Cover Page

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ENHANCING THE QUALITY OF TEACHING-LEARNING PROCESS IN HIGHER EDUCATION THROUGH INTEGRATION OF ICT

[1]Ramesh B and [2]Kavitha B
[1]Kakatiya Government College, Hanumakonda and [2]Kakatiya University, Warangal
Telangana State, India

Abstract

Information and Communication Technology (ICT) plays an important role in enhancing the quality of teaching and learning process in education in general and higher education in particular. The use of ICT can supplement the traditional 'chalk' and 'talk' method to inculcate critical thinking and creative skills of the students. It can promote student centric teaching and bridge the gaps in the knowledge dissemination to the students to a greater extent. The ICT tools assist the students to acquire and assimilate the topic knowledge rapidly with larger understanding. Imparting education through integration of ICT enabled devices greatly enhances the flexibility and efficiency of curriculum delivery. The COVID-19 pandemic has forced the higher education institutions to use more ICT tools for providing better teaching learning experience and adopted the online teaching mode to sustain the education system. Now the blended teaching learning process has become a new normal. The extensive use of projectors, computers, smart boards, tablets and other cutting-edge gadgets have made learning more interesting and entertaining. The virtual laboratories and simulations altogether altered the entire education system in general and higher education in particular.

Keywords: Higher Education, Quality of Teaching, Learning, ICT, Student Centric Teaching, Curriculum Delivery.

Introduction

India is the most populated nation and Indian higher education system is the second largest in the world only after China. As per the statistics of All India Survey on Higher Education (AISHE) 2020-21, about 79.06% of the total students are enrolled in undergraduate level courses and 11.5% are enrolled in postgraduate-level courses. With the advent of technology and innovation, not only business and industry but every sphere of our life is influenced by the computers and education is not an exception. The demand for skilled and competent man power is ever increasing. Indian Universities like Takshashila are flooded with students world over in ancient times. But now, not even a single University finds a place in the list of top Institutes of higher learning in the world over. At the same time more than 47 percent of graduates produced by our universities are unemployable due to lack of communication skills, lack of cognitive skills and lack of digital literacy. India's teacher-centric teaching and learning system is a legacy of the British higher education system. Lack of adopting ever changing technology, lack of innovation in research are two important problems associated with our education system. Therefore, impact of ICT on education in India has been far less and slow. The most fundamental cause seems to have been the deep-seated belief that teaching is an art or at best an imperfect science with no role of technology in the design or delivery of instruction (Bakshi, 2015). In the present day of globalization, even the reluctant conventional learners also started adapting ICT tools to improve the quality of teaching learning process and to bring out the optimum results (Shende & Reddy, 2020).

After independence, there is a large increase in the number of higher educational institutions in the country. The number of universities has increased to 1113 in 2022 from a mere 30 in 1950 and the number of under graduate colleges grew to 43796 from 690 in the same period. Similarly, the student enrolment has increased to 4.14 crore from mere 40 lakh during the same period. This significant expansion of higher education system in a span of 72 years is partially attributable to the large rise in private sector engagement, especially in the wake of liberalisation and globalisation. Quality of education became a concern with mushrooming of institutions. It is a fact that all the universities and colleges are not maintaining the same standards in teaching. The differences in material resources such as buildings, libraries and laboratories are astounding. At the same time large number of faculty positions is vacant in different colleges. Again, there are wide spread disparities between government and private educational institutions. Still, the Gross Enrolment Ratio in higher education is 27.4 only. This is low and still to reach many deserving doors. Therefore, a massive expansion of higher education is the need of the hour. The introduction of ICT in the higher education will have a multi-faceted impact on access and equity in addition to quality of teaching, learning and evaluation. It also entails fundamental structure changes from a vertical towards a more horizontal approach (Sandaert, 2012).

