



INTRODUCTION TO MULTIMEDIA

Chapter 1

Introduction to Multimedia and Hypermedia



What is Multimedia?



- ◆ Multimedia – media that uses multiple form of information content and information processing.
- ◆ Using more than one medium of expression or communication.

What is Multimedia?

- ◆ Multimedia also refers to the use of electronic media to store and experience multimedia content.
- ◆ Examples of Multimedia Application :
 - CD-Interactive
 - Multimedia Kiosks
 - World Wide Web
 - MMS

The use of Multimedia Technology

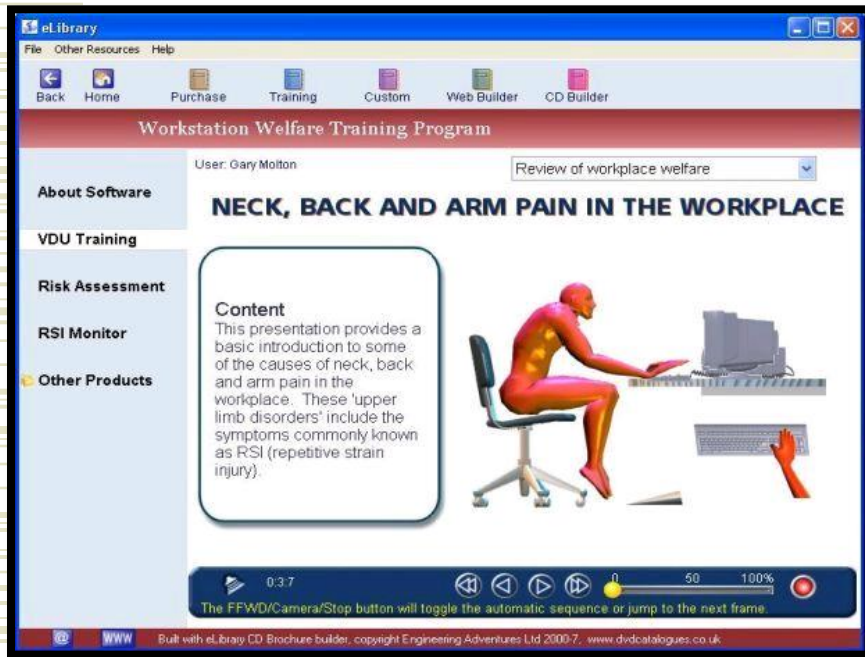


Computer-Based Training



Teaching Aid

The use of Multimedia Technology



References

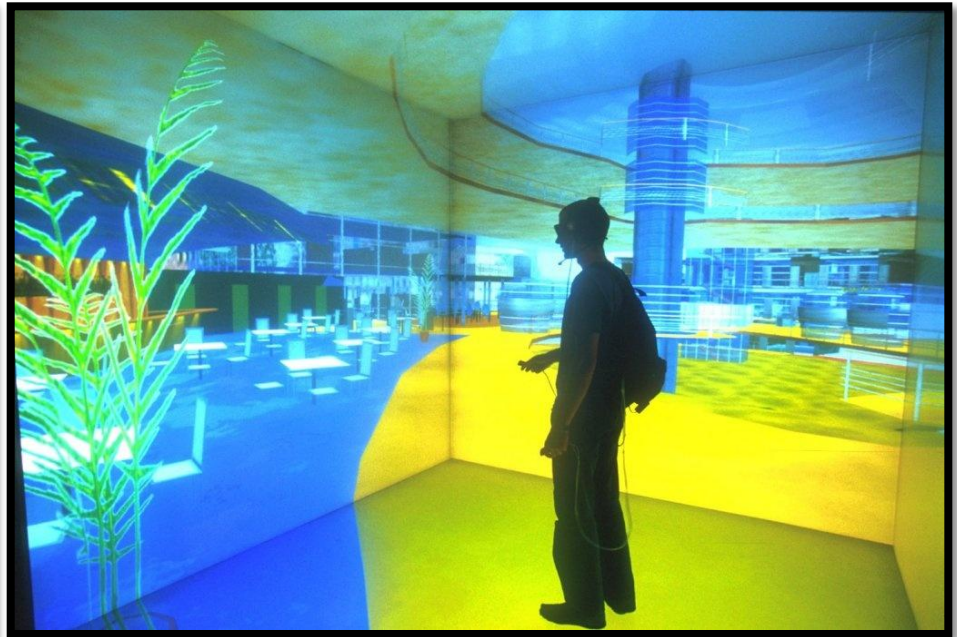


Entertainment

The use of Multimedia Technology



Simulation



Virtual Reality

The use of Multimedia Technology



Virtual Surgery



Information Kiosk

Advantages of Multimedia

1. Is easy to use.
2. Enhancement of Text Only Messages
3. Improves over Traditional Audio-Video Presentations
4. Gains and Holds Attention
5. Good for “computer-phobics”
6. Multimedia is Entertaining as Well as Educational
7. Cost-effective
8. Trendy



Disadvantages of Multimedia



1. Expensive
2. Not always easy to configure
