

South Kazakhstan State Pharmaceutical Academy
“Medical Biophysics, Computer Science and Mathematics”

SIW

**Theme: Use of multimedia technologies in
medicine**

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Plan

- **Introduction**

- **Main part**

- 1) What is multimedia?

- 2) Application multimedia

- 3) Multimedia elements

- 4) Multimedia in medicine

- 5) Technology in medicine

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Introduction

- In general multimedia is the combination of visual and audio representations. These representations could include elements of texts, graphic arts, sound, animation, and video. However, multimedia is restricted in such systems where information is digitalized and is processed by a computer. Interactive multimedia and hypermedia consist of multimedia applications that the user has more active role. Education is perhaps the most useful destination for multimedia and the place where multimedia has the most effective applications, as it enriches the learning process. Multimedia both in nursing education and in medical informatics education has several applications as well.

What is Multimedia?

- **Multimedia** is content that uses a combination of different content forms such as text, audio, images, animations, video and interactive content. Multimedia contrasts with media that use only rudimentary computer displays such as text-only or traditional forms of printed or hand-produced material.



Definition and Scope of Multimedia

WHAT IS **MULTIMEDIA** ??



Usage and application multimedia

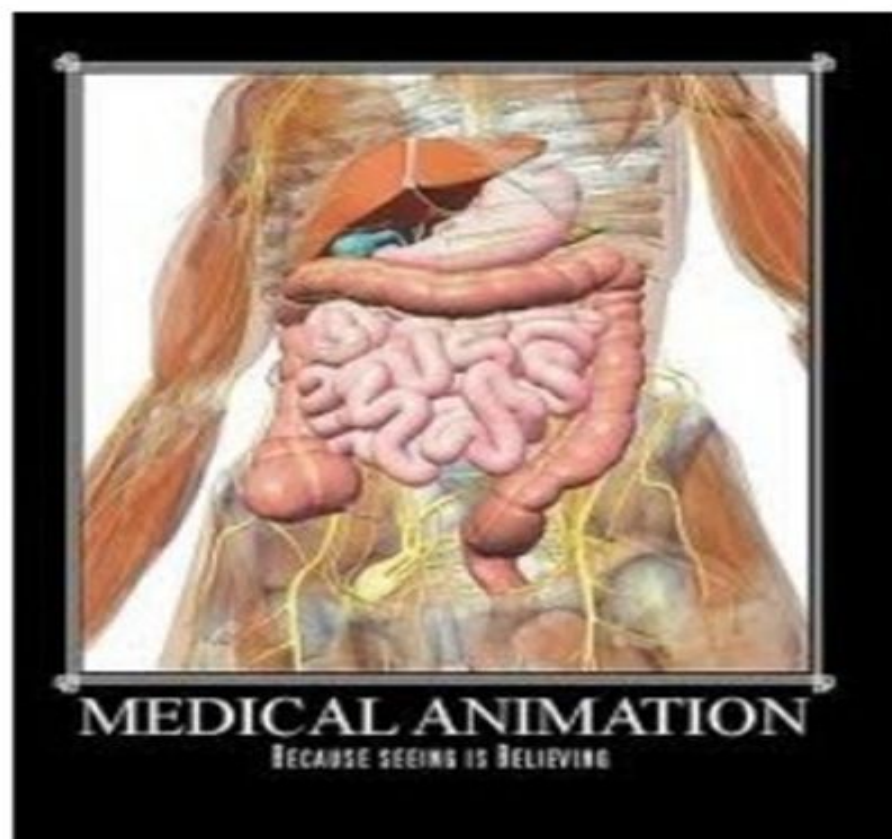
- Multimedia finds its application in various areas including, but not limited to, **advertisements**, **art**, **education**, **entertainment**, **engineering**, **medicine**, **mathematics**, **business**, **scientific research** and **spatial temporal applications**.



Applications of Multimedia

- **Medicine**

- In Medicine, doctors can get trained by looking at a virtual surgery or they can simulate how the human body is affected by diseases spread by viruses and bacteria and then develop techniques to prevent it.

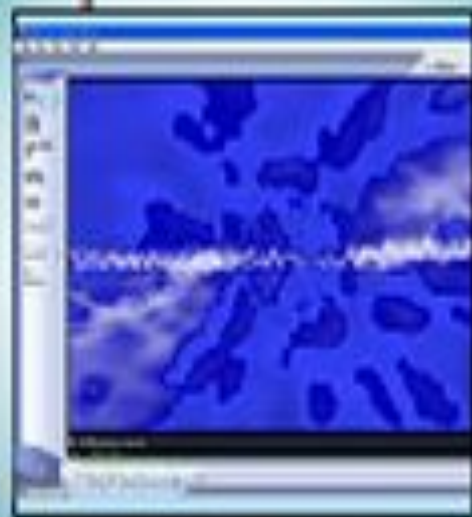


multimedia elements



Multimedia is an interactive communication process that uses an integration of five main elements such as texts, graphics, audio, video and animations. Multimedia has improved our lives in many ways. Multimedia has played an important role in other fields, such as business, arts, medicine

text



audio



video



graphic



animation

TEXT

Text is the basic element of multimedia. It involves the use of text types, sizes, colours and background colour.

