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INFORMATION COMMUNICATION TECHNOLOGY TOOLS

Dr.Smt. Ambuj Pandey

Assistant Professor, Department of Chemistry

Government Bilasa Girls PG College

Bilaspur, Chhatisgarh

ABSTRACT

Information and Communication Technology (ICT) is an extensional term for Information Technology (IT) that emphasizes role of unified communications and the integration of telecommunications (telephone lines and wireless signals) and computers, as well as necessary enterprise software, middleware, storage and audiovisual, that enables users to access, store, transmit, understand and make uses of the information.

ICT is an umbrella term that includes any communication device, encompassing radio, television, cell phones, computer and network hardware, satellite system and so on, as well as various services and appliances with them such as video conferencing and distance learning.

ICT is a broad subject and the concept is still evolving. It covers any product that will store, retrieve, manipulate, transmit or receive information electronically in digital form (e.g., personal computers, smart phones, digital television, e-mails, and robots).

Use of ICT Tools is all pervasive in our everyday life, and use of ICT tools has almost revolutionized the way teachers impart knowledge to students and students receive knowledge from their teachers, Not only that, by making accessible entire bookshelf and whole of library to students and teachers on a click of their smart phones and laptops have made education simple, much more efficient and have enhanced their productivity enormously.

Had it not been for availability of such modern ICT tools, we could not have pushed through education of our children during this pandemic period in such an efficient manner for almost last two years.

With advent of ICT Tools, students-teachers community has been benefitted immensely. Now-a-days, classrooms are equipped with desktops, projectors, internet (which facilitates downloading of info from across

the world). With availability of smart phones, teachers and students can “virtually” assemble in a classroom and interact with each other with help of ICT software tools such as Google Meet, Zoom etc.

[Keywords: Communication Devices, ICT Tools, On-line learning, Distance Learning]

Information Communication Technology Tools

Presenter:

Dr. (Smt.) Ambuj Pandey

Assistant Professor

Government Bilasa Girls College, Bilaspur

Chhatisgarh

Information Communication Technology Tools

- What is ICT
 - ICT stands for Information and Communication Technology
 - ICT are basically information handling tools, a varied set of equipment, applications and services that are used to produce, store, process, distribute and exchange information.
 - Old ICT include radio, television, telephone, tapes, cassettes etc.
 - New ICT include computers, satellite, wireless technology and internet.
 - Definition of ICT
 - As per IBM Glossary, “ICT is the use of computer based information systems and communication systems to transmit and store data and information”.

Importance of ICT in Education

- No nation can develop without ICT based education. It is regarded as fuel for development.
 - ICT based education is the essential ingredient in developing new ideas, in course content and curriculum and in creation of materials and methods of learning and teaching.
 - Students need ICT for pursuing academic studies whereas teachers need ICT based information for teaching.
- (contd....)

Importance of ICT in Education (contd...)

- ICT has made it easier to process and disseminate knowledge. It has increased the efficiency of the knowledge professionals in organizing and managing knowledge.
- It has saved the space of library by creating library on digital platforms and further by uploading them onto the servers or clouds. And thus making retrieval of information much easier for everyone.

ICT Tools prevalent in colleges for imparting education to students

- Nowadays teachers use well equipped classrooms with permanently installed and operational projectors. Teachers utilize these for purpose of teaching thru presentations, videos and other relevant materials.
- Students are also encouraged to put up presentations and explain the topics to the teachers, while students are continuously evaluated during the process.
- During present pandemic time, teachers make extensive uses of ICT tools for teaching their students online thru Zoom and Google Meet. This could be possible only with such ICT tools, that includes smart phones, laptops, relevant software etc. During this pandemic scenario students and teaching faculties remained continuously in touch over whatapp and Google Classroom (yet another example of ICT Tools).

ICT Tools in Vogue in Colleges

| | | | |
|------------------|-------------------------|-------------------------------|----------------------|
| <u>Desktop</u> | <u>Wifi</u> | <u>Email</u> | <u>MS Powerpoint</u> |
| <u>Laptop</u> | <u>Scanner</u> | <u>Smart Board</u> | <u>MS Office</u> |
| <u>Printer</u> | <u>Google Classroom</u> | <u>Interactive Whiteboard</u> | • |
| <u>Pen Drive</u> | <u>Zoom</u> | <u>MS Word</u> | • |
| <u>USB</u> | <u>WhatsApp</u> | <u>MS Excel</u> | • |

Classification of ICT Tools

- ICT could be classified in three categories:
 1. Physical ICT hardware or Gadgets- include audio-visuals, telephone and computers
 - Television
 - Cell phones
 - Modems : A modem is a device that translates signals to and from between two computer devices in a network.
 - Computers- There are numerous things that computers can do as far as device connectivity, task processing, data management and storage is concerned. The computer connects us to the internet and helps us share information in a network. Other physical communication technologies (ICT gadgets or hardware) in digital devices include remote controls, keyless entry devices, walkie-talkies, Bluetooth earpieces, GPS Satellites, CD's DVD's, flash drives, tape, compact memory chips. (Contd...)

