

Applications of Technology in Education

Dr. Laila M. Akhu-Zaheya
RN, PhD
NUR 308

Outline

- Introduction
- History
- Multimedia and E learning
- Limitation of multimedia
- Conclusion



Technology

Introduction

- In modern world we are confronting with four major problems that has an impact on Education.
- 1. Information Explosion – Explosion of knowledge - Horizon of human knowledge and understanding is expanding very fast.
- 2. Communication Explosion – has made significant transformations in Industry, agriculture, medicine, Nursing, engineering and other fields.

3. Information and Communication Technology (ICT) has the potential to transform education – where and how learning takes place and the roles of learner and the Teacher in the learning process.

4. A shift from instruction Paradigm to learning paradigm

Educational Technology

- Technology is the application of science to the needs of man and society.
- Educational Technology is the application of many fields of science to meet the educational needs of the individuals and society as a whole.
- It include the entire process of setting of goal, the continuous reforms of curriculum, the tryout of new methods and materials, evaluation process and innovation.

History of Education

Three eras, or “waves,” of education:

- “First wave” : preceded the printed word. Education was a controlled, tutorial process & available for the few under special circumstances.
- “Second wave:” With the printed word, a centralized education process evolved. Colleges & universities multiplied & became the focal points of learning.

- “Third Wave”: Computer-based multimedia :
 - Aids in the knowledge & information transfer process,
 - Provides feedback to students about the efficiency of their learning processes,
 - Provides access to a vast electronic databases,
 - Enables students to problem solve & apply their learning.
 - Frees the teaching staff to concentrate on helping students with their individual learning needs, with emphasis on the “art” rather than the “science” of nursing.

Three basic stages of assimilating technology

Stage 1: Replacement.

- New technology replaces old technology, but outcomes are not altered.
- Stage 1 data-processing functions such as machine-scored multiple-choice examinations that have been successfully introduced into healthcare education.
- Universities use search systems and software for cataloguing, accessing, and retrieving library information, student records, and other types of data.

Three basic stages of assimilating technology, continue.....

Stage 2: Innovation

- The capabilities of technologies are combined with traditional functions to create new tasks.
- For example, increased computing speed and the establishment of wide area networks have created new home learning opportunities including literature searches and data gathering over the internet.
- CD-ROM technology, which allows storage and retrieval of vast amounts of information, makes literature searches fast, feasible, and complete.

Three basic stages of assimilating technology, Continue....

Stage 3:Transformation

- Innovations accumulate, transforming the way we live.
- For example, telecommunications and computers have transformed the life and work of radiologists to provide services that would have been impossible, at any cost, a decade ago.
- Computed tomography (CT) and magnetic resonance imaging (MRI) scanning have transformed X-ray departments into diagnostic imaging departments, and radiologists now read and interpret images from their homes.

Factors contributed in increasing use of technology in nursing education

1- General Education Factors

- Tremendous growth in human knowledge and the resulting increase in the amount of information to be learned.
- Increased understanding of the teaching-learning process and in identifying the learning styles of individual students with diverse abilities and rates of learning
- Financial retrenchment and budgetary restraint internationally in postsecondary educational institutions, which has produced a need to maximize effective use of limited human and financial resources.

2- Nursing Practice Factors

- Increased diversity in the settings where nursing is practiced.
(e.g., emergency departments and intensive care, coronary care, and neonatal intensive care units to family counselling and health promotion)
- Need for nurses to have greater skills in independent decision-making
- Need for nurses to have skills that allow them to continue learning throughout their professional careers

