What is Multimedia?

Objectives

❑ Define multimedia

❑ Explain the importance of interactivity

❑ Trace the growth of multimedia

Objectives (continued)

- ❏ Explain why multimedia has become so successful

- ❏ List the major categories of multimedia titles

- ❏ Distinguish between appropriate and inappropriate uses of multimedia

Chapter Outline

- Definition of multimedia
- The growth of multimedia
- Major categories of multimedia
- Delivering multimedia
- Inappropriate uses of multimedia and alternatives

Multimedia Definition

Steinmetz and Nahrstedt (1997)

A Multimedia System is characterized by a computer-controlled, integrated production, manipulation, presentation, storage and communication of independent information, which is encoded at least through a continuous (time-dependent) and a discrete (time-independent) medium.

Multimedia Definition

Multimedia--the combination of text, animated graphics, video, and sound--presents information in a way that is more interesting and easier to grasp than text alone. It has been used for education at all levels, job training, and games and by the entertainment industry.(R. J. Flynn and W. H. Tetzlaff, 1998)

(*IBM Journal Research and Development Volume 42, Number 2, 1998,)*

Multimedia Definition

Multimedia is the use of a computer to present and combine text, graphics, audio, and video with links and tools that let the user navigate, interact, create and communicate. (Fred T. Hofstetter, 2001)

Definition of multimedia

- Computer-based
- Interactive
- Communications process
- Incorporates text, graphics, sound, animation, and video

Computer-based

- The computer makes interaction possible
- The computer must be capable of incorporating the elements of multimedia
  - CD-ROM drive
  - Sound card and speakers
  - Sufficient speed and processing power

Interactivity

- ❑ Linear presentations -- passive users
- ❑ Nonlinear presentations -- active users

Elements of multimedia

- ❑ Text
- ❑ Sound
- ❑ Animation
- ❑ Graphics
- ❑ Video

Multimedia Characteristics

1. Seamless integration

   Very close interweaving that a discrete character of a different type of individual media is submerged in the experience of the multimedia environment.

   The integration of all the various media / elements are so smooth that it cannot be detected by the naked eye. End users can view the animation or video presentation while music is played at the background.

Multimedia Characteristics

2. Digital environment

    Each and every media should be transformed into digital form so as to initiate the ease of use of the media in the computer. The reasons are:

    - Digital is the lingua franca for electronic device / media
    - digital information is the lingua franca of the information industry
    - no serious future in multimedia unless it is also digital

Multimedia Characteristics

3. Interactive

   "Interactivity empowers the end users of your project by letting them control the content and flow of information." (Tay Vaughan 1998)

   Multimedia emphasizes using multiple media. The most important feature of multimedia is the ability it affords you to interact with media, both actively controlling what you see and hear and creating your own media.

Multimedia Characteristics

4.   Non-linear / Non-sequential

A good Multimedia application is non-linear in transferring information and presentation delivery. End users can explore quickly while building their own pathway without being restricted by the linear format. This method is effective as compared to the traditional method.

Setbacks ? ? ?

Why is multimedia important ?

Multimedia is highly effective because

People retain 20 % of what they see, 30% of what they hear but…

They remember 50% of what they see and hear and ……

80% of what they see, hear and do Simultaneously …

Multimedia uses and applications

Multimedia applications are primarily existing applications that can be made less expensive or more effective through the use of multimedia technology. In addition, new, speculative applications, like movies on demand, can be created with the technology. We present here a few of these applications.

