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Tamil nadu, India

Programme: B.P.Ed., Physical Education & Yoga

Course Title :Computer Application in Physical Education

Course Code: 21BPE32

UNIT – 5

**Network & Information communication
technology**

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Network

MEANING

A network is a collection of computers, servers, mainframes, network devices, peripherals, or other devices connected to one another allowing for data to be shared and used. *E.g : network is the Internet connecting millions of people all over the world together.*

DEFINITION

A network is defined as a group of two or more computer system linked together

Classification of network

➤ **Local area network (LAN)**

Network used to interconnect computers in a single room, rooms within building or buildings on one they are called local area network. Lan transmits data with a speed of several megabits per second. Transmission medium is normally coaxial cables.

➤ **Wide area network (WAN)**

It is used to describe a network spanning a regional, national or global area.

E.g : for a large company the head quarters might be a Delhi and regional branches at Trichy, madras. Here regional centers are connected to head quarters through WAN.

The distance between computers connected to WAN is larger. Therefore the transmission medium used is normally telephone lines, microwaves and satellite links.

Some Common Terms

- **The Internet** is a network of computers spanning the globe. It is also called the **World Wide Web**.
- An **Internet Browser** is a software program that enables you to view Web pages on your computer. Browsers connect computers to the Internet, and allow people to “surf the Web.”
- **Internet Explorer** is one of the browsers most commonly used. There are other browsers available as well, including **Netscape**.

HOW POPULAR WEB BROWSERS WORK



**Mozilla
Firefox**



**Google
Chrome**



**Microsoft
Internet
Explorer**



**Apple
Safari**



Opera



Parts of a Web Address

- A web address is typically composed of **four parts**:
- For example, the address **http://www.google.ca** is made up of the following areas:
- **http://**
This Web server uses Hypertext Transfer Protocol (HTTP). This is the most common protocol on the Internet.
- **www**
This site is on the World Wide Web.
- **google**
The Web server and site maintainer.
- **ca**
This tells us it is a site in Canada.

Endings of web pages tells us a bit about the page. Some common endings to web addresses are:

- **com** (commercial)
- **edu** (educational institution)
- **gov** (government)
- **net** (network)
- **org** (organization)

You might also see addresses that add a country code as the last part of the address such as:

- **ca** (Canada)
- **uk** (United Kingdom)
- **fr** (France)
- **us** (United States of America)
- **au** (Australia)

How to Search the Internet

Two basic ways

1. if you know the address of the web page
(example: www.cbc.ca)
2. Using a search engine like **Google** to find the address. This is called a **keyword search**

Typing in the Web Site Address

1. Go to the **address** bar. Click once to highlight the address. (It should turn blue).
2. Hit the **Delete** key on your keyboard.
3. Enter the following address:
www.theweathernetwork.com
4. Then press **Enter** on the keyboard *or* click on the word **Go** on the right side of the **Address Bar**.

