International Journal of Advanced Educational Research
ISSN: 2455-6157
Impact Factor: RJIF 5.12
www.educationjournal.org
Volume 2; Issue 5; September 2017; Page No. 299-302

Blending ICT and education

Prof. Binu Dogra
Principal, Post Graduate Govt. College for Girls Sector 42, Chandigarh, Punjab, India

Abstract
The Global Economy is becoming increasingly dependent on Information and access to information technology and information skills are crucial factors determining success of a society. Thus it becomes imperative for the developing nations to give a high priority to effective utilization of technology in today's academic environment. Technological advancement have developed efficient means of harnessing and using ICT to existing conventional system of knowledge and their integration for the better society. The present paper aims at successful blending of ICT and education. This paper deals with how the concepts of ICT could be incorporated with education as well as technology to communicate effectively and scientifically to improve the teaching learning process.

Keywords: information technology, information skills, ICT, blending and education

Introduction

The Concept of Information and Communication Technology (ICT)

According to Major, (2011) there seems to be agreement by writers on this subject that data processed, analyzed, interpreted and made meaningful to the recipient of a message constitutes information. At a basic level, technology is conceptualized as the use of information to gain control over nature in order to survive the complexities and challenges caused by a changing environment and further using the same to build a civilized culture for achieving higher standards of living [7].

Globalization and technological change – processes that have accelerated in tandem over the past fifteen years – have created a new global economy "powered by technology, fuelled by information and driven by knowledge" [11].

Information technology (IT) is concerned with managing and processing information using electronics, computers and computer software to convert, store, protect, process, transmit and retrieve information.

The advancement from information technology (IT) to information and communication technology (ICT) was the result of the advent of the Internet, broadband connections and broad wave transmission energy, enabling a wider applicability in business, education and the like (Onuma, 2007) [8].

ICT is concerned with enhancing the quality of teaching, learning, research, evaluation and general administration. It is imperative that ICT be employed in enhancing these quality assurance procedures in this global era.

Information Communication Technology (ICT) presents the material through multiple stimuli like sounds, images, and movement thus catering the needs of psychomotor, visual, and affective learners (Haddad & Jurich, 2002) [4]. Radio-assisted instruction (RAI), Television-assisted instruction (TAI), Computer-assisted instruction (CAI), Internet-assisted instruction (IAI) is some of the dimensions of ICT-assisted instruction (UNESCO, 2014) [10].

ICT has become a topic of discussion in the technological arena and its applications in different sectors and education in particular. Information and Communication Technologies (ICTs) are generally accepted as a modern instrumental tool that enables the educators to modify the teaching methods they use in order to increase the students' performance.

Information and Communication Technology (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. During the past few decades, ICT has provided society with a vast array of new communication capabilities and has fundamentally changed the way we live now. We find a world of difference in the practices and procedures of various fields such as medicine, tourism, banking, business, engineering, etc. as they operate now in comparison to how they operated two decades ago. In contrast, the impact of ICT on education in India, however, 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. But now times have changed and the paradigm of education and learning has changed from art or science to technology-mediated instruction and learning. ICT can, therefore, be perceived as a big change agent for education.

In order to use technology to help achieve the goals of education in a better and more effective way, one has to be first of all clear about what our expectations are from the education system, what and how do we want our students to learn and what type of individuals our classrooms should produce - rote learners or those with an analytical mind having an in-depth understanding of the subject?

India has the third largest system of education in the world,

next only to USA and China, with more than 500 universities and around 30000 colleges. To introduce ICT-enabled education in such a large system 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 [1].

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-enabled education can also be a solution to the growing demands for enrolments in higher education in India and thus help increase the gross enrolment ratio (GER) which at present is very low (about 12%) as compared to the world average of 23%. In case of open and distance education (ODE) system where "Anyone, Anywhere and Anytime", that is, 3A's is the main philosophy, ICT-enabled education can do wonders that no one can imagine and help pave way for the creation of virtual universities in the long run. ICT can also significantly contribute in efficiently managing the governance in the universities and colleges [1].

ICT and Education

Chapter 4 of the World Economic Forum's Global Technology Report (2001-2002), very aptly brings out some positive lessons for ICT and Education in the developing world. In this chapter, R J Hawkins lists out the ten lessons as follows [5]:

1. Computer labs in developing countries take time and money, but they work
2. Technical support cannot be overlooked
3. Non-competitive telecommunications infrastructure, policies and regulations impede connectivity and sustainability
4. Lose the wires
5. Get the community involved
6. Private-public partnerships are essential
7. Link ICT and education efforts to broader education reforms
8. Training, training, training
9. Technology empowers girls
10. Technology motivates students and energises classrooms

The above lessons are indicative of the major impeding influences with the major ones being infrastructure, gender divide, training and private-public partnerships/collaboration.

