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**MMGD0101**  
**INTRODUCTION TO MULTIMEDIA**

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**Chapter 1**  
**Introduction to Multimedia and**  
**Hypermedia**



# What is Multimedia?

**Multimedia** means that computer information can be represented through audio, video, and animation in addition to traditional media (i.e., text, graphics/drawings, images).



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# What is Multimedia?

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Multimedia is the field concerned with the computer controlled integration of text, graphics, drawings, still and moving images (Video), animation, audio, and any other media where every type of information can be represented, stored, transmitted and processed digitally.



# What is Multimedia?

Multimedia is a media that uses multiple form of information content and information processing.



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# History of Multimedia

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Multimedia is a media that uses multiple form of information content and information processing.



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# **The Basic Elements of Multimedia**

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**Text**

**Graphic**

**Animation**

**Video**

**Audio**

# The Basic Elements of Multimedia

## ◆ TEXT

- characters that are used to create words, sentences, and paragraphs.

**Titles**

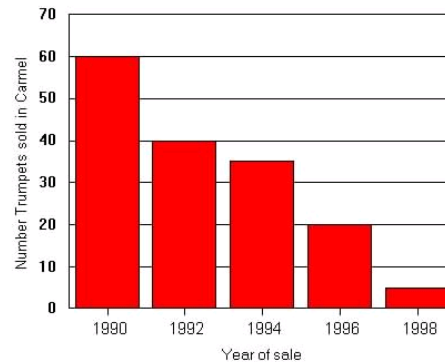
Multimedia is a rich medium that accommodates numerous instructional strategies. Multimedia addresses many of the challenges of instruction in both the academic and corporate environments. It is accessible over distance and time and provides a vehicle for consistent delivery. Multimedia can provide the best medium with which to communicate a concept.

- Monitor
- Keyboard
- Mouse
- Speaker

# The Basic Elements of Multimedia

## ◆ Graphics

- A digital representation of non-text information, such as a drawing, chart, or photograph.





# The Basic Elements of Multimedia

## ◆ Animation

- Flipping through a series of still images. It is a series of graphics that create an illusion of motion.



# The Basic Elements of Multimedia

## ◆ Video

- photographic images that are played back at speeds of 15 to 30 frames a second and they provide the appearance of full motion.



# The Basic Elements of Multimedia

## ◆ Audio

- music, speech, or any other sound.





# Categorization



## Two types of Multimedia presentation

Linear  
Presentation

Non-linear  
Interactive



# Categorization

**Linear** active content progresses often without any navigational control for the viewer such as a cinema presentation.

**Non-linear** uses interactivity to control progress as with a video game or self-paced computer based training. Hypermedia is an example of non-linear content.



# Usage



Multimedia finds its application in various areas including, but not limited to:

Advertisements

Art

Education

Entertainment

Engineering

Medicine

Mathematics

Business

Scientific research



# Usage

In education, multimedia can be used as a source of information. Students can search encyclopaedias such as Encarta, which provide facts on a variety of different topics using multimedia presentations.

Teachers can use multimedia presentations to make lessons more interesting by using animations to highlight or demonstrate key points.



# Usage

A multimedia presentation can also make it easier for pupils to read text rather than trying to read a teacher's writing on the board.

Programs which show pictures and text whilst children are reading a story can help them learn to read; these too are a form of multimedia presentation.





# Usage

Multimedia is used for advertising and selling products on the Internet.

Some businesses use multimedia for training where CD-ROMs or on-line tutorials allow staff to learn at their own speed, and at a suitable time to the staff and the company.

Another benefit is that the company do not have to pay the additional expenses of an employee attending a course away from the workplace.



# Usage

People use the Internet for a wide range of reasons, including shopping and finding out about their hobbies.

The Internet has many multimedia elements embedded in web pages and web browsers support a variety of multimedia formats.

Many computer games use sound tracks, 3D graphics and video clips.

