Do You Agree or Disagree?

Both of us agree with the notion that interactivity has to be considered as an important element in learning. By introducing interactivity, users are now able to control the flow and direction of information, rather than being a passive consumer in the information world.

What does Interactivity Mean?

Mills and Pea (1988) provide a theoretical view on how images might be incorporated in learning. They emphasize the distinction between internal representations - the minds in which learning is accomplished - and external representations - the media which encourage this learning, and suggest that learning is a result of the interaction (or "dialoguer") between these two elements, in a constructivist environment. According to them, “interactive imagery means “imagery that responds to individual inquiries and activities”.

There are many different ways to provide interactivity in multimedia. Examples range from the use of hyperlinking and hotspots for users to branch out when looking for information according to individual interests, to using software tools and resources to compose personalized multimedia compositions.

Provide descriptions of at least three different interactive media projects and compare their levels of interactivity (at least two of these need to be Multimedia Lab projects).

In our paper, we will explore three different interactive media projects: Life Story, Aspen Moviemap, and Visual Almanac.

We will provide background information on the projects before providing descriptions of the interactivity of the projects; we will also provide screenshots and photographs to better support our descriptions. Lastly, we will also summarize each project in the following ways: User Role, Level of Interactivity, Implications for Learning, and The Technology Today.

"An annotated movie is that viewers are encouraged to view the entire movie and then to use the interactive information environment surrounding the movie to revisit it and explore the issues that it raises."

- Florin (1990)

Exploring the World of DNA in Context

A collaborative work between the Smithsonian Institution, Apple Computer, Inc., and the Discovery Channel, Life Story is an annotated drama that brings the story of the discovery of DNA to life for the student as he/she learns more about the topic.

Annotated Movie Storyline

The major feature of Life Story is the intertwining relationship between two stories occurring during the same timeline: Jim Watson and Francis Crick at Cambridge’s Cavendish Lab, and Rosalind Franklin and Maurice Wilkins, at King’s College, London., offering two different perspectives of the discovery of DNA.

Within the context of the BBC drama, users are able to explore the various subtopics of the subject, from information on DNA, to interviews with the scientists.

Interactions

The data in Life Story is grouped into three main categories, namely Drama, People, and Science.

There are two main ways to interact with the drama in Life Story. The first is through watching the drama by itself; clicking at various hotspots within the video as it is playing will display information in relation to that particular scene. As this method of interaction could be considered intrusive, the developers of Life Story also offered a way for users to experience the movie through an interactive menu.

As pictured above, Life Story uses the metaphor of DNA to great effect in the ‘Drama’ Menu. The two intertwining strands of the Double Helix reflects the relationship between the two groups of scientists in their quest to discover DNA along the same timeline. The round buttons along the strands represent key scenes in the drama; users are then able to directly access a particular scene by clicking on the appropriate button. Once the scene is accessed, users can then learn more about the characters and tools by clicking on the interactive hotspots in the scene.

Life Story also provides alternative ways for the user to access information on the scientists and the science behind DNA through the respective ‘People’ and ‘Science’ menus.
In Summary:

1. User Role
   Active Learner

2. Level of Interactivity
   The annotated drama provides various interactive points for the user to branch off in his/her exploration of DNA within the context of the drama’s storyline.

3. Implications for Learning
   Builds upon some of the eight general characteristics that differentiate constructivist learning environments (Jonassen, 1994)

4. The Technology Today
   Companies such as Videoclix, Inc. have been building on the technology of annotated movies. Using QuickTime technology to embed interactive hotspots in video, their tool enables users to create ‘clickable videos’ that can be delivered online for a wider audience.


"Immersion," in the context of media and virtual environments, is often defined as the feeling of "presence" or "being there," of being "inside" rather than "outside looking in."

- Naimark (1997)

Virtual Worlds

The Aspen Moviemap started as a project in the late 1970s; it was the first interactive Moviemap produced at MIT. While this medium was originally envisioned as a form of 'virtual travel' and 'virtual tourism', where users could tour cities such as Aspen, Paris, and the San Francisco Bay Area, the use of virtual worlds have since evolved to 3D rendered environments.