The concept and meaning of education is changing with the times. Earlier, education was for the sake of education. But now, in the context of globalisation, education is for the sake of economic advantage. The concept of education has changed from art or science to technology-mediated instruction and learning. Education has to impart communication and employability skills. The role of ICT is multi-faceted and it has to be integrated at all levels of education, particularly higher education. In the 12 the plan, planning

Cover Page

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commission of India stressed on the need to harness ICT to enrich the quality of teaching and learning process. UNESCO's 'Policy Paper for change and Development in Higher Education' also advocates for greater usage of the advantages offered by the ICT. The National Policy on Education aims in creating an IT/ICT literate community who can deploy, utilize, benefit from IT/ICT and contribute to nation building. Information and Communication Technology (ICT) is widely used in many sectors in the globalized economy and Higher Education is no exception. ICT is also vital for dissemination of knowledge and evaluation process. ICT can, therefore, be perceived as a big change agent for education. It has emerged as a powerful tool for diffusion of knowledge and information. ICTs can play enormous role for improving access and equity in education sector in general and higher education in particular. In developing countries like India, effective use of ICT for the purpose of education has the potential to bridge the digital divide.

ICT is a process of creation, processing, storage, retrieval and dissemination of information and data using computers and telecommunications. ICT is basically an umbrella term that encompasses all communication technologies such as internet, wireless networks, cell phones, satellite communications, digital television etc. that provide access to information (Bakshi, 2015). In education, ICT can be viewed as the application of digital equipment to all aspects of course completion that include course information, registration, teaching, learning, evaluation and certification and placement services if any. It involves combination of technologies for creating, storing, processing, communicating and delivering of information related to teaching and learning and evaluation process.

ICT in teaching

. Teaching always involves attempts to alter students' understanding so that they begin to conceptualise phenomena and ideas in the way scientists, mathematicians, historians, physicians or other experts conceptualise them (Ramsden, 2003). In the age-old talk and chalk method teacher is at the centre of the teaching process. In this process verbal communication is more important. In the last few years India has witnessed a lot of advancement made in the ICT due to Telecom and internet revolution (Tiwari, 2014). UNESCO views ICT as a major tool in "building knowledge societies' (UNESCO, 2003). While delivering the class, any innovative teacher needs to draw diagrams, show pictures, animate some objects to explain critical concepts. In this context ICT offers a wide range of aids to teachers, particularly science teachers. ICT use in the classroom gives an opportunity to students to learn and apply the required 21st century skills. ICT improves both the teaching and learning experience (Ratheeswari, 2018; Bhanot and Fallows, 2005). It expands the pedagogical resources available to science teachers. He will have more options to update his knowledge through the web. With the help of ICT tools, a teacher can plan short, smart and focussed activities to the students. Use of ICT techniques such as internet applications, CDs, power point presentations can greatly enhance the quality of teaching by eliminating several basic problems such as poor hand writing and poor artistic skills. ICT tools can also help teachers to create interactive presentations and quiz programmes. Teachers can have control over the content they deliver in the class room as they can develop their own material and update frequently incorporating latest developments in their field. Knowing and discussing latest developments in his field will create a stronger impact on the students. One can show images and play videos in the class room. All these activities definitely enhance the clarity of the content of the lecture in a class room. Therefore, higher education institutions are relying heavily on ICT tools for effective teaching learning process.

ICT based learning

Basically, one must understand that learning is not a mere transfer of knowledge. There are fundamental differences between formal learning and ICT based learning in terms of characteristics of learning (Dhar, 2008). For example, the learning with ICT does not take place necessarily in a set environment like a class room. The usual features of college learning like collective working, time-table based, time bound, teacher led mechanisms may be missing in ICT based learning. ICT based education provide teachers and students with and innovative and challenging environment (Lopenz-Perez, 2011). ICT based learning facilitates the personal empowerment of the student, allows the self-development of the student, gives free access to information (Wellington, 2001). Incorporation of course website, an electronic forum, computerised visualisation, smart class rooms, online debates, virtual role plays, video conferencing, multimedia presentation and web based projects into their curriculum leads to democratisation of teaching learning process as the total process is student centric (Barak, 2007). This leads to enhanced learning experience to students. Following are some of the areas where ICT can be used in Higher Education. Studies have proved that ICT supplemented teaching along with regular chalk and talk method led to higher student engagement, better academic performance and rise in collaboration between students (Kozlova, 2021).