# Usage

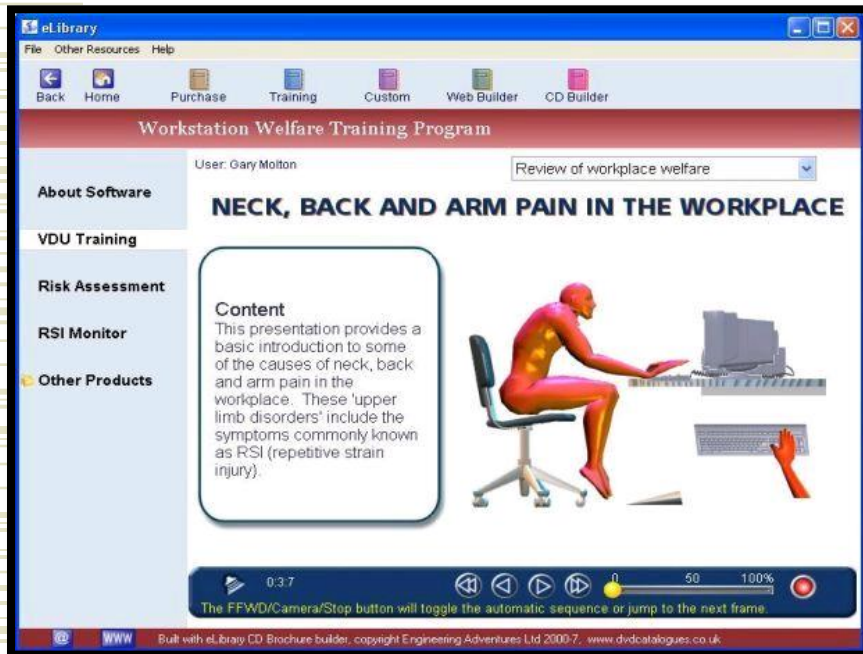


**Computer-Based Training**



**Teaching Aid**

# Usage



References

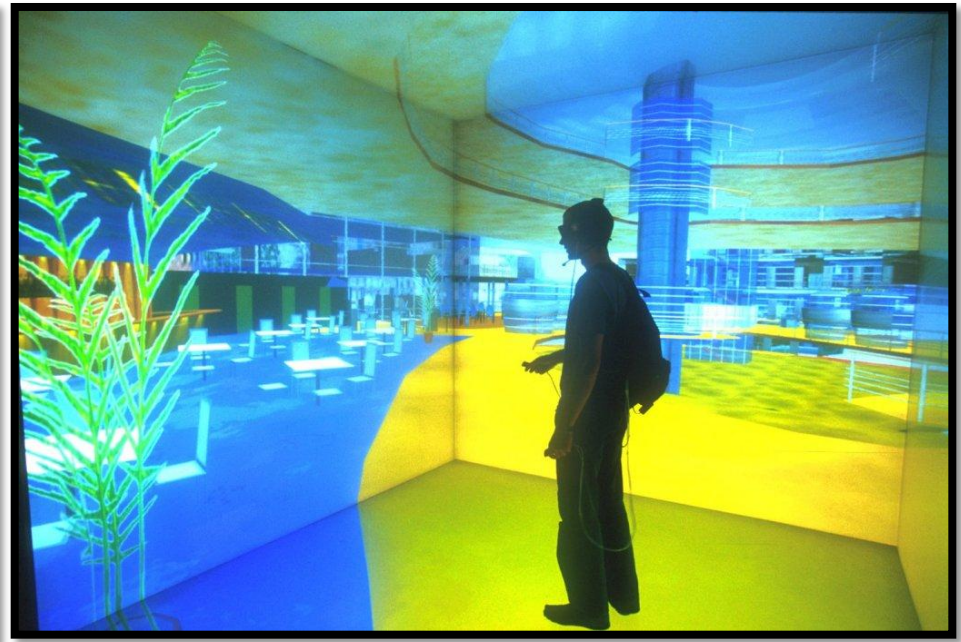


Entertainment

# Usage

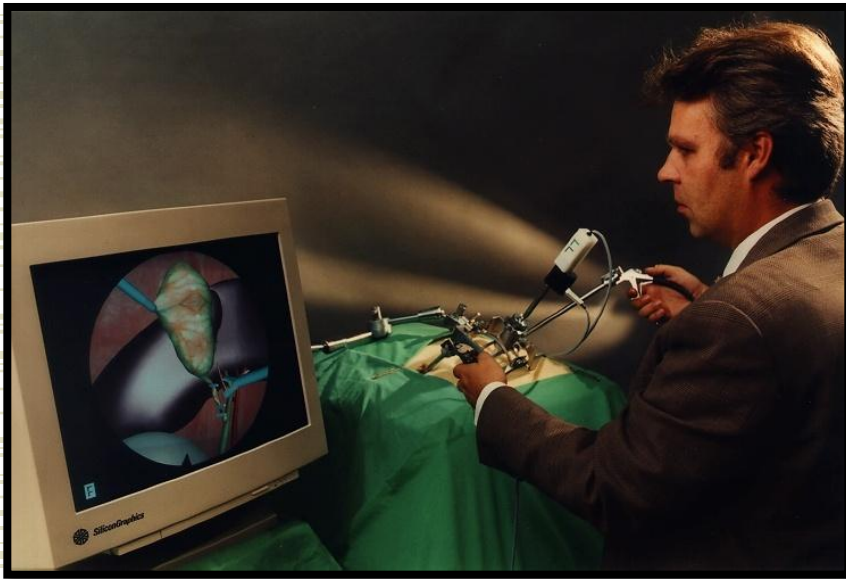


Simulation



Virtual Reality

# Usage



Virtual Surgery



Information Kiosk



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# Advantages of using Multimedia