3. Requires special hardware
4. Not always compatible



QUIZ!!!

1. Define MULTIMEDIA.
2. List four examples of Multimedia application.
3. Give four advantages and disadvantages of Multimedia.



The Basic Elements of Multimedia



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

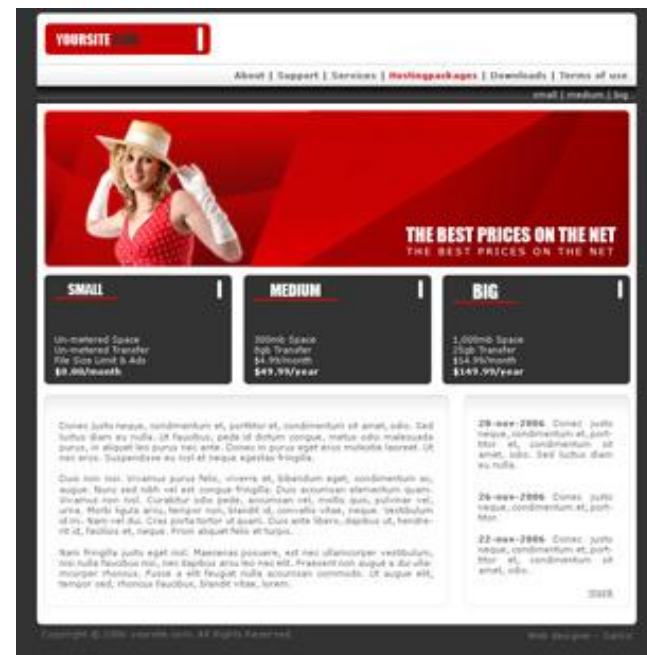
◆ TEXT

- ◆ Text elements can be categories into:
 - Alphabets characters: A – Z
 - Number: 0 – 9
 - Special characters: . , ; : ‘ “
 - Symbols: @ # \$ & *

The Basic Elements of Multimedia

◆ The use of Text

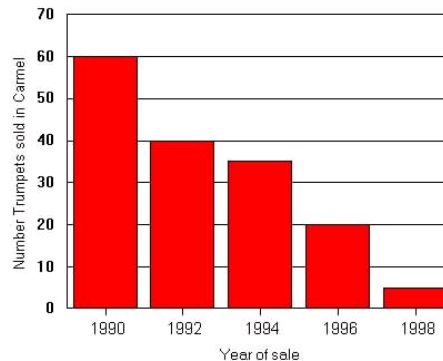
- ◆ Heading / Title
- ◆ Bullet / list
- ◆ Paragraph
- ◆ Scrolling text
- ◆ Navigation
- ◆ Text as graphics



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



The use of Graphics

- ◆ To add emphasis
- ◆ Direct attention
- ◆ Illustrate concepts
- ◆ Provide background content

The Basic Elements of Multimedia

Advantages of Graphics in Multimedia

- ◆ Convey information more quickly than when using text
- ◆ Make complex information simple
- ◆ Enhance online teaching and learning
- ◆ Enhance communication with some disabled groups, particularly those with learning difficulties or cognitive impairments