The Indian scenario is no different with the digital divide between the urban and rural schools. Children in rural schools do not get the benefit of the wisdom of teachers and experts abundant in the towns and cities. As a result, many of the rural folk are neither aware of good careers or of procedures and systems to get into higher and professional education.

Need of ICT in today's Education

One of the most commonly cited reason for using ICTs in the classroom has been to prepare the current generation of students for a workplace where ICTs particularly computers, the internet and related technologies, are becoming more and more ubiquitous. Technological literacy, or the ability to use ICT effectively and efficiently, is thus seen as representing a comparative edge in an increasingly globalised market. Technological literacy, however, are not the only skill that will be required in these well- paying jobs in the new global economy. En Gauge of the North Central Regional Educational Laboratory (U.S.) has identified what it calls "21st Century Skills", which includes digital age literacy (consisting of functional literacy, Visual literacy, Scientific literacy, technological literacy, information literacy, Cultural literacy, and global awareness), inventive thinking, high order thinking and sound reasoning, effective communication, and high productivity [3].

How can the use of ICTs help improve the quality of education?

Improving the quality of education and training is a critical issue, particularly at a time of educational expansion. ICTs can enhance the quality of education in several ways: by increasing learner motivation and engagement, by facilitating the acquisition of basic skills, and by enhancing teacher training. ICTs are also transformational tools which, when used appropriately, can promote the shift to a learner-centred environment.

- **Motivating to learn**- ICTs such as videos, television and multimedia computer software that combine text, sound, and colourful, moving images can be used to provide challenging and authentic content that will engage the student in the learning process. Interactive radio likewise makes use of sound effects, songs, dramatizations, comic skits, and other performance conventions to compel the students to listen and become involved in the lessons being delivered. More so than any other type of ICT, networked computers with Internet connectivity can increase learner motivation as it combines the media richness and interactivity of other ICTs with the opportunity to connect with real people and to participate in real world events.
- **Facilitating the acquisition of basic skills**- The transmission of basic skills and concepts that are the foundation of higher order thinking skills and creativity can be facilitated by ICTs through drill and practice. Educational television programs such as Sesame Street use repetition and reinforcement to teach the alphabet, numbers, colours, shapes and other basic concepts. Most of the early uses of computers were for computer-based learning (also called computer-assisted instruction) that focused on mastery of skills and content through repetition and reinforcement.
- **Enhancing teacher training**- ICTs have also been used to improve access to and the quality of teacher training. For example, institutions like the Cyber Teacher Training

Centre (CTTC) in South Korea are taking advantage of the Internet to provide better teacher professional development opportunities to in-service teachers. The government-funded CTTC, established in 1997, offers self-directed, self-paced Web-based courses for primary and secondary school teachers. Courses include "Computers in the Information Society, "Education Reform," and "Future Society and Education." Online tutorials are also offered, with some courses requiring occasional face-to-face meetings [6]. In China, large-scale radio and television-based teacher education has for many years been conducted by the China Central Radio and TV University, the Shanghai Radio and TV University and many other RTVUs in the country [2]. At Indira Gandhi National Open University, satellite-based one-way video- and two-way audio-conferencing was held in 1996, supplemented by print-materials and recorded video, to train 910 primary school teachers and facilitators from 20 district training institutes in Karnataka State. The teachers interacted with remote lecturers by telephone and fax [12].

How can ICTs help transform the learning environment into one that is learner-centred?

Research has shown that the appropriate use of ICTs can catalyze the paradigmatic shift in both content and pedagogy that is at the heart of education reform in the 21st century. If designed and implemented properly, ICT-supported education can promote the acquisition of the knowledge and skills that will empower students for lifelong learning.

When used appropriately, ICTs—especially computers and Internet technologies— enable new ways of teaching and learning rather than simply allow teachers and students to do what they have done before in a better way. These new ways of teaching and learning are underpinned by constructivist theories of learning and constitute a shift from a teacher-centred pedagogy—in its worst form characterized by memorization and rote learning—to one that is learner-centred [9].