In a multimedia application, other media or screen can be linked through the use of text. This is what you call Hypertext.

To produce an effective multimedia program there are three things that need to be considered. They are:

• **The position of the text on the screen.**

• **Length of the message**

• **And legibility of the text.**



GRAPHIC

Graphics make the multimedia application attractive. They help to illustrate ideas through still pictures.

There are two types of graphics used: bitmaps (paint graphics) and vector (draw graphics).

Bitmaps images are real images that can be captured from devices such as cameras or scanners.

Vector graphics are drawn on the computer and only require a small amount of memory.



bitmap

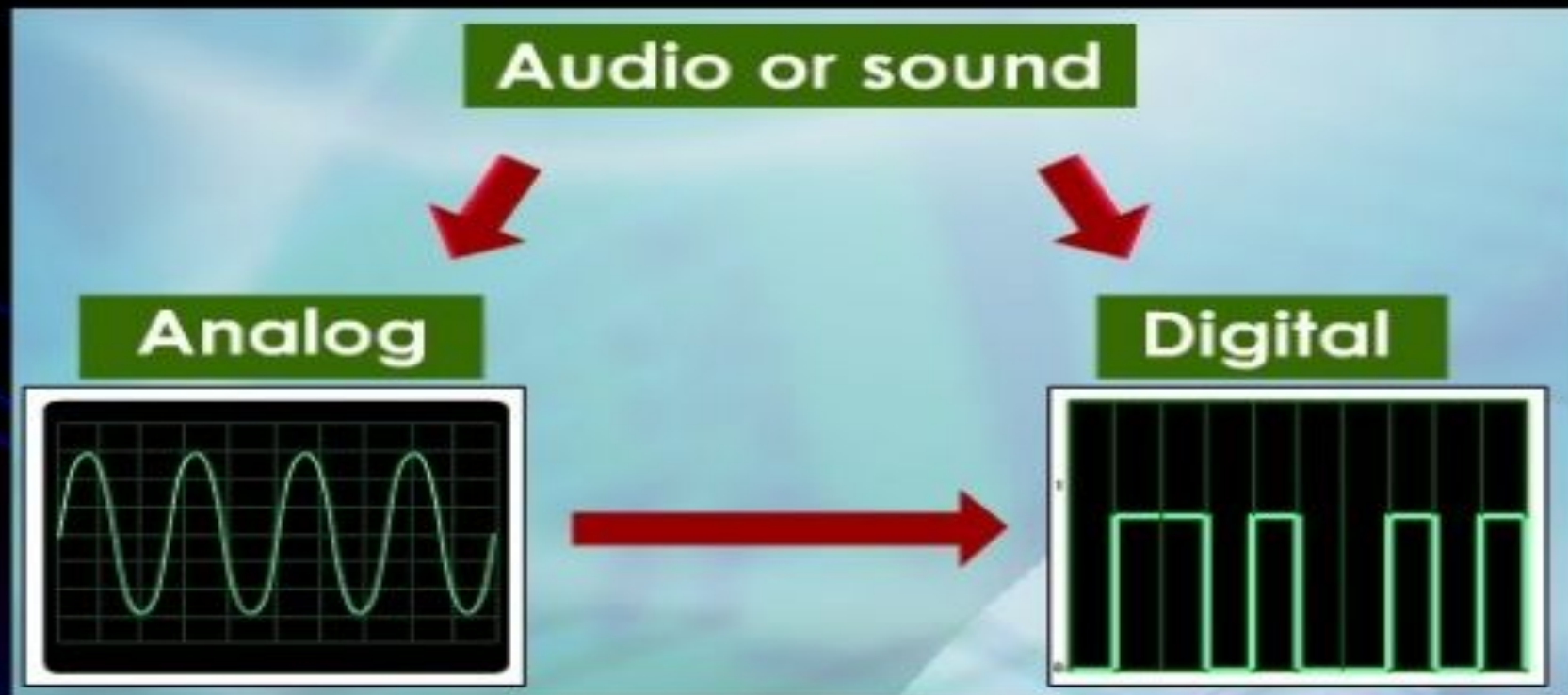


vector

AUDIO

A multimedia application may require the use of speech, music and sound effects. These are called audio or the sound element. There are two basic types of audio or sound: analog and digital audio.

Analog audio refers to the original sound signal. Digital audio refers to the digital sampling of the actual sound. The sound used in multimedia is digital audio.



STANDARD FILE FORMATS

Each of the five elements mentioned has various standard file formats. file format is a particular way to store information in a computer.

The formats will allow you to make decisions of the type of text, graphic, audio, video and animation to use when developing your own multimedia program.

