Chapter one

The Multimedia Revolution

What is Multimedia?

- **Multi-** means many; much; multiple
- **Media** mean the storage and transmission channels or tools used to store and deliver information or data.
- **Multimedia** is defined as the development, integration, and delivery of any combination of text, images, graphics, sound, or video through a computer.
- Multimedia revolution is not just about performing traditional tasks in new ways. It is also about creating new approaches to communication, commerce, education, and entertainment..

Why Multimedia?

- People remember
  - 20% of what they see
  - 30% of what they hear
  - 50% of what they see and hear
  - 80% of what they see, hear and do.

- *Multimedia* provides a value that the individual media alone cannot (having various medias together)

Definitions

- Multimedia Developers: the people who join multimedia into meaningful tapestries (People who are involved in designing and developing multimedia applications) in a wonderful harmony).
- Multimedia Applications: is a broad term that covers all uses of Multimedia (Those applications that serve the community using multimedia) .

Definitions

- Multimedia titles: the multimedia projects that ship or sale to consumers or end users, typically in a box or sleeve or on the Internet, with or without instructions.

Definitions

- Multimedia Authoring tools: An authoring tool is a software package that developers use to create and package content deliverable to end users.

They are software tools that are designed to manage individual multimedia elements and provide user interaction.

- Since the term is somewhat general, many programs can be considered authoring tools, including Flash, and PowerPoint. However, only a small group of programs specifically include support for e-learning content standards including Elicitus, iSpring Suite, Lectora, Macromedia (Adobe) Authorware , shockwave and Director .

Definitions

- Graphical User Interface (GUI): **graphical user interface (GUI),** a computer program that enables a person to communicate with a computer through the use of symbols, visual metaphors (icons, menus), and pointing devices(such as mouse).

Categorization of MM

- Multimedia may be broadly divided into **linear** and **non-linear** categories.

- **Linear (non-interactive multimedia)** active content progresses **without any navigation control** for the viewer such as a cinema presentation.

- **Non-linear (interactive multimedia)** content offers **user interactivity to control progress** as used with a computer game or education self-paced computer based training.

Interactive multimedia

- There are several types of interactive multimedia.
- **Basic interaction** include menu selections, buttons to advance screens, clickable objects, links, and text boxes for questions or responses.

- **Hypertext** is a text which contains links to other texts.

Example:

A special type of database system, invented by Ted Nelson in the 1960s, in which objects (text, pictures, music, programs, and so on) can be creatively linked to each other. When you select an object, you can see all the other objects that are linked to it. You can move from one object to another even though they might have very different forms. For example, while reading a document about

INTERACTIVE MULTIMDIA

- **Hypermedia** (extension of hypertext) is a more advanced form of interactive media in which the developer provides a structure of related information and the means for a user to access that information. For example an online anatomy tutorial.

- is a nonlinear medium of information which includes graphics, audio, video, plain text and hyperlinks.

INTERACTIVE MULTIMEDIA

- **Adaptive multimedia** or **intellimedia** is more advanced form of interactive multimedia adapt the presentation of information to the needs or interesting. These applications embody aspects of **intelligence** and **decision-making** (such as in agents, and in ITS)
- **Immersive multimedia** refer to computer-generated simulation of reality with physical, spatial and visual dimensions (VR and AR)

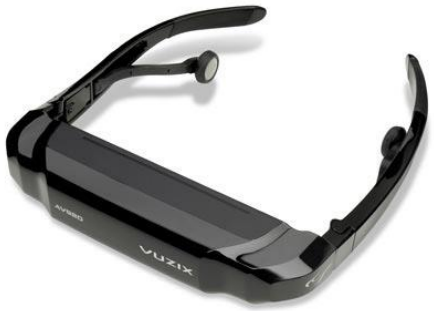
Advanced simulations and games that create their own *Virtual Reality (VR)* are immersive.

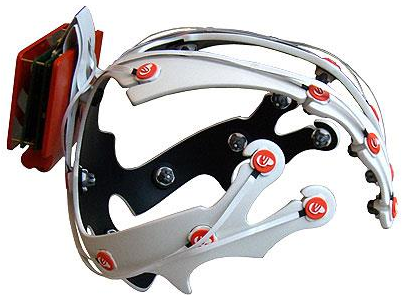
Interactive multimedia

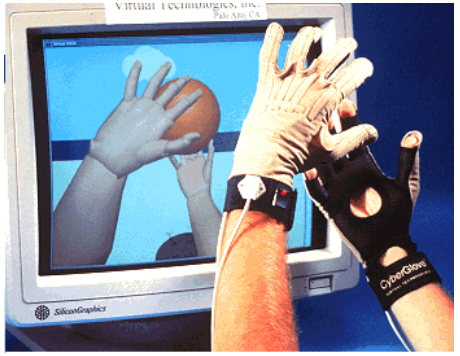
- Advanced flight simulations so thoroughly immerse (put into) pilots in a world of virtual flight that routinely serve as substitutes for training in actual aircraft.

