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ARTICLE

Role of Ict in Learning

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Abstract

*The 21st century is the age of Information and Communication Technology. The internet has become an integral part of every individual's life. Our nation has become known for it, ICT enables self-paced learning through various tools such as assignment, computer etc. as a result of this the teaching learning enterprise has become more productive and meaningful. ICT helps facilitate the transaction between producers and users by keeping the students updated and enhancing teachers capacity and ability fostering a live contact between the teacher and the student through e-mail, chalk session, e-learning, web-based learning including internet, intranet, extranet, CD-ROM, TV audio-videotape. Edusat technology has become very powerful media for interactive participation of experts and learners and it reaches the unreachable. **"Smart technology" is the familiar terminology that is widely being used in every being's life. Smartphones, tablets, gadgets, smart televisions, etc are the products of smart technology that have made human life smarter, easier and accessible. Smart technology has not only enhanced the way of living but also became an integrated part of everyone's life.** In this article we will discuss about the concept of ICT, its tools, classification of tools and its uses.*

Introduction

ICT is an extended term for Information technology which is a technological source to make information available at the right time, right place in the right form to the right user. Earlier, one had to wait for the newspapers to get the information across the world. Now with the smarter technology, information can be accessed from

anywhere using smartphones and gadgets. All this is made possible with the help of Information and Communication Technology. Information technology has been influencing our lives in the recent years in the fields of education, healthcare, and business. Going an extra mile, Information and communication technology in schools has had a major impact. Information and communication technology in schools can be used as a school communication tool to improve student learning and better teaching techniques. With the advancement of technology in education, schools adopt school communication software to transmit, store, share or exchange information. In this technological era, ICT in education has compelled many schools to get accustomed to smart technology. This school communication software uses computers, the internet, and multimedia as the medium of communication. Information and Communication Technologies (ICTs) has opened up the possibilities to access a range of information for both teachers and students which was unthinkable a decade back. Besides, it is now felt that ICT can assist in promoting more learner-centered and interactive learning.

Definition of ICT

Information and Communication Technology (ICT) is defined as a “diverse set of technological tools and resources used to communicate, and to create, disseminate, store, and manage information” (UNDP, 2000; UNESCO 2002). This definition of ICT includes such technologies as radio, television, video, DVD, telephone (both fixed line and mobile phones), satellite systems, computer and network hardware and software as well as the equipment and services associated with these technologies, such as video conferencing and electronic mail. ICTs comprises of the following three components:

- i. Information and Communication Infrastructure (ICI) which includes physical telecommunications systems, networks (cellular, broadcast, cable, satellite, postal) and the services that utilize those (Internet, voice, mail, radio, and television);
- ii. Information Technology (IT) that refers to the hardware and software of information collection, storage, processing, and presentation (World Bank 2002); and
- iii. Communication Technology (CT) like telephones, e-mail, chatting, etc. which helps to disseminate information and facilitate interaction among students and teachers irrespective of the distance, time and situations.

Therefore, ICT can be understood as integration of information technology with different kinds of communication technology with the help of appropriate infrastructure. It can be said that there is major role of information technology in enhancement of communication. Given below are examples of such technologies are:

- Print based materials,
- Photography, pictorials, graphics,
- Audio communication systems including audio broadcast,
- Telecommunication,
- Satellite communication,
- Computer based technologies like the Internet and E-mail,
- Wireless communication,
- Mobile technology.

TOOLS OF ICT

The tools ICT may be in the form of audio, visual and audio-visual. There is a diverse set of technological tools and resources used to communicate, and to create, disseminate, store and manage information. The tools of ICT have great potential to facilitate the acquisition of knowledge and developing proper understanding by the students in the classroom. Generally we collect information from different sources available to us like textbooks, magazines, reference books, journals, class notes and other non-print sources. But to make the collected information presentable in the classroom, we require more time and resources which are not always available to us. Hence, very often we feel that the lesson is not comprehensive. Again the students often cannot have direct access to the information that we can have. But, the tools of ICT reduced such gaps and made not only acquisition and absorption of knowledge by the students possible but also sharing/collaboration in the classroom. The tools of ICT also have the potential to create learning opportunities for all types of students including both physically and mentally challenged students.

