ICT in Educational Institution: Need, Role and Importance

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Abstract: The ICT (Information and Communication Technology) has been essential requirement in educational institution for learning and teachingin the present day of digital environment. The learners are using, accessing, capturing videos lectures, digital notes through electronic gadgets and researchers, teachers uploading their article, videos, class lectures through ICT tools and techniques. Similarly, educational institutions also adopting the ICT tools and techniques for better teaching, administration and management in the campus. The paper highlights the role and importance and use of ICT Application by learner, teacher, and educational administrator in teaching, learning, administration and management of educational institutions.

I. INTRODUCTION

The ICT (Information and Communication Technology) was used extensively by the educationalists and researchers since 1980s which is an umbrella term of different communication devices and their applications. It has become common term in the 21st century which has been called the digital age or era of ICT (Information and Communication Technology). The word is used in all walks of life and also in the field of education starting from primary to higher education.

In education, use of diverse set of ICT tools to communicate, create, disseminate, store, and manage information.In some contexts, ICT became integral part to the teaching-learning interaction, through such approaches as replacing chalkboards with interactive digital whiteboards, using students' own smartphones or other devices for learning during class time. When teachers are digitally literate and trained to use ICT, these approaches can lead to higher order thinking skills, provide creative and individualized options for students to express their understandings, and leave students better prepared to deal with ongoing technological changes in society.

In the context of educational institutions ICT has a major impact on teaching, learning, research and management. During last twenty years many educational institutions have heavily invested across the globe on ICT Application and its infrastructure development.

In our country education system is also not an exception and it is witnessed a series of changes that have brought an increase in the market size of the education industry in India. The government has taken many initiatives for the development of education infrastructure which includes the development and implementation of ICT applications and it has been identified as a catalyst for country's transformation from a production based economy to a knowledge based economy.

II. NEED OF ICT IN EDUCATION

- Education as a lifelong process therefore anytime and anywhere access to ICT is the need.
- Information explosion is an ever increasing phenomena therefore there is requirement to get access the information.
- Education should meet the needs of variety of learners and teachers; therefore ICT is important in meeting this need.
- ICT is requirement of the society that the individuals should possess technological literacy.
- We need to increase access and bring down the cost of education to meet the challenges of illiteracy and poverty-ICT is the answer.

(Source: http://ictcurriculum.gov.in)
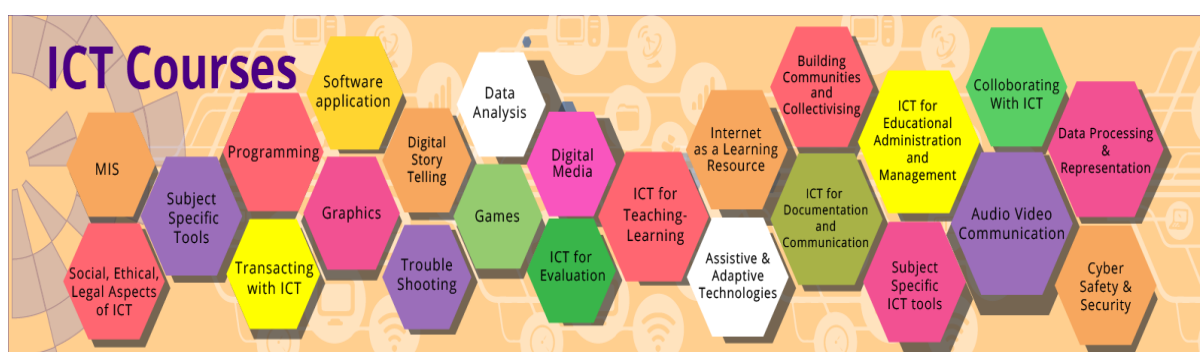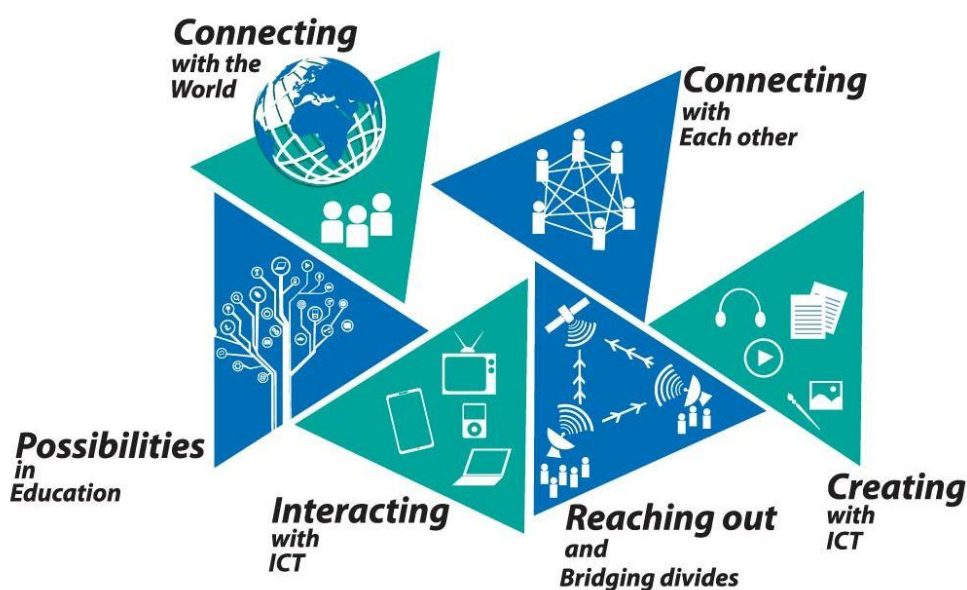
III. IMPORTANCE OF ICT IN EDUCATION