Classification of ICT Tools (contd)

2. Non-Physical ICT Software (Virtual Communication Technology): Software and Wireless Network represent ICT Software

Software: Software is a program that direct smooth running of a computer system. It can be system software (such as Microsoft operating system) or application software (such as MS Internet Explorer, MS Word, MS Excel etc.).

3. Communication Technology Services (ICT Services): Internet and Email services are examples of ICT services.

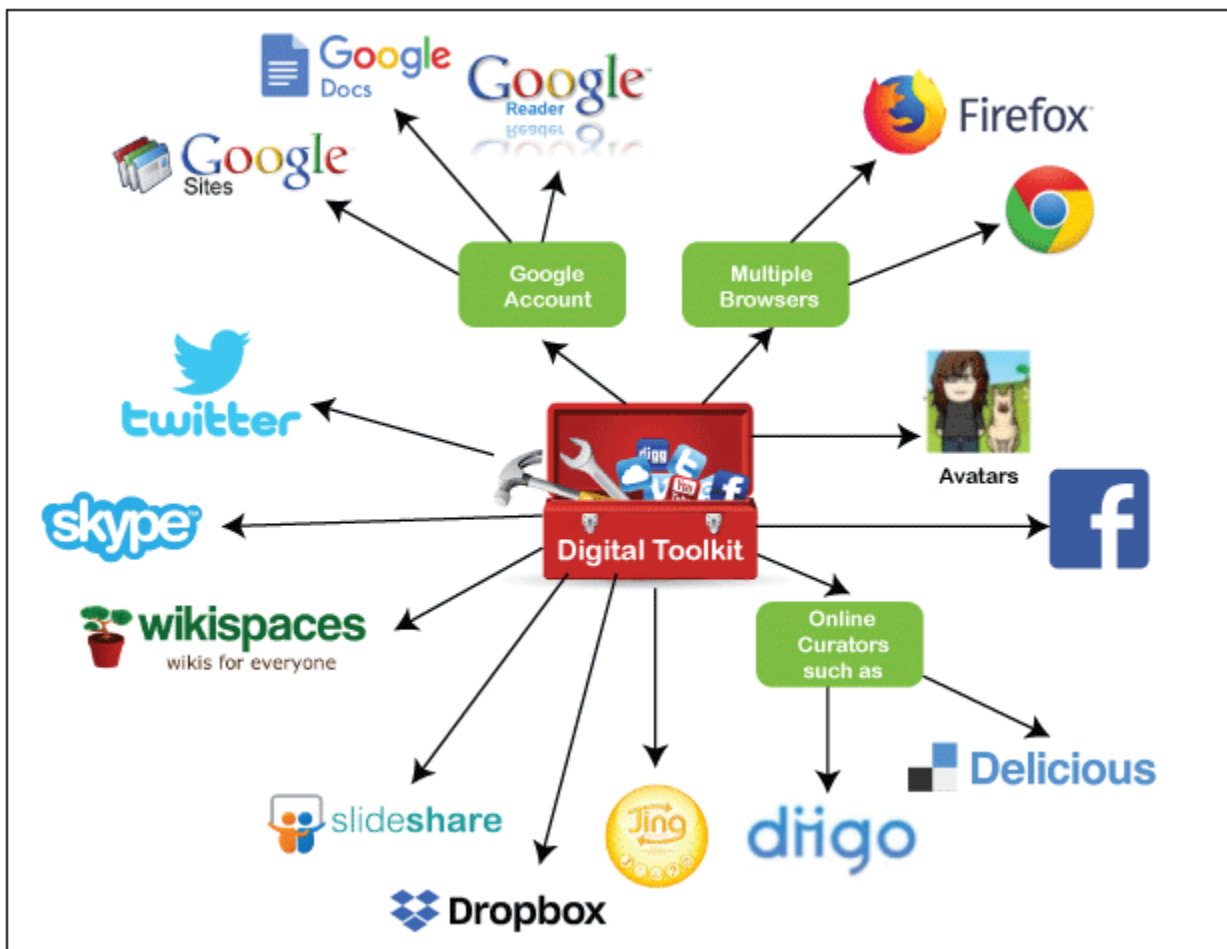
ICT Equipment for Every Classroom:

Ideally, following 10 ICT items, should be features of every classrooms in our educational institutions. While majority of university colleges do possess majority of them but some of them are still just pipedream for many!

1. A social media output channel to connect with students, parents and fellow classrooms
2. A desktop computer to access online resources
3. USB or Wifi access for document sharing and device connectivity
4. A projector with interactive whiteboard functionality or television screen connectivity.
5. A presentation clicker for classroom mobility. The best one I've found is Logitech which I use for keynotes.
6. A visualiser or document camera for displaying student work, or presenting live feedback.
7. Tablet devices for teacher and student e.g. iPad

- 8. Recording hardware/[software for podcasting](#) e.g. microphone, headphone and speakers
- 9. A digital camera for showcasing work in film or [photographs](#).
- 10. A few show-off gizmos; e.g. data-logging; remote control vehicles/[robots](#)/buzzers and lights!