The tools of ICT are not single technology but combination of hardware, software, multimedia, and delivery systems. Today, ICT in education encompasses a great range of rapidly evolving technologies such as Desktop, Notebook, Handheld Computers, Tablets, Digital Cameras, Local Area Networking, Bluetooth, the Internet, Cloud Computing, the World Wide Web, and DVDs and applications such as word processors, spreadsheets, tutorials, simulations, email, digital libraries,

computer-mediated conferencing, videoconferencing, virtual environment, simulator, emulator etc. These tools of ICT can be used for creating learning situations in the classroom as well as in engaging the students in higher order thinking.

Classification of Tools

In the classroom we prepared and followed different instructional activities for the success of learning. In such learning process ICT can play different roles according to the nature of the content and the learning style of the students. Different available tools of ICT have different roles in the classroom. We can broadly classify the tools of ICT into four categories as follows:

- i. informative tools,
- ii. situating tools,
- iii. constructive tools, and
- iv. Communicative tools.

These tools have different uses in different contexts. Let us discuss these tools in details.

i) Informative Tools:

These tools of ICT provide huge information in various formats such as text, sound, graphics, or video. Examples of informative tools include multimedia encyclopaedias or resources available on the World Wide Web (www or Web). The teacher can use the informative tools particularly for the purpose of collecting information. Although these tools cannot help to get the real life experiences, it presents abstract information. Suppose the teacher is going to teach the concept of democracy in social science. He may assign the students to collect information on the governance system of different countries. Students can collect different information on governance with help of the informative tools of ICT like internet.

(ii) Situating Tools:

There are some ICT tools like simulation, games, and virtual reality through which students can be placed in an environment where they may get “nearly direct experience” through observation or practice in an artificially created model of real situation. These tools particularly help to understand the abstract concepts. Suppose the teacher is going to teach on the topic blood circulation system of human beings. Students will gain better experiences by the help of You Tubes, video clips, specially prepared DVDs etc. where they can observe the moving

streams of blood in the arteries and veins and functioning of heart with details of the physiology of the blood circulation.

(iii) Constructive Tools:

There are different tools of ICT we can use for constructing, manipulating as well as visualizing his own knowledge. For example, the tools of ICT like web authoring applications which allow creating one's own web pages and communicating ideas to others around the world. Hereour constructive ideas/information reaches throughout the world including peers and teachers. In the same timewe can also get the feedback about our ideas from the learner community. Other examples of such constructive tools of ICT are Mind tools, which includes computer applications such as databases, spreadsheets, semantic networking programs, expert systems, modelling tools, micro worlds, and hypermedia authoring tools that enable students to represent and to generate the knowledge.The term "constructive" originate from the fact that these tools of ICT enable to produce a certain tangible product for a given instructional purpose.

(iv) Communicative tools

We communicate our ideas/ knowledge/views with the help of communicative tools. But many of them are time-consuming. Take the example of the postal system which takes more time for your informationto reach. Although the telephonic device reduced the time but its limitation is between two people. However today we can communicate with a large group of people within a few seconds by using ICT tools. Examples of such communicative tools include e-mail, electronic bulletin boards, chat, teleconferencing, and electronic whiteboards. Such communicative tools of ICT are called web-2.0. One of the important characteristics of such tools is simultaneous conversation among the group of people in the form of text, picture or sound. These tools are the systems that can enable communication between the teacher and students or among students beyond the physical barrier (due to space, time, or both) of the classroom.