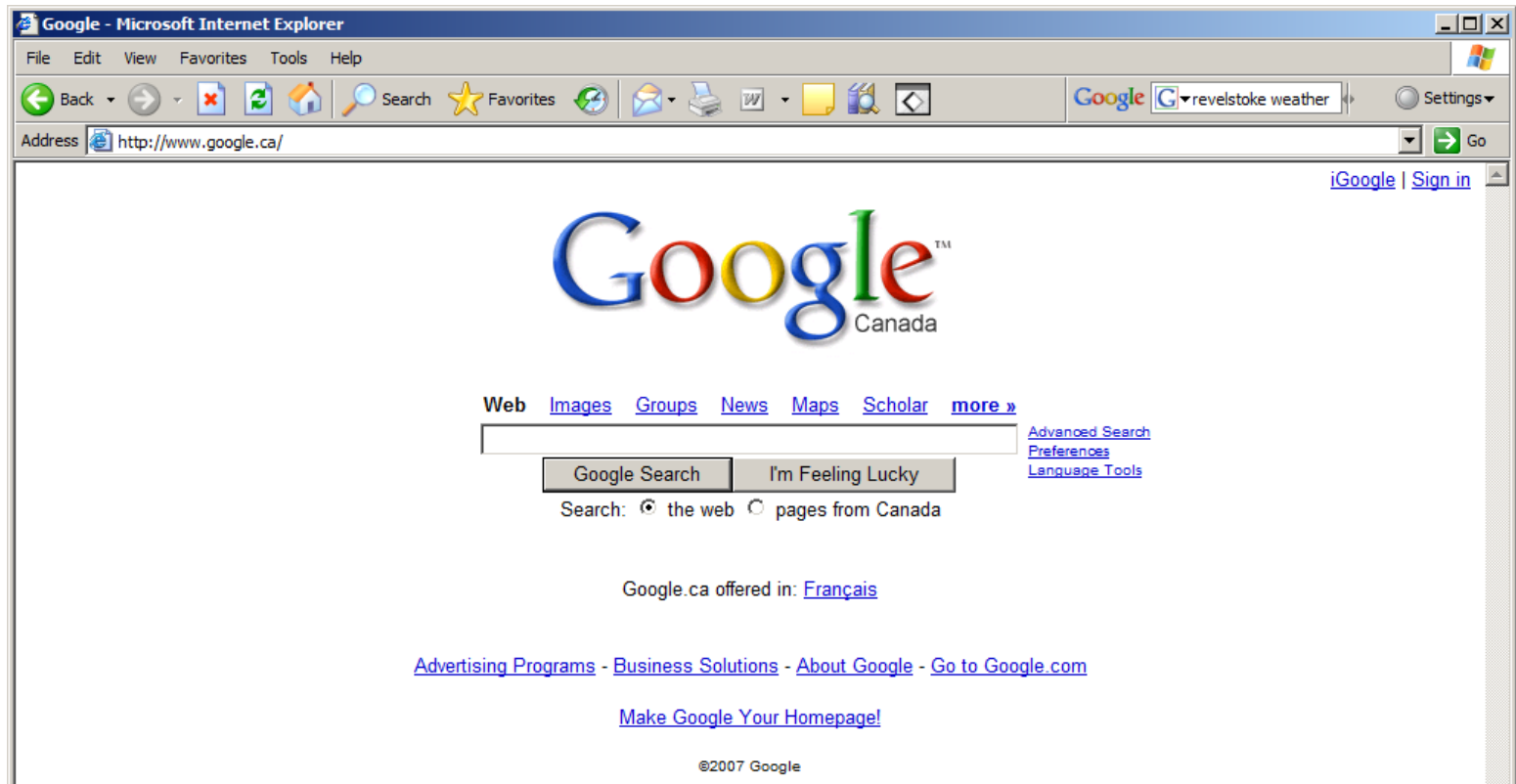
Search the Internet

- If you don't know the address of the webpage, but want to learn more about a topic or find a particular website, you will need to do a search.
- There are several handy **search engines** out there that will locate information for you. Two of the mostly commonly used are:

www.google.com

www.yahoo.com

Now click on the Google box. You should see a flashing cursor. Type in the topic. Hit enter.



INTERNET

It is defined as an information super highway, to access information over the web. However, it can be defined in many ways as follows:

- It is a world wide global system of interconnected computer networks.
- It is used the standard internet protocol(TCP/IP)
- Every computer in internet is identified by a unique IP address
- IP address is a unique set of number(such as 110.22.33.114) which identified a computer location
- A special computer DNS (Domain name server) is used to give name to the IP address so that user can locate a computer by a name
- *E.g:* DNS server will resolve a name <http://www.bdu.dpe.in> to a particular IP address to uniquely identify the computer on which this website is hosted.
- Internet is accessible to every user all over the world

Advantages of internet

1. communication

The primary goal of the internet is communication. newer innovation makes communications in a fraction of second, with a person who is sitting in the other part of the world, faster and more reliable.

2. Information

The biggest benefits offered by the internet is information. It functions as a valuable resource and virtual treasure trove of information.

3. Entertainment

It is functions as a popular medium of entertainment, so that many people prefer to stuff the internet.

4. E-commerce

The concept of e-commerce is used for any type of commercial and business deals that involves the transfer of information across the globe via the internet.

5. **Social networking**

social networking has evolved as a great medium to connect with millions of people with similar interests by using the websites such as Facebook or twitter.

6. **Services**

A variety of services are offered via internet, for example job searching, online banking, buying movie tickets, hotel reservations and consultation service, etc..

DISADVANTAGES

1 .Spamming:

spamming denotes distribution of unsolicited email in large numbers. They are meaningless and unnecessarily obstruct the entire system.