  What are the used tools used for VR or immerse MM?

- Goggles (protecting glasses), helmets, special gloves, attempt to place you "inside" a lifelike experience.







VIRTUAL REALITY

- VR requires powerful computer (terrific computing horsepower) to be realistic. In VR, your cyberspace is made up of many thousands of geometric objects plotted in three dimensional space: the more objects and the more points that describe the objects, the higher the resolution and the more realistic your view.
- Each motion or action requires the computer to recalculate the position, angle, size and shape of all the objects that make up your view, and many thousands of computations must occur as fast as 30 times per second to seem smooth.

VIRTUAL REALITY

- ***Virtual Reality Modeling Language(ver-mal)***, VRML is a specification for displaying 3-dimensional objects on the World Wide Web. You can think of it as the 3-D equivalent of HTML. Files written in VRML have a *.wrl* extension (short for *world*). To view these files, you need a VRML browser or a VRML plug-in to a Web browser.

DEFINITIONS

- Plug-in : is a software component that adds a specific feature to an existing software application. When an application supports plug-ins, it enables customization. (Adobe Flash Player, The quick timeplayer, Java Applet)

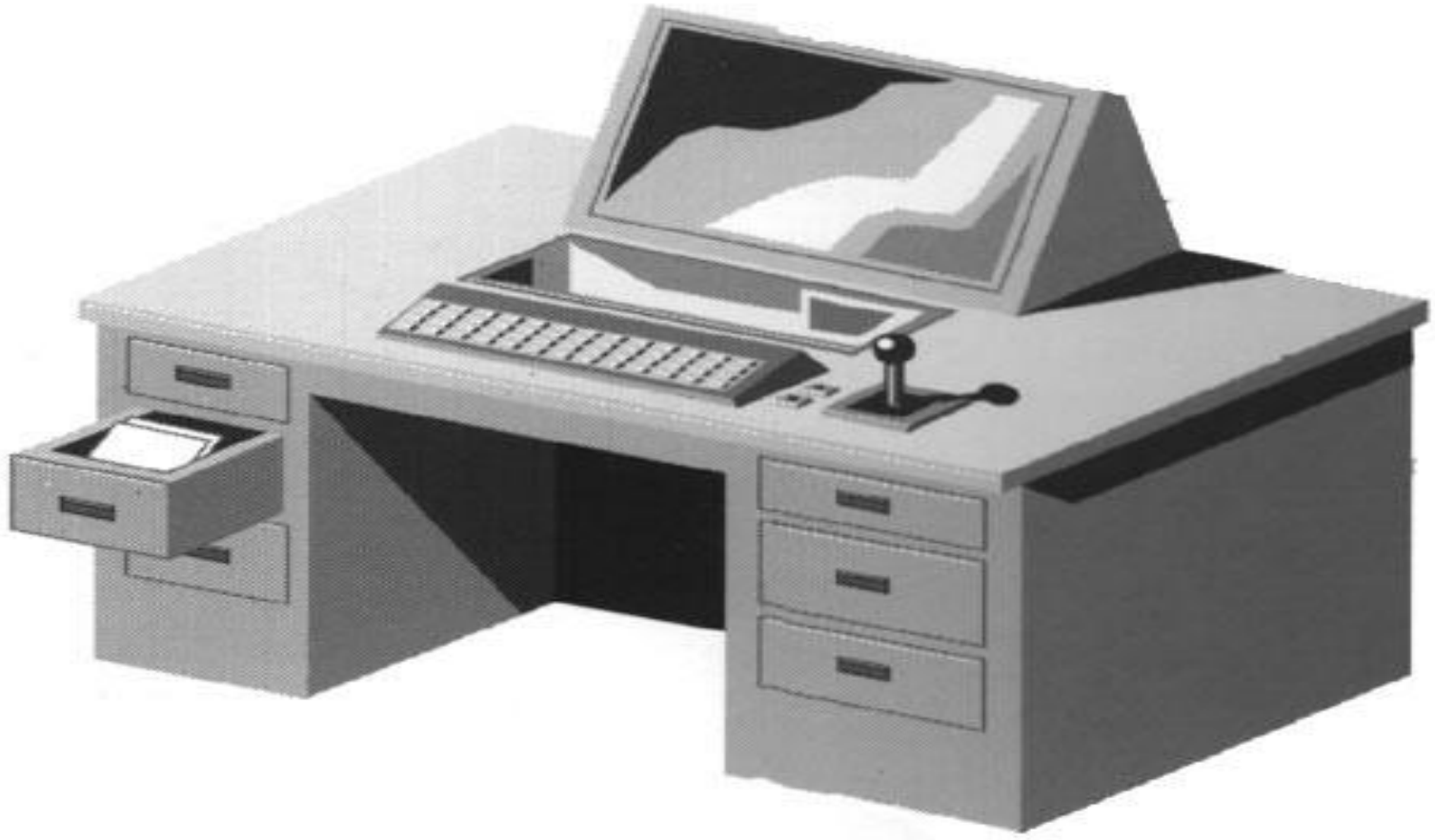
- *Web browser*, a software application used to locate and display Web pages. The two most popular browsers are Microsoft Internet Explorer and Firefox. Both of these are *graphical browsers,* which means that they can display graphics as well as text. In addition, most modern browsers can present multimedia information, including sound and video, though they require plug-ins for some formats.