Digital classrooms: Classrooms are converted into tech hubs by integration of ICT into curriculum (Fernandes, 2014). Digital classrooms are defined by using electronic devices or platforms such as social media, multimedia, and mobile phones to teach students (Haleem et al, 2022). In this mode most of the curriculum is delivered to students online through an engaging and interactive platform. Obviously students focus less on taking notes on what the teacher has taught. The emergence of social networking sites, smart phones, digital readers and digital books could help classrooms become more interactive and smarter.

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E-content: Content is the basic element of ICT-enabled learning or e-learning. Interactive oriented and multimedia enriched E-content can play a greater role in the process of self-learning and assessment of the student. ICT based course material can foster easy content delivery and better teaching (Borthakur P., 2022). Lessons can be recorded and made available to students freely both online and off line. This offers the flexibility of time and place to the students.

Visual presentations: Using power point presentations and interactive boards can make a lecture very impressive, affective and attractive. Use of ICT tools can help the teacher to use different modes of teaching (Prasad, 2020). The students can get opportunity to see, visualise and interact for better understanding. Videos and pictures can be shown to the students for better grasping of the subject. Long monotonous lectures can be complemented using this technology with visual aids that lend freshness to learning.

Cloud based Tools: Google apps, YouTube and other similar apps can be effectively used to store notes, discussion points, video lectures, and recorded lessons can be shared within a class. As this technology is open ended, anyone can add or make points and the lecturers stays virtually connected to students all the time. As i-cloud is not restricted to one devise creates universal access.

Social Networking: Several universities and colleges are on social networking sites like face book and twitter today. Lecturers, administrators are communicating with the students through this medium. This technology has become very popular today. The social networking can be effectively utilised to achieve educational goals also.

The evaluation stage is a crucial stage in teaching learning process involving both internal and external evaluation and prompt declaration of results. ICT based environments, with embedded collaborative activities can effectively foster rich learning experiences that result in attaining positive learning outcomes. Online examinations and e-assessments are gaining importance in higher education, particularly in engineering examinations to meet the growing demand. This can be slowly expanded to other courses also. This method is highly appreciated by the students as it gives immediate feedback and provides unbiased assessment.

Challenges in usage of ICT

The major challenge to infuse ICT is the digital gap between people with effective access to ICT and those with limited or no access at all. Many University students and faculty make only limited formal academic use of computer technology. Reasons are many starting from non-availability of ICT tools to reluctance and resistance to adopt new technologies (Selwyn, 2007). The other bottlenecks in the effective usage of ICT in higher education include quality and cost of physical infrastructure, lack of knowledge about full capabilities of ICT and lack of availability of high-quality content uniformly across the country, inadequate and unreliable power supply. In rural areas, computer literacy is also a major problem.

Measures to infuse ICT in higher education

To promote computer literacy and build capacity in ICT skills, ICT courses should be integrated to curricula from the school level itself. Computer literacy classes in public libraries can also be used as a means of promoting and propagating ICT awareness. One can transform digital divide into a digital opportunity by giving top priority to the development of ICT and telecommunication infrastructure (computers with internet access and broadband connectivity) in order to provide universal and affordable access to information to people and institutions in all geographical areas of the country. Both central and state governments shall try to establish Wi-Fi campuses. Regular training classes have to be conducted to the faculty to upgrade and update the computer knowledge. Finally, commitment is very crucial to bring out the best that ICT can offer.

Conclusion

The new developments in ICTs have opened up fresh perspectives in teaching and learning. To introduce ICT-enabled education in a large and diverse country one needs to have high quality multi-media 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 learners. The ongoing National Mission on Education through ICT (NMEICT) is a major initiative of the Govt. 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. ICT, if 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 has the potential to provide solution to many of the challenges higher education faces today. The common fear that ICT shall replace a teacher is totally unfounded. Realization now seems to be slowly dawning on the teaching community that ICT is primarily to empower them and not to replace them. ICT is, therefore, not to be feared but to be embraced so as to empower our future generations by providing them high quality ICT- enabled education. ICT-enabled education can also be a solution to the growing demands of enrolment in higher education in India.


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