ITeN:
Egypt Prototype Program

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New multimedia technologies and computer systems now allow the design and development of multi-disciplinary learning environments that can enhance knowledge retention and enjoyment for undergraduate students in classrooms, studios, and labs.

The Ancient Egypt Prototype program of the ITeN Project will develop new interactive learning environments based on using interdisciplinary knowledge sources, especially artworks in the broadest sense, to provide unified and integrated learning experiences about human culture, its meaning, and its evolution.

The Egypt program will be a powerful learning application, providing a broad range of in-depth materials organized in a flexible matrix, which can be used both by students doing research and instructors preparing presentations or doing research. There will also be developed sample materials for electronic publishing, which will go beyond what is possible with ordinary printed media or linear video formats.

The Egypt program will explore and address the pedagogical issues and problems of interactive-multi-disciplinary learning that include:

- Instructional system design for computer-aided instruction.
- Linking structures in hypermedia systems.
- Instructional utilization of computer-driven videodisk systems.
- Recontextualization of widely separated artworks.
- Exploration of multi-sensory learning environments.

This proposal gives a brief overview of the intentions, issues and opportunities, present state, and developmental stages for completing the Egypt program of the larger project, which would encompass a series of related programs offering knowledge synthesis for at least 15 central cultures within human history: Africa, Americas, Australasia, Byzantium, China, Egypt, Europe, Greece, India, Indonesia, Japan, Korea, Rome

The objectives of this project are to develop and apply within a curriculum the prototype program for interdisciplinary learning. This program would consider the needs of Carnegie Mellon University's undergraduate students and incorporate original approaches to learning about human culture through artistic creations.

The approaches taken include interrelating elements of different knowledge sources across different media and disciplines, which are then related to universal themes common to all historic cultures. Focus is on the purpose and meaning of art forms as a reflection of traditional cultural aspirations. Interactivity permits multiple accesses to the knowledge sources, relative to the areas of interest and perspectives of the user. Pathways can be taken that follow broad thematic sequences across disciplines and media, or within disciplines, though depth sequences leading to specific study areas. Particular subjects can also be directly accessed through a subject-theme index.

It is intended to offer any interested user a flexible, aesthetic, stimulating learning environment with the highest possible quality of individualized educational experience.

With sufficient support it is possible to complete the prototype program in about one to one-and-a-half years assem-

Hardware

- Apple Macintosh Quadra 700
- 13" color monitor
- Spigot digital video card
- Videodisc player Pioneer LDV-4200
- 13" Sony monitor

Software

- Spinnaker Plus
- Adobe Photoshop
- Macromind Director
- Quick-time Movies

bling all the essential materials necessary for an elementary comprehension of ancient Egyptian art and culture.

Necessary support includes: video source 60-minute videodisk, image source 240-1000 slide images, text source 100-250 essential pages, graphics source 100 plans—drawings, audio source 1-2 hours commentaries also music-drama performances, Animations to revivify ancient scenes. Learning reinforcement—task or game; use assessment system: printout—copy-to-disk capability as possible within existing levels of technology.

The materials will be organized to permit adaptation to museum and library environments, as well as home learning and business applications. The methods of this project will focus on completing the hypermedia prototype on the art and culture of ancient Egypt. The knowledge materials are to be organized in a HyperCard-like computer environment that permits linking of program segments in many different ways. The interface design of the program reflects the ancient Egyptian aesthetic, so that even though you are in a modern computer, your senses will better accommodate the artworks being encountered.

The first half of the project development will be focused on creating the working core of video and still images, text, and graphics, and addressing design issues. The program will use original materials, as much as possible, to avoid copyright charges and problems. This will, however, require at least one field trip to complete the gathering of necessary materials, to complement existing resources. The positive side of this is that we are able to create a blend of knowledge materials that have never before been available.

The second half of the project will develop the indigenous learning catalysts and synthesis visual essays, as well as the learning reinforcement task/game, the use assessment system and the printout and floppy-copy capabilities.

The development of this program depends on the creativity of the team members and their ability to perform multiple tasks. The needed team members are: project director, full-time; design input, half-time; image and text input and edit, half-time; programmer, half-time; external consultant, half-time; video production, quarter time; administration, quarter time; student assistants, two, at a quarter time each.

The scope of this project is to focus on producing a complete working program that can be applied to the educational curriculum at the undergraduate level, providing a measurable improvement in the quality and retention of learning about the nature and history of human culture.

The present state of the prototype program is that a specific group of related sample learning segments have been created focusing on the language, science and technology, and design and architecture of ancient Egypt. There is also a reference (text-based) section and a videodisk section offering ten five-to six-minute documentary-style scripted video presentations.

Each section offers an integrated mix of images and text moving through a depth sequence of three to eight screens, presenting eight to 12 study images and from ten to 25 minutes of informational text. System icons together with object and text hyper links inter-relate materials from different disciplines and key information about people, places, ideas, objects, and events.

The existing materials are only a sample to show the possibilities using off-the-shelf technologies, whereas the larger program will have much greater breadth and depth of materials and experiences.

Essential areas to be explored include recontextualizing dispersed artworks using computer reconstructed monuments, animations of ancient reliefs and wall paintings, use assessment systems, learning reinforcement systems, and copy and printout capabilities for students to create presentations or documents.

The use assessment and learning reinforcement elements would involve adapting existing intelligent systems and developing new components to catalyze the higher learning processes and strengthen learning retention, as well as to improve the attention holding capability of the program.

The ideal working group for the development of this project would be a consortium of our educational institution (research and application to curriculum), an educational foundation (providing support), private companies (developing technologies and products), and public institutions (museums, libraries, public schools).

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