(*R. J. Flynn and W. H. Tetzlaff, IBM Journal Research and Development Volume 42, Number 2, 1998,)*

The growth of multimedia

- Growth in households that own a multimedia computer
- Growth in CD-ROM titles

Reasons for growth of multimedia

- Marketing issues
- User issues

Reasons for growth of multimedia: Marketing

❑ Declining prices

❑ Hype from the computer industry led to:

- Increased production of multimedia hardware and software

- Trade associations

- Books and magazines on multimedia

- New skill sets for a variety of occupations

❑ Added value to the personal computer

Reasons for growth of multimedia: User issues

- User control
- Individualization
- Action

User control

❏ Empowers and motivates user

❏ Active learning

❏ Nonlinear access to materials

Individualization

- Adjustable to different learning styles
- Adjustable levels of difficulty

Action

❑ Traditional media are used passively

❑ Multimedia software is used actively

- Simulations

- User control

The Major Categories of Multimedia

❑ Entertainment

❑ Education

❑ Corporate communications / Business

❑ Reference

❑ Training

❑ Science and Technology

❑ Medicine

Entertainment

❑ Game developers pioneer new uses of multimedia

❑ Multimedia developers add elements to go beyond games to entertainment

- Storytelling
- Mental challenges
- Sense of accomplishment

Entertainment

Areas used

- Cinemas

- Video games

- Interactive videos

Pros: Attractive

Cons: Social Values/Problems

Entertainment

Cinemas

➤ able to use the morphing techniques

  -a comp. graphics techniques in which the image is transformed into another

  - eg. Terminator , Michael Jackson video clip "black & white"

Entertainment

- ➢ Superimpose

  - impose an object onto a different background

  - eg. Cliffhanger – the girl fell from the cliff. actually into a 35ft stunt bag

  Animation

  - eg. Jurassic Park , Toy Story , Bugs Life

Entertainment

Video Games

- improved graphics,realistic 3D surround sound Interactive Movies
- played on multimedia computers
- let the viewer influence how the story unfolds VR.

Entertainment

The use of comp. to immerse the user into a simulated experience,so authentic it seems real. Requires special homework to enhance the experience

- glove,body snit, head mounted viewing displays,motion platforms, stationary bicycles

Education

- Accommodates different learning styles
- Nonlinear presentation
- Motivates learner
- Provides feedback to learner

Education

Areas where multimedia can be used:

- Pre school
- Elementary
- Tertiary education
- Distance learning

Education

Benefits :

- Reduced average learning time
- Increase achievement levels
- Invites learners study
- Provide anywhere and any times

Disadvantage:

- Takes a lot of time to develop
- Infrastructure cost

Education

Reasons to use multimedia :

- Fast
- Consistence
- Private
- Safe
- Stimulate many parts of the brain
- Attractive

Corporate Communications

❑ Marketing

- Attracts attention
- CD-ROM catalogs and magazines
- Kiosks
- Web sites

❑ Presentations

- Electronic slide shows
- CD-ROM employee training materials

Business

Areas used

- Product demo / presentation
- Advertising
- Shopping

Business

Benefits

- attractive presentation
- informative
- better impact
- reach wide range of customers

Disadvantages

- setting up commercial infrastructure
- techno phobia

Reference

- Encyclopedias include sounds and videos
- Dictionaries include pronunciations
- Large amounts of information can be stored on CD-ROMs

Science and Technology

Areas used

- weather forecasting / analysis
- geological study
- homicide / forensic

Science and Technology

Benefits
- more visual information
- could grasp the message conveyed faster
- fast answer / response

Disadvantages
- investment cost
- Machines
- development works

Medicine

Areas used

- medical training

- virtual reality

- tele-health & tele-medicine

Medicine

Benefits

- attractive

- safe

- reach many people

Other Categories of Multimedia

- Edutainment
- Training
- Recreation

Delivering Multimedia

- Compact disc
- Kiosk
- Online

Inappropriate Use of Multimedia

❑ Text-intensive content

❑ Linear content

Text-intensive Content

❑ It's hard to read large amounts of text on a screen

❑ Text-intensive titles can be used if:

- Non-linear access is provided

- Supplementary multimedia materials are provided

Linear Content

❑ Computers don't provide a good movie-watching environment

❑ Short video clips played under user control work well

Cost-Effective Alternatives

❑ Developers must consider costs and development time

❑ Alternatives

- Transparencies

- Videotapes

Key Terms

- compact disc
- edutainment
- individualization
- interactive
- Internet
- kiosk
- multimedia

- multimedia presentation
- multimedia title
- nonlinear
- online
- telecommunications
- World Wide Web (WWW)