ICT Tools being used normally by academicians



Applications of ICT in Education

- Enablement of employment of innovative educational resources
- Continuous renewal of methods of learning
- Sets up more active collaboration from students
- Makes possible simultaneous acquisition of technological knowledge
- It facilitates refinement in educational processes

Major applications of ICT

- Internet the miraculous all pervading medium
- Intranet
- E-mail
- E-group
- Mobile phone
- Fax
- Video conference
- Telecommunications and digital telephone exchanges

Everyday applications of ICT

- Banking, Education, Transport, Medicine, Agriculture, E-commerce, E-governance, Defense...

ICT as a dominating force in the universe

- ICT is basically a very strong and potential amalgam of Information technology and Communication technology
- IT comprises of hardware and software elements that allow to organize, access, store and manipulate the information using electronic means.
- CT comprises of infrastructure, equipment & software for accessing, receiving and disseminating the information – Good examples are networks, modems, phones, faxes...
- So we hear more and more about electronic processes like e-books, e-documents, e-journals, e-learning, e-business, e-education, e-publishing, e-banking, e-governance...
- Space travel is also a great boon using ICT

ICT is playing a pivotal role in today's world

- ICT has made the whole world a global village
- It is accelerating the information explosion
- This has led to better information management and bibliographical control for digital content
- The job of library and information professionals is becoming tougher day by day and ICT comes to the aid by providing even ways to deal with scattered and unorganized information and avoid information pollution or misleading information

Some examples of ICT tools

- Digital library
- Greenstone
- Dspace
- UGC-Infonet: E-Journals Consortium

Greenstone and DSpace are open source software for content creation to maintain an institutional repository
 UGC-Infonet is a country wide network for improving the education system with state-of-the-art technology

ICT and E-resources

- INFLIBNET centre at Ahmedabad – This e-journals consortium enables 60%-90% off on the subscription of these e-resources

Library and information professionals from over 110 universities have already been trained by INFLIBNET

- ERNET, New Delhi – Providing training for computer science professionals to look after the networks within universities

Advantages of using ICT

1. **Communication** - Speed / time – money can be saved because it's much quicker to move information around. With the help of ICT it has become quicker and more efficient.
2. **Globalization** - Video conferencing saves money on flights and accommodation. ICT has brought the countries and people closer together.
3. **Cost effectiveness** - It feels free to send an email which is definitely cheaper than phone calls.
4. **Bridging the cultural gap** – Greater access to technology has helped to bridge the cultural gap by helping people from different cultures to communicate with one another, and allow for the exchange of views and ideas, thus increasing awareness and reducing prejudice.
5. **Education** – Computer's along with their programs and the Internet have created educational opportunities not available to previous generations.

- 6. **Through ICT** , images can easily be used in teaching and improving the retentive memory of student.

Disadvantages of using ICT

1. **Lack of job security** – Experts in a wide variety of fields believe that ICT has made job security a big issue, since technology keeps on changing nearly every day. This means that individuals need to be constantly studying or at least keeping up with changes in their profession, if they want to feel secure in their jobs to be secure.
2. **Overriding Cultures** - While ICT may have made the world a global village, it has also contributed to one culture consuming another weaker one. For example, it is now argued that teenagers in the US influence how most young teenagers all over the world now act, dress, and behave.

3. Privacy - Though information technology may have made communication quicker, easier, and more convenient, it has also brought along privacy issues. From cell phone signal interceptions to e-mail hacking, people are now worried about their once private information becoming public knowledge.

Disadvantages of using ICT (Contd..)

Reliance on Technology – Professor Ian Robertson, a neuropsychology expert based at Trinity College Dublin who carried out the study, said: “People have more to remember these days, and they are relying on technology for their memory but the less you use your memory, the poorer it becomes. . people don’t bother learning to spell because they use spell-checker, or need a calculator do perform minor addition or subtraction.

5. Reliability of Information – Anyone with access to a computer and an internet connection internet can start a blog or post something up on a website, so just because something’s on the web doesn't mean it’s reliable. A prime example of this is the open source encyclopedia, Wikipedia, although considered a good source of information it is not recognized by academic institutions as a trustworthy reference.

6. Computer viruses, worms, Trojans, malware, spam, phishing- any or all can cause chaos and disrupt our daily lives

7. Expensive - Too expensive to afford.

Conclusion

- It is true that with advent of numerous ICT tools our lives have changed drastically and it has revolutionized our education methodology, communication ways, as well as our business processes.
- Overall, we cannot imagine our world without ICT tools & gadgets. We cannot survive for even an hour without our smart phones, laptops, digital devices etc. etc.

Conclusion (Cont)

- ICT has enabled revolutionary changes in creation, processing, handling, storage and dissemination of digital information through communication network
- Millions and millions of digital information products are coming up day by day
- There is an information explosion and bibliographical control is a tough nut to crack
- Library and information professionals need training, orientation and awareness to face the big challenges of future