2. Theft of personal details:

while using the internet, it may be accessed by con artists and used for fraudulent purpose.

3. Pornography:

Pornography is perhaps the biggest disadvantages of the internet that allows the user to access and download millions of pornographic photos, videos and worsen stuff.

4. Virus threat:

Internet users are often plagued by virus attacks on their system. Virus is a programme that interrupts that usual operation of the personal computer system and may end up with hard disk crashing.

5. Social Disconnect:

Children prefer to play online games rather than going out and mingles with other kids. This may hamper a healthy social development in children and even in adults.

E-mail

It is a services which allows us to send the message in ***electronic mode*** over the internet. It offer an efficient. Inexpensive and real time mean of distributing information among people.

Advantages of email

The advantages of email system may be stated as under:

Email is cheap

E-mails turn to be a cheaper alternative to telephone conversation because it is a person to person communication system. It offers low cost.

Email is fast

It eliminates the time spent in establishing telephone calls. It is faster compared to traditional mail.

Failure notification

For some reason, if your email can not be sent to receiver a failure notification send to you so that you can understand that your mail is not sent.

Attachment

One of the most important advantages of email is attachment facility. Email gives you a facility of attachment so that you can attach anything like the picture, audio file, video file, document file, PDF etc.

Product advertisement

Nowadays email is the most popular way of product advertising because it gives you an opportunity to send an email to thousand even millions of your client at very a little time with very little effort and this kind of email marketing is very less expensive.

Remained address

Email automatically remained email address of both receiving and sending so, there is no hazel to mind email address.

Record

Email carries a record or evidence all the time because if you don't delete mail from your mailbox a mail never destroyed. So, if you need this next time you may see it anytime anywhere.

Communication without physical presence

It permits communication between two parts without the parties actually being present simultaneously

Disadvantage of email (Electronic Mail)

- **Absence of privacy**

There is a chance of leakage of information through email if a mail server is hacked.

- **Lost password**

You may lose or forgot your email login password. Though there is an option to recover password but that also need another email address.

- **Virus**

An email may carry the virus to you. So, all the time you should careful about it. It is one of the greatest disadvantages of email.

- **No alert**

Email does not give any alert like phone or mobile so, sometimes we can be late to see the important message.

- **Overlooking of message**

Busy people may not give attention or may overlook any message due to receiving of thousands of email every day.

- **Lack of personal touch**

It cannot convey emotion or personal touch the way a face-to-face conversation or even a phone call can.

- **Missing of Non-verbal communication**

Body movement or facial expressions are not involved in email. So, the quick attention of the receiver is not possible here.

- **Change of sudden rumor**

Email can spread rumor suddenly as it requires a click only to send a bad message to thousand receivers.

- **Unwanted email**

Email can spread mail containing virus or spam contents which can damage computer systems totally.

APPLICATION OF COMPUTERS

Computers are employed in scientific application and research it is natural that a large body of computer application serve the scientist. They were extensively employed in many research projects.

- To solve scientific problems researchers must deal with the language of science, mathematics.
- To understand more deeply complex natural phenomena.
- Scientists must use complex mathematical relationships and volumes of data too impossible to manage without the aid of computers.

SOME BASIC APPLICATION

Education

Sports

Music

Travel and tourism

Real time application

COMPUTER IN EDUCATION

computer is also a tool for learning. Instruction materials can be prepared and stored within the computer in the form of program to teach any subjects. The student could sit at a terminal, call the program and participate in the lesson. Thus computer can be an aid to teaching which we call as ***Computer based teaching (CBT)***.

The **CBT** for various subjects are commercially available. constant efforts are being made for the development of new teaching aids. Besides, existing areas in the field of molecular physics, biology, space science etc., have been restructured and broadened by the use of computers, which is an excellent tool for simulation exercises.

COMPUTER IN SPORTS

In most sport, computers compile statistics, sell tickets, create training programme and diets for athletes and suggests game plan strategies based on the competitor's past performance. Much of the graphic art displays flashed on score boards are generated by computers.

well, television networks use computers in the control room to bring you play – by – play action. With the help of a computer, a technicians inserts the commercial breaks on schedule. If that is not enough the sports shoes you wear were probably designed using computers that fixed points of stress and then created the style and shape that offer maximum support for the foot.