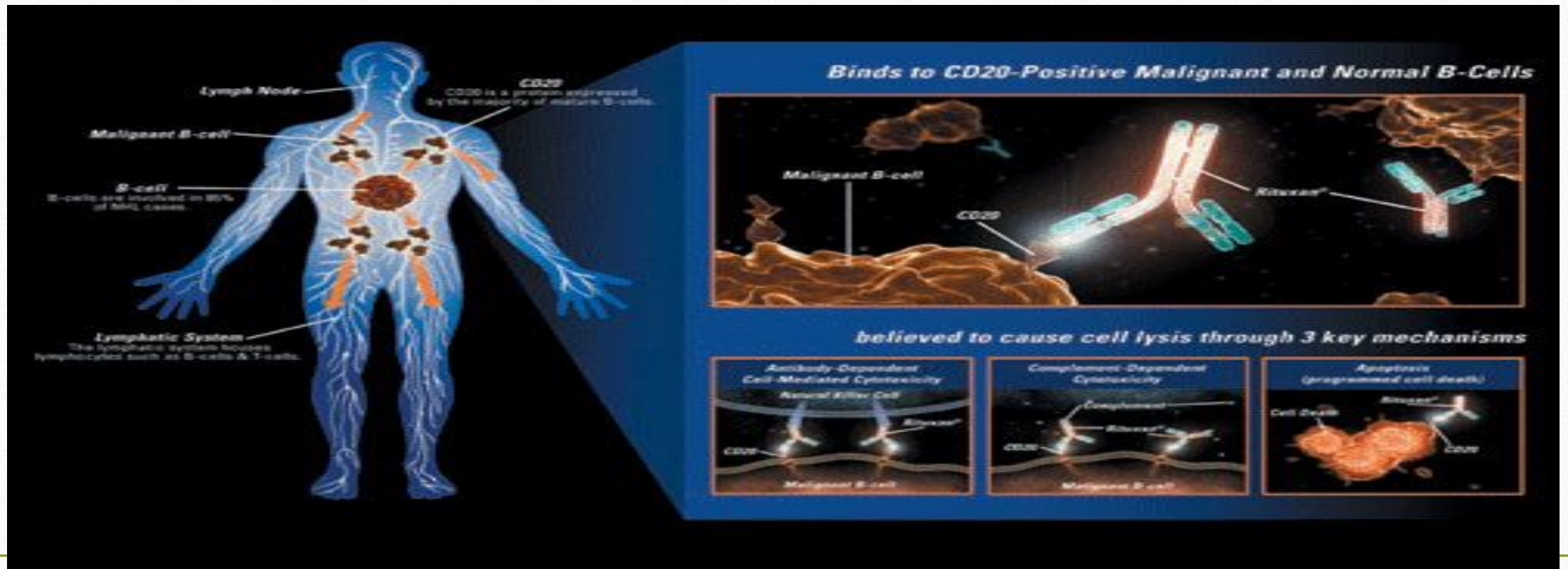




- Medical technology is a set of techniques, medicines, equipment, tools and procedures used by the health professionals in providing health care to the individuals and systems, in which such technology is used. Broader concept of medical technology constitutes the health technology, a term that includes all the procedures, tools and techniques that are used in order to improve health, as well as the simplest and the most effective way to treat and rehabilitate certain population.



- Information technology, in medicine and healthcare can be presented by one complex technological model, (e.g. Technology Package), which includes all the components of technological packages, such as: hardware, software, brain ware and orgware that can actually cover all the medical technology and technology in health activities.



- Traditionally, medical education meant the oral, practical and more passive transferring of knowledge and skills from the educators to students and health professionals. For the clinical disciplines, of special importance are the principles, such as, “learning at bedside,” aided by the medical literature. In doing so, these techniques enable students to contact with their teachers, and to refer to the appropriate literature.

Virtual reality in teaching a priority in Medical Education

- The use of virtual reality in simulated procedures is a new application of computers in medical education and is as yet in its infancy. Procedures can be standardised and trainees able to test and practice their skills.



Computers and Medical Education

- Computers are increasingly used in medical education. Electronic learning (e-learning) is moving from textbooks in electronic format (that are increasingly enhanced by the use of multimedia adjuncts) to a truly interactive medium that can be delivered to meet the educational needs of students and postgraduate learners



MEDICAL INFORMATICS IMPROVES THE PROFESSIONAL STANDARDS

- *Our Goals include Improving health care through information technology ,while promoting the renewal of traditional values in the medical profession."*



- Advances in medicine in recent decades are in significant correlation with the advances in the information technology. Modern information technologies have enabled faster, more reliable and comprehensive data collection.



Conclusion

- In general multimedia is the combination of visual and audio representations. These representations could include elements of texts, graphic arts, sound, animation, and video.
- Multimedia is content that uses a combination of different content forms such as text, audio, images, animations, video and interactive content.
- Multimedia finds its application in various areas including, but not limited to, advertisements, art, education, entertainment, engineering, medicine, mathematics, business, scientific research and spatial temporal applications.
- Medical technology is a set of techniques, medicines, equipment, tools and procedures used by the health professionals in providing health care to the individuals and systems, in which such technology is used.

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