The Basic Elements of Multimedia

Disadvantages of Graphics in Multimedia

- ◆ Take longer to download
- ◆ Require the use of plug-ins that the user may not have or be able to install
- ◆ Create accessibility barriers for some users

The Basic Elements of Multimedia

Graphics Categories

- ◆ There are two categories of graphics :
 - **Vector**
 - **Bitmap**

The Basic Elements of Multimedia

Graphics Categories

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 - **Vector**
 - **Bitmap**

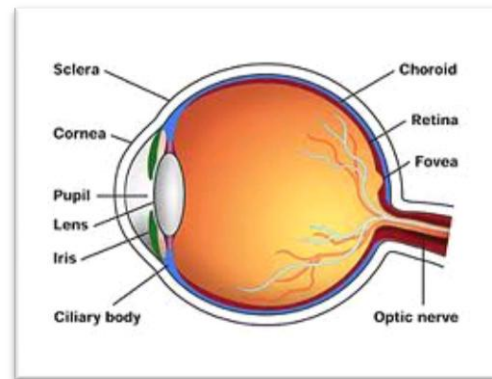
The Basic Elements of Multimedia

Vector Graphics

- ◆ Images created with software that uses geometrical formulas to represent images.
- ◆ Composed of individual elements, eg, arc, line, polygon, with their own attributes that can be individually edited.
- ◆ Can be created using any drawing software, eg: Illustrator.

The Basic Elements of Multimedia

Vector Graphics





The Basic Elements of Multimedia



Vector Graphics - Advantages

- ◆ The ability to resize and rotate a graphic without distortions a major advantage of vector graphics.
- ◆ Another advantage is their smaller file size.

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Vector Graphics - Disadvantages

- ◆ One of the drawbacks of vector graphics is that the more complex they are, the larger the file size and the longer they take to appear on the screen.
- ◆ Another disadvantage is that they cannot display photorealistic quality.

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Bitmap Graphics

- ◆ Bitmap graphics are also called **raster graphics**.
- ◆ A bitmap represents the image as an array of dots, called pixels.
- ◆ Bitmap graphics are resolution-dependent and generate large file sizes.

The Basic Elements of Multimedia

Bitmap Graphics



The Basic Elements of Multimedia

Bitmap Graphics - Advantages

- ◆ The bitmap can be more photorealistic.
- ◆ We can set the colour of every individual pixel in the image

The Basic Elements of Multimedia

Bitmap Graphics - Disadvantages

- ◆ Bitmaps are memory intensive, and the higher the resolution, the larger the file size.
- ◆ When an image is enlarged, the individual coloured squares become visible and the illusion of a smooth image is lost to the viewer.



QUIZ!!!

1. List all Multimedia elements.
2. What are the common use of TEXT in Multimedia application?
3. Explain the difference between VECTOR and BITMAP graphics.

The Basic Elements of Multimedia

Animation

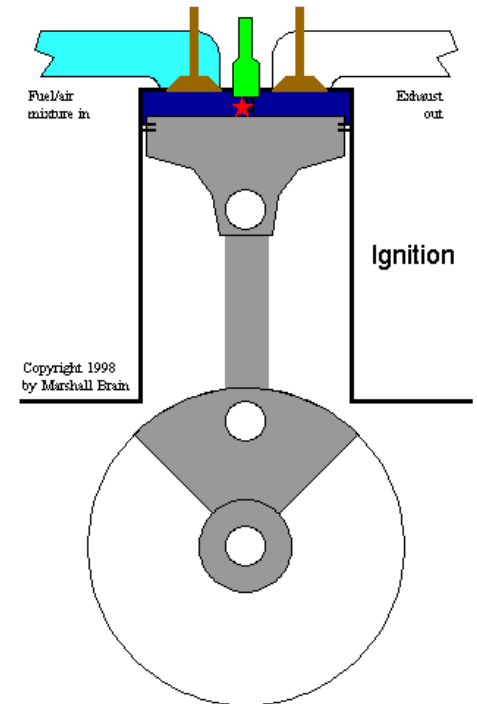
- ◆ It is a series of graphics that create an illusion of motion.
- ◆ Entertainment multimedia titles in general, and children's titles specifically, rely heavily on animation.