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- ◆ It is very user-friendly. It doesn't take much energy out of the user, in the sense that you can sit and watch the presentation, you can read the text and hear the audio.
- ◆ It is multi sensorial. It uses a lot of the user's senses while making use of multimedia, for example hearing, seeing and talking.



# Advantages of using Multimedia

- ◆ It is integrated and interactive. All the different mediums are integrated through the digitisation process. Interactivity is heightened by the possibility of easy feedback.
- ◆ It is flexible. Being digital, this media can easily be changed to fit different situations and audiences.





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# Advantages of using Multimedia

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- ◆ It can be used for a wide variety of audiences, ranging from one person to a whole group.



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# Disadvantages of using Multimedia

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- ◆ Information overload. Because it is so easy to use, it can contain too much information at once.
- ◆ It takes time to compile. Even though it is flexible, it takes time to put the original draft together.

# Disadvantages of using Multimedia

- ◆ It can be expensive. As mentioned in one of my previous posts, multimedia makes use of a wide range of resources, which can cost you a large amount of money.
- ◆ Too much makes it unpractical. Large files like video and audio has an effect of the time it takes for your presentation to load. Adding too much can mean that you have to use a larger computer to store the files.



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# Hypertext and Hypermedia

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Hypertext is a text which contains links to other texts. The term was invented by Ted Nelson around 1965.



# Hypertext and Hypermedia

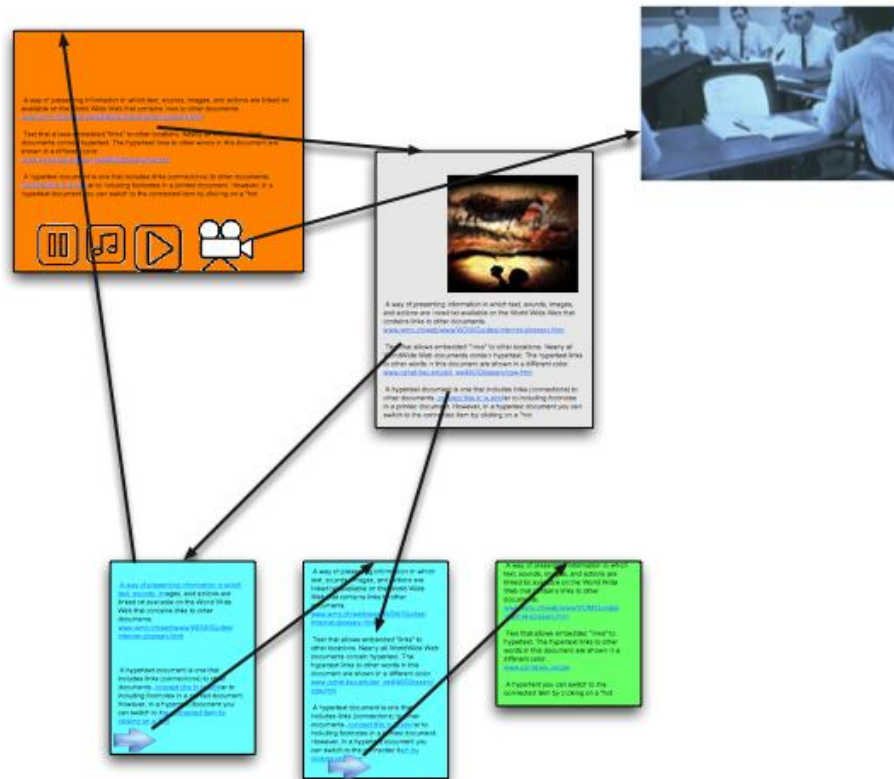
Information is linked and cross-referenced in many different ways and is widely available to end users.

Hypertext means a database in which information (text) has been organized nonlinearly. The database consists of pages and links between pages.