Use of ICT Tools

Information Communication Technology (ICT) have enabled changes in the lives of people, their world of work, and helped them to interact with several persons and sources around the world. It opened up new ways to acquire knowledge. The use of ICT tools not only conforms with in the sector of education but also it has major

use in different sectors like finance, industry, insurance, medical and management also. Today the tools of ICT are vital in the classroom for creating the learning situation. These not only help the student for collecting information from different sources but also give an opportunity for disseminating the information among the peers. The impact of use of ICT on students is highly dependent on the teaching approaches and better outcome result when student centered guidance, group work and inquiry projects are used. Let us discuss different use of ICT tools in the teaching learning process.

In Pedagogies:

As a tool, ICT can provide the supportive or facilitative approaches in the classroom. By using tools of ICT, particularly the situating and communicative tools, we can guide the students learning and at the same time students also get the supportive service from the ICTs. Besides, we can also use the tools of ICT in different phases of pedagogical process i.e. during the introduction, presentation as well as in the assessment phase. In the classroom during the instructional process, the tools of ICT will motivate the students and encourage interaction among the peers. However, the ICTs by themselves will not improve pedagogy. Teachers who shift their pedagogies to be more student-centred, project-based and collaborative learning based teaching, ICT will support and assist. In a conventional education system, ICT may be used to support teacher-centred pedagogical approaches or in the combination of the two approaches. The aim is to make sound choices about what is best in different circumstances, selecting and using appropriate ICT tools for improving pedagogy. In other words, ICT can play a major role in promoting pedagogy for the facilitation of effective and efficient learning.

In collaboration:

In learning centred approach of teaching, sharing/ interaction among the students and between the student and teacher is an important component. There are some tools of ICT that can be used for the purpose of collaboration inside and outside the classroom. You can share your views/ideas/knowledge with your students by using such tools and in the same time your students also share their ideas, suggest different views, and also clarify their doubts. These tools of ICT particularly used for the purpose of sharing are called as Social Communicating Tools. Examples of such social net working tools are wiki, yahoo group, Google group, blog, Facebook, twitter, my space etc.

In Assessment:

There are different tools of ICT available today that can be used to assess your students' performance during your teaching-learning process as well as after completion of the course. These tools enable both the process based assessment as well as the product based assessment. Suppose you want to assess the students' best work in your subject throughout the year. You can take the help of one of the tools of ICT called e-portfolio, through which you can easily and quickly assess your students' performance. Similarly other tools of ICT that can be used for assessment are onlinerubric, online- peer assessment and digital concept mapping, etc. The advantages of using ICT tools in the assessment process are time management and it encourages reflection among the students.

In the context of learning process:

ICT enables the classroom by encompassing a variety of techniques, tools, content and resources. Ranging from projecting media to support a lesson, multimedia self-learning modules, simulations to virtual learning environments, there are a variety of options available to us for utilizing various modes/ICT tools in the learning process. Each of these device or strategy involves changes in the classroom environment and understanding of its effectiveness

CONCLUSION

In this way it can be said that ICT does play a significant role in different forms of teaching learning process viz., individual learning and teaching, group learning and teaching, collaborative learning activities, etc. We can conclude that the use of ICT is a key factor for innovation, teaching and improvement of learning processes. Designing a plan for ICT integration in which we get the participation of the whole teaching staff of a school will give us the opportunity to reflect and analyse why and with which aim ICT will be used, and this will contribute to its potential as an innovative element of the curriculum. For successful integration of ICT into teaching-learning process, it can be concluded that the factors that positively influenced teachers' and administrators' use of ICT in education include teachers' attitudes, ICT competence, computer self-efficacy, teaching experience, education level, professional development, accessibility, technical support, leadership support, pressure to use technology, government policy on ICT literacy, and technological characteristics. However, the presence of all factors increases the probability of excellent integration of ICT in teaching-learning process. Therefore,

the training of teachers in the pedagogical issues should be increased if teachers are to be convinced of the value of using ICT in their teaching-learning process.

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