The Basic Elements of Multimedia

The use of Animation

- ◆ To attract attention
- ◆ To inform about the state of process
- ◆ Demonstrations
- ◆ Interactive simulations



The Basic Elements of Multimedia

Video

- ♦ **Video** is the technology of electronically capturing, recording, processing, storing, transmitting, and reconstructing a sequence of still images representing scenes in motion.



The Basic Elements of Multimedia

The use of Video

- ◆ The embedding of video in multimedia applications is a powerful way to convey information which can incorporate a personal element which other media lack.
- ◆ Promoting television shows, films, or other non-computer media that traditionally have used trailers in their advertising.
- ◆ Giving users an impression of a speaker's personality.
- ◆ Showing things that move. For example a clip from a motion picture. Product demos of physical products are also well suited for video.

The Basic Elements of Multimedia

Advantages of Digital Video

- ◆ One of the advantages of digitized video is that it can be easily edited.
- ◆ The video is stored as a standard computer file.
- ◆ Software motion video does not require specialized hardware for playback.
- ◆ Digital video requires neither a video board in the computer nor an external device (which adds extra costs and complexity) such as a videodisc player.
- ◆ Long-lasting.

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Disadvantages of Digital Video

- ◆ Requires large storage capacity devices.
- ◆ Copies can be made illegally.
- ◆ Need fast computer system for playback and capture.
- ◆ Requires knowledge of digital compression technology.

The Basic Elements of Multimedia

Sound

- ◆ Sound is the best way to attract attention.
- ◆ Often audio provides the only effective way to convey an idea, elicit an emotion, or dramatize point.
- ◆ Sounds also can be combined in a multimedia presentation to provide information and enhance the other media being presented.



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The use of Sound

- ◆ Music
 - Background
 - Attention grabber
 - Sound effect
- ◆ Speech
 - Narration
 - Instruction



Quiz!!!

1. Explain the difference between Animation and Video.
2. List are the use of Animation in Multimedia?
3. Give two advantages of Digital Video.
4. List are the use of Sound in Multimedia?



Categorization



Two types of Multimedia presentation :

Linear
Presentation

Non-linear
Interactive

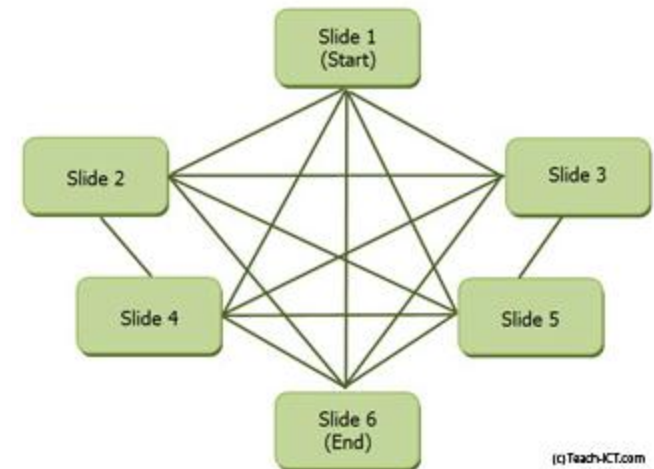
Categorization

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



Categorization

Non-linear content offers user interactivity to control progress as used with a computer game or used in self-paced computer based training.





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 organised nonlinearly. The database consists of nodes and links between nodes

Hypermedia

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

World Wide Web

- ◆ World Wide Web (WWW) is a global hypermedia system on Internet.
- ◆ It can be described as wide-area hypermedia information retrieval initiative aiming to give universal access to a large universe of documents.



World Wide Web



- ◆ To use WWW the user needs a browser (eg. Internet Explorer, Firefox) that are used to display complex graphics, animation and sound.

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



Quiz!!!

1. Explain the difference between LINEAR and NON-LINEAR presentation.
2. What does WWW stands for?
3. Explain the difference between INTERNAL and EXTERNAL link.
4. What are the important questions in designing the hypermedia?