Origins of multimedia (first generation)

- Vannevar Bush and the Memex machines
- Bush's hypothetical machine was called Memex (memory and index) and multimedia was central to its design.

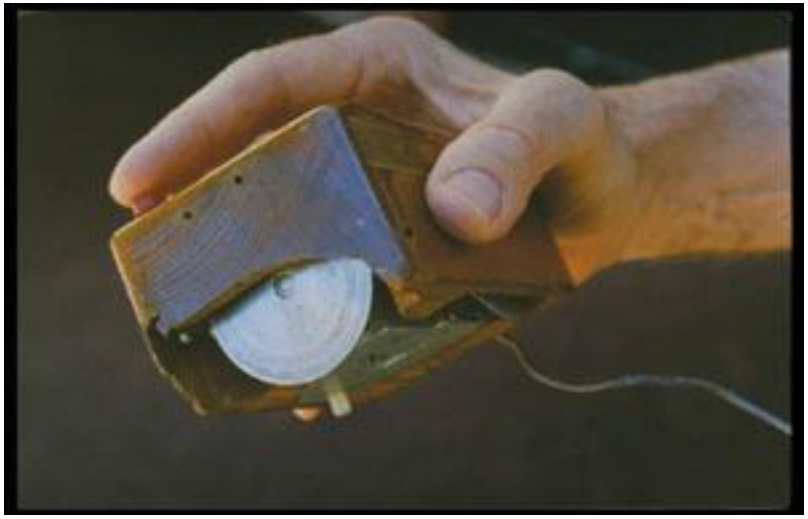
- The Memex is a device in which an individual compresses and stores all of their books, records, and communications which is then mechanized so that it may be consulted with exceeding speed and flexibility. A document can be given a simple numerical code that allows the user to access it after dialing the number combination.

Memex Machines



Origins of multimedia (Second generation)

- Douglas Engelbart: New Forms of Human-machine interaction
- By 1968, Engelbart was able to demonstrat several innovations in human-computer interactivity. These included the mouse, windows for text editing, and electronic mail.



Origins of multimedia (Second generation)

- Theodor Nelson: Hypertext and Hypermedia (1974)
- The main thrust of his work has been to make computers easily accessible to ordinary people.

- Nelson founded Project Xanadu in 1960 with the **goal of creating a computer network with a simple user interface.**

Origins of multimedia (Second generation)

- Alan Kay: The GUI and Multimedia Computer

- In early 1970s, Kay proposed a machine called "Dynabook" to support the ways in which people actually perceive, learn and create. **His idea was anyone should be able to use Dynabook without being a computer specialist**. Kay's solution is known as a GUI. A GUI uses graphic symbols to represent the components and processes of computers.
- The Dynabook was also intended to support a wide range of creative activities. **Kay envisioned the computer as a powerful aid to writing, painting and music composition.**

Origins of multimedia (Second generation)

- The first working prototype of **Dynabook was built almost 20 years after creating the concept**. But it largely inspired not only the development of the first desktop personal and portable computers.
- The **Dynabook concept described what is now known as a notbook computer** or, (in some of its other incarnations) a tablet PC or slate computer with nearly eternal battery life and software aimed at giving children access to digital media.

Origins of multimedia (Second generation)

- Steve Jobs: The Multimedia Hardware Revolution

- **In 1979,** Jobs saw in the GUI a potential revolution, one that "empowered people to **use the computer without having to understand arcane (vague) computer commands".**

- **By 1984,** this "humanistic" idea had been given technical expression in the Apple Macintosh.

Origins of multimedia (Second generation)

- **The GUI**, as it was further developed and refined at **Apple, allowed users to control the computer through icons with familiar human associations- desktops, file folders, trashcans and the like.**

- **The Mac** was also the first mass-produced **computer with built-in sound support.**

- **In 1985,** Microsoft announced **Windows 1.0, a graphical user interface added** to the DOS operating system.

Origins of multimedia (Second generation)

Berners-Lee developed the *essential elements* of what would became *the World Wide Web* on his own. **In 1990, he developed the software needed for servers (the computers that store and distribute information). He also created the *first browser programs* to be used on the individual machines connected to the server (clients).**

- **First common browser called Erwise, the second is called Mosaic (1993)**

- Example on virtual Reality

- https://www.youtube.com/watch?v=j3vHv4lNvg4

- Example on Augmented Reality

Very interesting (related to education)

- https://www.youtube.com/watch?v=E9mIDQSc9qQ