MUSIC

- computer-generated art gives freedom to designers so that sets special effects, and even imaginary characters can play a part in making movies, videos and commercials.
- creatures, spaceships, and entire galaxies are created and manipulated by computers, then photographed by computer-driven cameras.
- when computer- controlled lighting systems are used on sound stages in theaters, a dramatic range of atmospheres can be produced.

TRAVEL AND TOURISM

Computer will help prepare the tickets, monitor the train's route, or guide the plane to a safe landing. They will even confirmed hotel room and rental car reservation.

REAL TIME APPLICATIONS

using communication networks booking offices all over the world are hooked to a computer of large capacity working real time when a customer enquires at a booking office about reservation in a particular flight, the clerk there hooks onto the main computer from this his terminal regarding availability to book the ticket and also allots the seat number then the there.

INFORMATION AND COMMUNICATION TECHNOLOGY

Information and Communication Technology (ICT) in education is the mode of education that use information and communications technology to support, enhance, and optimise the delivery of information. Worldwide research has shown that ICT can lead to an improved student learning and better teaching methods.

INTRODUCTION TO 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 and cassettes, video cassettes, etc.**
- **“New ICT” include computers, satellite, wireless technology and the internet.**



DEFINITION OF ICT

- **UNESCO** defines ICT as “the scientific, technological and engineering disciplines and the management technique used to handle transmit information with men and machines.”
- According to the **DIGITAL VIDEO TECHNICAL GLOSSARY**, “ICT is the computing and communication facilities and features that support teaching, learning and a range of activities in education.”
- According to the official **IBM GLOSSARY**, “ICT is the use of computer based information systems and communication systems to , transmit and store data and information.”



DIGITAL VIDEO



EXAMPLE OF VARIOUS ICTs

1) COMMON ICTs

Laptop

Projectors

Mobile Devices

Mp3 Players

e-book Readers

Tablets



2) OTHER ICTs

Video Conferencing

Audio and Video CDs and DVDs

Podcasts(Internet Audio Broadcast)

Educational Software



3) INTERNET BASED ICTs AND CHANNELS

- **Email**
- **Chat**
- **Text Messaging**
- **Skype**
- **Social Networking**
- **Tweeting**
- **Blogs**



Impact of ict in education

- **No nation can develop without ICT based education. It is regarded as the fuel of development.**
- **ICT based education is the essential ingredient in developing new ideas, in course content and curriculum and in the creation of materials and methods of learning and teaching.**
- **Students need ICT for pursuing academic studies where as teachers need ICT based information for teaching.**
- **ICT has made more 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 the library materials in digital formats.**

BENEFITS OF ICT

1) BENEFITS OF ICT IN EDUCATION

- **Extends learning opportunities beyond the classroom.**
- **Access to global learning resources and information.**
- **Makes learning interesting and enjoyable.**
- **Improves presentation standards.**
- **Can serve multiple audiences.**
- **Uniform quality of content.**
- **Collaboration with other students globally.**



2) BENEFITS TO STUDENTS

- **Students can learn as individuals and not as a group.**
- **Higher quality lessons through greater collaboration between teachers in planning and preparing resources.**
- **Development of writing skills(including spelling, grammar, punctuation, editing).**
- **Encouragement of independent and active learning and self responsibility for learning and self confidence.**
- **Technology enhanced setting more stimulating and student centered than in a traditional room.**
- **Computer used during lessons motivates students to continue learning outside school hours.**



Drawbacks of ict

- Dropping grammar and replacing sentences with abbreviations (from sending **SMS** and **TWEETS**) making improving literacy skills harder.
- Addiction to computer games.
- Wasting of time in tweets, chat and pinging.
- Lack of sleep or headache.
- Loss of concentration in class.
- Neck and lower back pain.
- **Carpal Tunnel Syndrome(CTS)**.
- **Computer Vision Syndrome(CVS)**.
- Reduced personal interaction.



conclusion

- **ICTs can be used for teaching, learning and administration of schools.**
- **Adoption and use of ICTs have a positive impact on education.**
- **Every school use adopt the use of ICTs to improve the educational system.**
- **Students equipped with digital skills will grow up into a knowledge literate society equipped with skills to manage 21st century economy globally and be relevant in other parts of the world.**