ICT referred to as the varied collection of technological gear and resources which are made use of to communicate. It is also made use of to generate, distribute, collect and administer information. It consists of the hardware, software, networks, and media for collection, storage, processing, transmission and presentation of information i.e; voices, data, text, images as well as related services.

➢ Access to variety of learning resources,
➢ Immediacy to information and access to the source of information,
➢ Learning - Anytime, Anywhere, and Collaborative Learning,
➢ Multimedia approach to education, authentic and up to date information,
➢ Access to Online Libraries, Repositories, access to Open Courseware and Open Educational Resources,
➢ Teaching of different subjects made interesting, and educational data storage,
➢ Distance Education, Online Education,
➢ Multiple communication channels, e-mail, chat, forum, blogs, etc.,
➢ Better accesses to children with disabilities, and
➢ Reduce time on many routine tasks.

It can be used extensively for educational administration and management. These are the some areas where ICT can be used for effective management of Educational Institution;

➢ General Administration
➢ Admission & Registration Section
➢ Examination System
➢ Personnel Management
➢ Financial Management
➢ Library and Information Centre

➤ Inventory Management

ICT issues planners must consider include: considering the total cost-benefit equation, supplying and maintaining the requisite infrastructure, and ensuring investments are matched with teacher support and other policies aimed at effective ICT use.

3. **Digital Culture and Digital Literacy:** Computer technologies and other aspects of digital culture have changed the ways of people to live, work, play, and learn, impacting the construction and distribution of knowledge and power around the world. In many countries, digital literacy is being built through the incorporation of information and communication technology (ICT) into schools. Some common educational applications of ICT include:

Laptop forstudent: Less expensive laptops have been designed for use in school on basis with features like lower power consumption, a low cost operating system.

Tablets: Tablets are small personal computers with a touch screen, allowing input without a keyboard or mouse. Inexpensive learning software ("apps") can be downloaded onto tablets, making them a versatile tool for learning. The most effective apps develop higher order thinking skills and provide creative and individualized options for students to express their understanding.

Interactive White Boards or Smart Boards: Interactive white boards allow projected computer images to be displayed, manipulated, dragged, clicked, or copied. Simultaneously, handwritten notes can be taken on the board and saved for later use. Interactive white boards are associated with whole-class instruction rather than student-centred activities.

E-readers: E-readers are electronic devices that can hold hundreds of books in digital form, and they are increasingly utilized in the delivery of reading material. Features of e-readers that can contribute to positive use include their portability and long battery life, response to text, and the ability to define unknown words and many classic book titles are freely available in e-book form.

Flipped Classrooms: The flipped classroom model, involving lecture and practice at home via computer-guided instruction and interactive learning activities in class, can allow for an expanded curriculum. There is little investigation on the student learning outcomes of flipped classrooms.

IV. CATEGORISATION OF ICT

ICT is often categorised into two broad types:

The traditional computer-based technologies – The things one can typically do on a personal computer or using computers at home or at work; and

The more recent and fast growing range of *digital communication technologies* - which allow people and organisations to communicate and share information digitally.These two categories demonstrate these kinds of products ideas which are covered by ICT;

Application	Use
	Standard Office Applications
Word Processing	**Microsoft Word:** To write letters, report etc.
Spread sheets	**Microsoft Excel:** To analyse financial information, calculation, creating forecasting models etc.
Database Software	**Oracle, Microsoft Access, Microsoft SQL Server:** To manage data in many forms, from basic lists
Presentation Software	**Microsoft PowerPoint:** To make presentations, either directly using computer screen or data projector. To publish in digital format via email or over the Internet.
Desktop Publishing	**Adobe InDesign, Quark Express, and Microsoft Publisher:** To produce newsletters, magazines and other complex documents.
Graphic Software	**Adobe Photoshop and Illustrator:** To create and edit images such as logos, drawings or pictures for use in DTP, websites or other publications.
	Specialist Applications
Accounting Package	**Tally, Sage, Oracle;** Manage an organisation's accounts including revenues/sales, purchases, bank accounts etc. A wide range of systems is available ranging from basic packages suitable for small businesses through to sophisticated ones aimed at multinational companies.
CAD (Computer Aided Design)	**CAD (Computer Aided Design)** is the use of computers to assist the design process. Specialised CAD programs exist for many types of design: architectural, engineering, electronics roadways.