- **Active learning:** ICT-enhanced learning mobilizes tools for examination, calculation and analysis of information, thus providing a platform for student inquiry, analysis and construction of new information. Learners therefore learn as they do and, whenever appropriate, work on real-life problems in-depth, making learning less abstract and more relevant to the learner's life situation. In this way, and in contrast to memorization-based or rote learning, ICT-enhanced learning promotes increased learner engagement. ICT-enhanced learning is also "just-in-time" learning in which learners can choose what to learn when they need to learn it.
- **Collaborative learning:** ICT-supported learning encourages interaction and cooperation among students, teachers, and experts regardless of where they are. Apart from modelling real-world interactions, ICT-supported learning provides learners the opportunity to work with people from different cultures, thereby helping to enhance learners' teaming and communicative skills as well as their global awareness.
- **Creative Learning:** ICT-supported learning promotes the manipulation of existing information and the creation of real-world products rather than the regurgitation of received information.
- **Integrative learning**: ICT-enhanced learning promotes a thematic, integrative approach to teaching and learning. This approach eliminates the artificial separation between the different disciplines and between theory and practice that characterizes the traditional classroom approach.
- **Evaluative learning:** ICT-enhanced learning is student-directed and diagnostic. Unlike static, text- or print-based educational technologies, ICT-enhanced learning recognizes that there are many different learning pathways and many different articulations of knowledge. ICTs allow learners to explore and discover rather than merely listen and remember.

ICT in education is the need of the hour. It has the potential to provide solution too many of the challenges that an educational institute faces today. ICT has revolutionized the entire concept of education, learning and research by offering new opportunities and challenges in creation and dissemination of information by way of Web TV's, Net PC's and Web-based education independent of time, pace and place.

Education needs to change to respond to the need of economy and knowledge society. Teachers need to be encouraged to use ICT more effectively. Organizational change is required to allow and encourage innovation in education. Research and studies need to look for holistic, international and qualitative approaches to analyze the effective use of ICT and its impact on learning processes and outcomes.

ICT is about transformation and about important cultural changes in the students. It is about transformation of the whole educational system. It is about the change of structures, curricula and methodologies with ICT support. It is about the new learning culture to change libraries, classrooms, study plans and accreditation systems.

References

1. Bakhshi AK. Article - ICT in Education: Need of the Hour. retrieved from http://indiaeducationreview.com
2. Carnoy Martin, *et al*. Distance Education in China: A Discussion of the History, Challenges and Implications for China in the 21st Century, 2001. retrieved from http://ldt.stanford.edu/~yokonaga/portfolio/ed236x/China.jjy.
3. En Gauge. North Central Regional Educational Laboratory; available from http://www.ncrel.org/engauge/skills/21skills.htm.
4. Haddad Wadi D, Jurich. ICT for Education: Potential and Potency", in Haddad W. Drexler A. (eds), Technologies for Education: Potentials, Parameters, and Prospects (Washington DC: Academy for Educational Development and Paris: UNESCO). 2002, 34-37.
5. Hawkins RJ. World Economic Forum: Global Technology report, 2001-2002. www.cid.harvard.edu
6. Jung I. Issues and Challenges of Providing Online In-service Teacher Training: Korea's Experience"; available from http://www.irrodl.org/content/v2.1/jung.pdf;
7. Major NB. Managing education for sustainable development in Nigeria: The ICT Imperative. Journal of Issues in Professional Teacher Education. 2011; 2(2):113-

121.
8. Onuma N. Utilization of information and communication technology in schools: Problems and suggestions. In J. B. Babalola GO, Akpa AO, Ayeni SO. Adedeji (Eds.). Access, equity and quality, in higher education. (487-496). NAEAP Publishers, 2007.
9. Syazwan M. The Future of Technology available from, 2009. http://the-infotech.blogspot.in
10. UNESCO. Information and communication technology (ICT) in education in Asia: A comparative analysis of ICT integration and e-readiness in schools across Asia. Montreal: UNESCO Institute for Statistics, 2014. Retrieved from http://www.uis.unesco.org/ Communication/Documents/ICT-asia en.pdf
11. US Department of Labor. Future work – Trends and Challenges for Work in the 21st Century. Quoted in EnGauge, "21 st Century Skills," North Central Regional Educational Laboratory, 1999. Retrieved from: http://www.ncrel.org/engauge/skills/21skills.htm.
12. http://www.ignou.ac.in. See also Asian Development Bank Distance Education for Primary School Teachers: Papers and Proceedings of the Regional Seminar on Distance Education (Manila: Asian Development Bank, 1997.