and lifelong learning. With the help of ICT those who are outside the reach of formal education, can complete their higher education. With the help of ICT education can reach to the remote areas and the pupils are able to access learning environment from anywhere and at any time. To provide educational and pedagogical gain in higher education, use of ICT is utmost necessary. Use and adoption of ICT has brought tremendous change in the field of education. Better teaching can be encouraged if the course materials are widely available and can be shared by means of ICT. Technology influences teaching and foster collaborative and knowledge creation skills. Overcoming specific problems related to the use and adoption of ICT can bring many quality improvements in the field of education and can ultimately lead to democratization of education.

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