CRM (Customer Relations Management)	Software that allows businesses to better understand their customers by collecting and analysing data on them such as their product preferences, buying habits etc. Often linked to software applications that run call centres and loyalty cards for example.
Library Management Softwares	**Koha, Dspace, E-Granthalaya, Libsys, etc.** Software that allows the library and information centre to give better management of users and services to the students, scholars, teachers and other users of the library.

Web-based Tools and Applications for Managing Learning and Teaching

Learning Management Systems	Internet based software that deploys, manages, tracks and reports on interaction between the learner and the content, and the instructor. They enable student registration, track learner progress, record test scores and indicate course completions. They also allow the instructor to assess student performance. Example : Web CT.
Student Management Systems	May include financial, timetabling, student records and reporting. May also enable parents to review their child's performance online Example: Power School.
Digital Student Report Card Systems	A Digitized system for transmitting student information. Can embed real examples of a student's work form an e-portfolio.
Plagiarism Detection Systems	Examiner digital text and by comparing nature and frequency of particular word strings, provides feedback to educator on the likelihood that a particular piece of work has been plagiarised. Example: TurnitinPlagiarism Checker.
Online Collaborative Workspaces	Online communication tools to enable collaboration. Example: Bulletin board, email discussion lists.
Virtual Classroom Software Systems	Deliver an interactive learning environment to students with a computer and Internet connection. The software presents the student with a screen consisting of an instructional area, bordered by items such as class location, message board etc.

Learning and Teaching Tools

Interactive Whiteboards	A whiteboard surface that displays digital files from a computer via a data projector. May function as a standard whiteboard i.e., teacher or student may write on it and then digitise the marked up material.
Personal Communication	Digital communication, which enables individuals to talk to one person or more. E.g. web forums, Internet relay chat, SMS (short messaging service) on mobile phones.

Mobile Delivery Devices: The Digital Backpack

Storage Device	Device for transferring electronic work between various devices and physical locations and to backup work, e.g. USB memory stick.
Personal Digital Entertainment Devices (PDEs) and MP3 Players	Enable user to download, store and play audio, photo and video files and in many cases, to take part in interactive activities
Mobile Phones	Increasingly these allow communication via photos, video as well as text messaging.
Laptops	A mobile computer that is operated with a battery away from power sources. Newer versions are now wireless and can connect to the Internet in wireless hotspots
Assistive and Adaptive Technologies	Technology that supports students with disabilities, such as screen readers, and virtual pencils.

Content Delivery Methods

Podcasts	Podcasting is a method of publishing audio files via the Internet, allowing users to subscribe to a feed to receive new files automatically.
Blogs	A web-based journal or log book. Logs are chronologically ordered web-postings by an author or group of authors. It may be personal, individual records, group collaborations or representatives of an institution.
Voice over Internet Protocol (VoIP)	Enables transmission of voice across the Internet. Example: Skype
Digital TV	Similar to analogue TV but has the capacity to deliver rich multimedia learning experiences. It enables interactivity.

V. ADVANTAGES OF ICT TOOLS FOR EDUCATIONAL INSTITUTIONS

- Creation of Independent Learning environment,
- Cost Effective
- Unaffected by Distance and Climate
- Versatility
- Speedy and Instant availability of information
- Remove social and economic barriers

VI. DISADVANTAGES OF ICT FOR EDUCATIONAL INSTITUTION

- Requires high investment
- Ignores individual differences
- Fails to solve culturally and social sensitive problems
- Problem of accessibility
- Widening the knowledge gap
- Do not bring behavioural change
- Difficult evaluation
- Regular orientation required
- Requires attitudinal change

VII. CONCLUSION

In order to cope up with the digital culture the educational institutions are adopting modern technologies of ICT to create the teaching and learning environment. To manage the organisation data, accessing the information, maintaining their financial transaction, library services, etc. require adopting latest tools and techniques of ICT in the premises to provide the best services. Recently, the Govt. of India has launched SWAYAM portal which given the online reading material, video, in different courses and using ICT tools to provide education to the outreach.

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