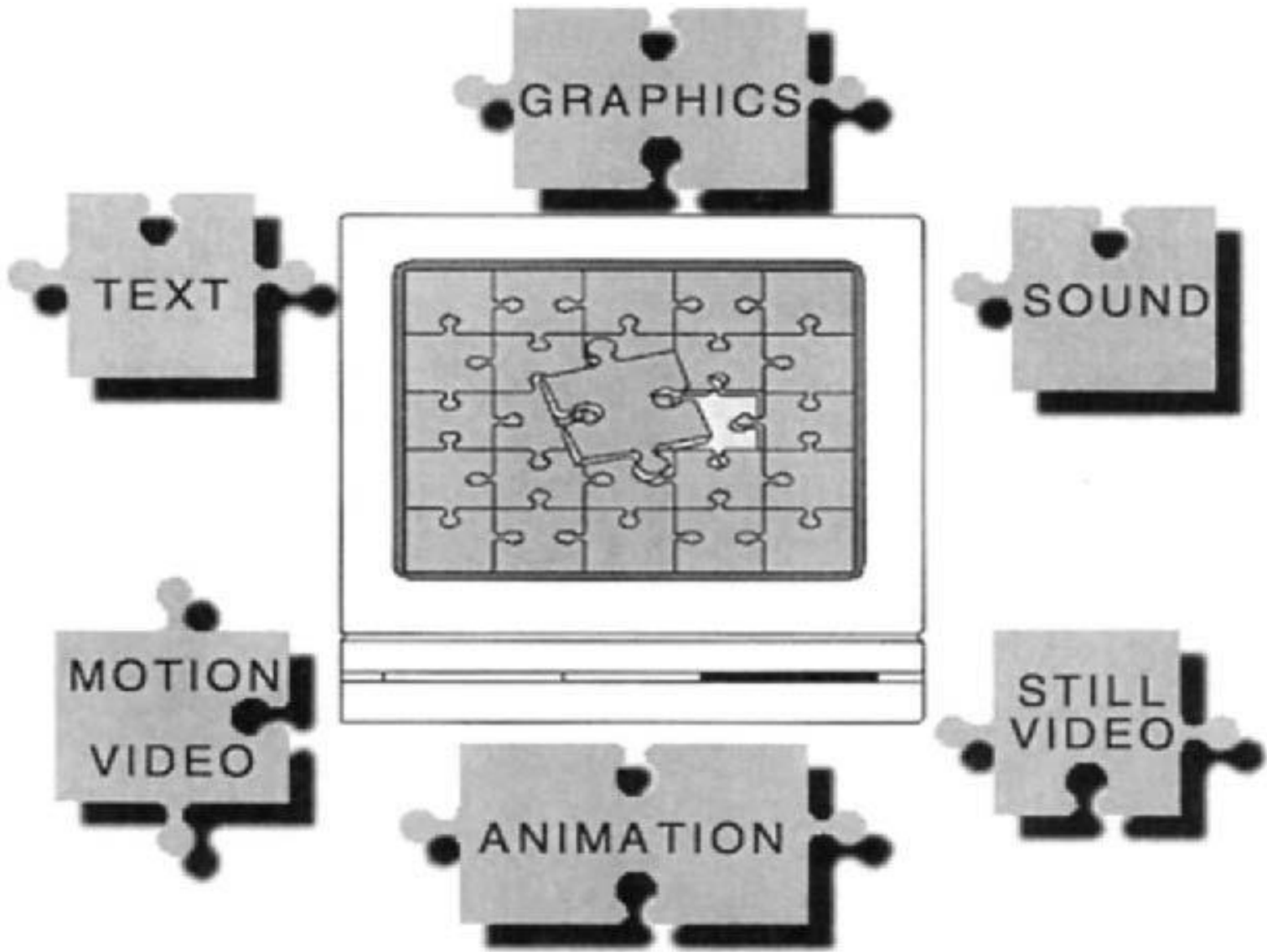
Computer -Assisted Learning

Different Terminology (confusing):

- Computer-mediated multimedia
- Interactive multimedia instruction
- Interactive multimedia
- Learner-controlled instruction
- Learner-controlled computer-assisted instruction
- Interactive computer-assisted instruction
- Multimedia computer-assisted instruction
- Multimedia computer-based training
- e-Learning

What Is Multimedia?

- Refers to computer-based technologies that permit an integration of traditional forms of communication to allow interaction by users.
- The field of multimedia is still growing up, thus concise definition it is not possible right now.



“Pieces” of the multimedia puzzle. •

There are many flavors of multimedia but only two primary goals: .

- Information-gathering activities: Information gathering programs provide the user with information and are controlled by the user.
- Learning activities: Learning activities programs generate learning through exercises and developing skills and are controlled by the system.

Information-gathering programs

- Divided into three types:
 - hypermedia/hypertext, (User use highlighted text to get more information WWW)
 - Multimedia books, (electronic versions of conventional textbooks)
 - Multimedia databases (records and fields such as the conventional text-based databases with which readers are already familiar)

Learning activities programs

- Fall into four basic categories:
 - Tutorials (Step by step program designed to guide learners to understand information)
 - Simulation (Imitate actual experience).
 - Practice, (allow user to develop skills by using repetition. They somewhat overlap simulation programs)
 - Problem-solving (present the user with a problem, provide a number of resources to solve the problem, and let the user come up with the correct answer on their own)

INFORMATION ACTIVITIES

HYPERMEDIA



MULTIMEDIA
BOOK



MULTIMEDIA
DATABASE



COMBINATIONS

TUTORIAL



PROBLEM
SOLVING



SIMULATION



PRACTICE



LEARNING ACTIVITIES

Nursing Education Settings Using Computers

- Whether used for information gathering or learning, computers are being used in all facets of nursing education
- One of the largest growth areas during the last few years is distance learning, on-line learning, or e-learning
- e-learning defined as any type of learning that utilizes a network for delivery, with student–instructor interaction
- There are many software packages used to deliver e-learning in nursing, two predominate, WebCT and BlackBoard

key factors

- Whether to establish an e-learning component to a curriculum or initiating just one course, several key factors must be addressed:
 1. A commitment by the instructor and the administration to make the program successful by believing that for the right subject e-learning can achieve the same results as the conventional classroom
 2. To provide relevant, high-quality, learner-centered course material
 3. Financial support to provide continuous evaluation of the program

Limitations of Multimedia Technology

- *Cost factors.*
- *Content control.*
- *Altered professorial roles.*
- *Technology.*
- *Large central (or mainframe) computers.*
- *Lack of formal communication among users.*

Conclusion

Learning and education is very important for everyone in his/her life , and everybody have own needs of learning should be met and facilitate and many method could be used to meet and facilitate the achievement of these needs .