Moviemaps

"To moviemap" is the process of rigorously filming path and turn sequences to simulate interactive travel and to use as a spatial interface for a multimedia database" (Naimark, 2006). Unlike Panoramas that are 360 degree representations, users are able to explore a city within an "interactive system which allow[s] "travel" along pre-recorded routes with some control over speed and direction" (Naimark, 1997).

Interaction

Due to filming using a stop-frame camera, the user is able to control the speed at which he/she travels within the virtual environment; the control over frame rate is through an input device like a joystick or trackball.

The Evolving Virtual World

As tools grew more sophisticated over time, so did the creation of the virtual environment. The virtual world has evolved in many different ways. Among them include creating pictorial virtual tours from interlinked panoramas using QuickTime VR Authoring Studio, as well as 3D rendered environments now common in current video games and virtual worlds (e.g. Second Life).

In Summary:

1. User Role
   Active Participant

2. Level of Interactivity
   This environment provides a medium for the user to actively explore a particular city through pre-recorded routes while controlling his/her speed and direction.

3. Implications for Learning
   An idea that hints at the potential of immersive learning.

4. The Technology Today
   The Virtual Worlds today, are more often than not, 3D rendered environments; there has also been a steady progression for these environments to be online, thus enabling multiple users to interact, and collaborate, within a common space. Examples in entertainment include Microsoft’s XBox Live, where multiple players can team up in Halo 3 to perform various missions.

Virtual Worlds have also been explored within the context of education, such as Project Atlantis and the River City Project in K-12 education, as well as the use of Second Life at University level.


It is proposed that “the purpose of a multimedia composition is the same as that of any form of communication - to tell a story, render an experience, play a game, or highlight information” (Ambron, 1990).

Unlike Life Story which had prepared activities within the context of an entire movie, the Visual Almanac is an open ended multimedia toolkit for both teachers and students to create their very own multimedia compositions. As this toolkit contained many types of different multimedia resources, a large variety of projects could be created by the user, ranging from oral reports, to interactive stories, to visual crossword puzzles (Florin, 1990). The Visual Almanac kit consisted of three main parts: Collections, Activities, and the Composition Workspace. There was also a companion book.

Collections
This section is the source of the multimedia material and tools used for the multimedia compositions. The data, consisting of 7,000 images (still and moving) and sounds, was saved on a videodisc. Users could browse through the available resources and save them for further use within the composition workspace.

Activities
This section consists of 14 activities that allow the user to explore curriculum-related sample activities and compositions that were created using resources from the Visual Almanac. Examples included “Playground Physics”, an activity that introduced concepts of speed and measurement within the context of children playing with a familiar object like a merry-go-round.

Composition Workspace
This section of the Visual Almanac is for the creation of individual, personalized multimedia compositions. The user is provided a set of tools and templates to compose various types of compositions. One can either use the resources available from the Visual Almanac toolkit, or import materials from other sources. Ambron (1990) noted that the most successful multimedia compositions were iterative: users would use a “back-and-forth” process to explore the Collection to find resources that would support or expand on their idea, and would go through several iterations before they were satisfied with their results. This repetitive, iterative process is a good example of Mills and Pea’s (1988) distinction of an “interaction” between the internal and external representations.

Composing with multimedia “is like adding degrees of freedom to a painter’s palette because it allows the use of video clips, still pictures, text, music, narration, and animation.”

- Ambron (1990)
In Summary:

1. User Role
Producer

2. Level of Interactivity
User actively browses through and makes use of the available resources to compose personalized multimedia presentations.

3. Implications for Learning
Based on Papert’s (1980) theory of Constructionism (i.e., learning by making).

4. The Technology Today
With the introduction of the Internet and the World Wide Web, access to resources freely made available is now possible with the click of a button. Users can now use a variety of software -- free or commercial -- to create their own multimedia presentations and games using available resources, and share their projects with a wider audience (e.g., ScratchR).
