

Recent Innovations in the Area of Educational Technology

Innovation:

Innovation is defined as “the process of making changes to something established by introducing something new.” It applies to “...radical or incremental changes to products, processes or services.” Over the years there have been many changes in the way education is designed and delivered in parts of the world.



Today, technology is a significant driver behind change, and sometimes plays an important role in innovations in educational design and delivery. There are immense possibilities for greater and wider-spread change with the use of present-day technological advancements, as well as with the implementation of innovative educational programs. The challenge is to ensure that innovation plays a constructive role in improving educational opportunities for billions of people who remain under-served in a rapidly developing world.

Technological innovations are having a significant impact on educational systems at all levels. Online courses, teaching aids, educational software, social networking tools, and other emerging technologies are disrupting the traditional classroom environment. Understanding the effects that technological innovations have on students, teachers, and schools is critical to developing strategies and techniques to manage and use technology in education. Some of the recent innovation in educational technology explained bellow.

Interactive Video Technology:

Interactive video is a digital multimedia presentation that can take user input to perform some action. Interactive videos play like regular video files, but include clickable areas, or hotspots, that perform an action when you click on them. For example, clicking

a hotspot might display information about the object you clicked on, jump to a different part of the video, or open another video file.



Interactive video has many possible applications. For education, a student could select among multiple choices for further videos or other information at points throughout a presentation. After a lecture segment, a quiz might be included to evaluate student responses and provide immediate feedback. Games may be based on interactive video. This allows the player to select among various options that determine subsequent story lines in the game. Each choice leads to a different scenario, so potential story lines can vary significantly.

YouTube, a popular video sharing website, uses interactive videos. Clickable areas can be added at any point in a video. For example, at the end of a video it may ask which character the viewer liked best. When the viewer makes a choice, a new video may open and provide more information about that character. Other examples of interactive videos include card tricks, choose your own adventure videos, and interactive tutorials.



Interactive video can be connected to other services such as e-mail, teleconference, etc.

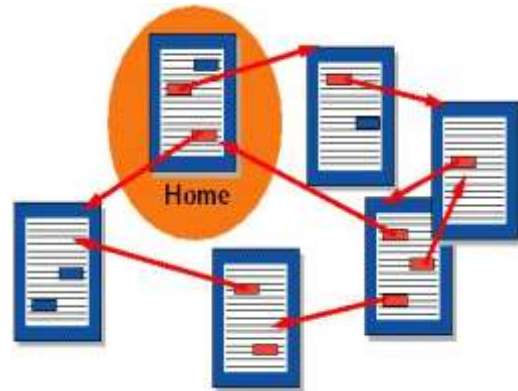
Interactive videos provide:

- Opportunities for students to actively participate in the video lecture by responding to question and discussion prompts
- Robust analytics that show data by student including responses to questions, viewing time, date / time viewed,

- Allow students to rate the video and for faculty to incorporate the results into their teaching, and
- Create opportunities for students to comment and generate discussion around the content and concepts viewed

Hypertext:

Hypertext is text which contains links to other texts. The term was coined by Ted Nelson around 1965. HyperMedia is a term used for hypertext which is not constrained to be text: it can include graphics, video and sound, for example. Apparently Ted Nelson was the first to use this term too. Hypertext and HyperMedia are concepts, not products.



Hypertext is text that links to other information. By clicking on a link in a hypertext document, a user can quickly jump to different content. Though hypertext is usually associated with Web pages, the technology has been around since the 1960s. Software programs that include dictionaries and encyclopedias have long used hypertext in their definitions so that readers can quickly find out more about specific words or topics. Apple Computer's HyperCard program also used hypertext, which allowed users to create multi-linked databases. Today, the Web is where hypertext reigns, where nearly every page includes links to other pages and both text and images can be used as links to more content.

Video-text:

Videotex (or "interactive videotex") was one of the earliest implementations of an end-user information system. From the late 1970s to early 2010s, it was used to deliver information (usually



pages of text) to a user in computer-like format, typically to be displayed on a television or a dumb terminal.

- * Videotext, another name for Teletext, a broadcast (one-way) information service
- * Videotext, an interactive (two-way) information service.
- * Living videotext, a software development company founded by Dave Winer in 1983.

Optical Fiber Technology:

Optical fiber (or "fiber optic") refers to the medium and the technology associated with the transmission of information as light pulses along a glass or plastic strand or fiber. Optical fiber carries much more information than conventional copper wire and is in general not subject to electromagnetic interference and the need to retransmit signals.



Optical Fiber Technology is a scientific journal that is published by Elsevier (formerly by Academic Press). Established in 1994, it covers various topics in fiber-optic engineering, optical communications and fiber lasers.

Laser Disc:

A Laserdisc, like a Digital Video Disc (DVD), can play video of a higher quality than Video Home System (VHS). A Laserdisc is much larger than a DVD. To play Laserdisc movies, a LaserDisc player is needed.



Laserdisc was first produced by Music Corporation of America (MCA) in 1978, and became well known in the 1980s. Movie companies stopped making Laserdisc movies when DVDs became well known in the late 1990s. Today some of the better Laserdisc players still sell for \$1,000 USD or more.



A laser disc (also known as a "video disc") is similar to a music CD, but it holds visual images as well as music. In fact, laser discs can store entire movies, concerts, operas, recordings of live theatre, and a wide variety of educational material. Its signal gets fed right into your television or video monitor, just like the video tape movies you rent. Laser discs are typically 12 inches wide, just like a standard long-playing phonograph record.

Computer Conferencing:

A telecommunications system that makes use of a computer as a platform for processing information. Learn more in: The Efficacy of Continuing Education Technology for Public Health Physicians Practicing in Remote Areas



This refers to an approach to distance teaching using a computer(s) to assist in the presentation of teaching materials or to assistant learners to work through an already prepared learning program.

The term computer conferencing has the following meanings:

- ✓ Teleconferencing supported by one or more computers.
- ✓ An arrangement in which access, by multiple users, to a common database is mediated by a controlling computer.

- ✓ The interconnection of two or more computers working in a distributed manner on a common application process. Instant Messaging and chat systems are multicasting approaches for computer conferencing.

Computer conferencing technology encompasses a broad class of software and hardware tools that facilitate real-time (or nearly so) interactions over computer networks, and in particular, the Internet. Included under this heading are such applications as:

- * Text-based chat programs
- * Whiteboard utilities
- * Groupware
- * Instant messaging systems
- * Audio and video conferencing software

Computer conferencing is used to continue the discussion when real time interaction is not required. For some courses, computer conferencing may be sufficient. Because the classroom is open 24 hours a day, seven days a week, students have the flexibility to schedule their learning time around their other personal and professional commitments. Computer conferencing represents a new domain for educational interaction and it is essentially collaborative and team based.