# Hypertext and Hypermedia

- ◆ A link is defined by source and destination nodes, and by an anchor in the source node.
- ◆ Two types of link:
  - Internal link
  - External link

# Hypertext and Hypermedia





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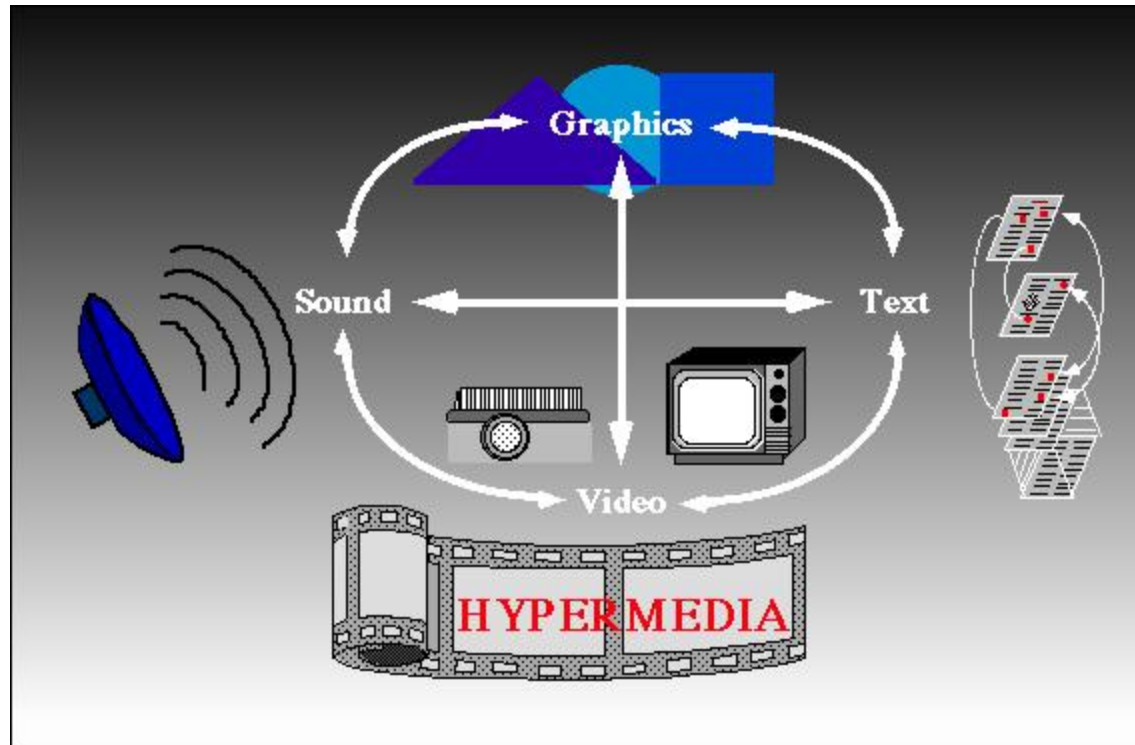
# Hypertext and Hypermedia

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Hypermedia is not constrained to be text-based. It can include other media, e.g., graphics, images, and especially the continuous media – sound and video.



# Hypertext and Hypermedia



# Designing Hypermedia

- ◆ Important questions in designing the hypermedia are:
  - Converting linear text to hypertext
  - Text format conversions
  - Dividing the text into nodes
  - Link structures, automatic generation of links
  - Are nodes in a database or are they separate files on file system
  - Client-server or standalone

# Characteristics of Hypermedia

- ◆ It must be possible to use hypermedia both for writing and reading information.
- ◆ The information comprises non-sequential structures, and may thus be followed along alternative paths.
- ◆ The information must follow natural associations from one information unit to another.
- ◆ The information may be hierarchically structured.

# Characteristics of Hypermedia

- ◆ Each information unit is presented in a separate on-screen window.
- ◆ It must be possible to share the information or parts of it among several users.
- ◆ It must be possible to have several people working against the database at the same time.
- ◆ The information resides in a database.

# Delivering Multimedia

- ◆ Multimedia can be delivered using
  - Optical disk (CD-based)
  - Over a distributed network (Web-based)

# Delivering Multimedia

## Optical Disks

- ◆ The most cost-effective method of delivery for multimedia materials.
- ◆ These devices are used to store large amounts of some combination of text, graphics, sound, and moving video.



# Delivering Multimedia

## Optical Disks

Media	Storage
Compact Disc (CD)	650MB
Digital Versatile Disc (DVD)	4.7GB
Bluray Disc (BD)	27GB

# Delivering Multimedia

## Distributed Network

- ◆ Suitable for web-based content eg. website
- ◆ Files need to be compress before transfer





# Delivering Multimedia

<b>Web-based</b>	<b>CD-based</b>
Limited in picture size and low video resolution	Can store high end Multimedia elements
Can be changes, damaged or deleted by irresponsible individuals	Can be permanently stored and not changeable
Information can be updated easily and cheaper	Information can be quickly outdated