**Digital Repatriation: Constructing a Culturally Responsive Virtual Museum Tour**

Loriene Roy, Ph.D.
Professor, Graduate School of Library and Information Science
The University of Texas at Austin

Mark Christal
Doctoral Student
College of Education
The University of Texas at Austin

**Keywords** (關鍵詞) : Museum informatics; Virtual museums; American Indian education; Information technology

**Abstract**

This paper describes a project that involved educators and three Native American communities in the construction of a virtual tour now available on the Web site of the National Museum of the American Indian (http://www.conexus.si.edu/). In fall 1998, the Pueblo of Laguna Department of Education, the College of Education and Graduate School of Library and Information Science at The University of Texas at Austin, and the Smithsonian’s National Museum of the American Indian (NMAI) began the first collaboration that brought Native American students, teachers, and cultural representatives to the NMAI George Gustav Heye Center in New York City. The virtual tour makes extensive use of QuickTime Virtual Reality (QTVR). The panoramas of the exhibition space serve as an interface for accessing the featured objects selected by the students. Clicking on a hot spot over the museum display of a featured object causes the QTVR object to load in a separate Webpage frame accompanied by an interpreted essay written by a student. Clickable floor plans of the exhibition space offer another method of navigating the virtual tour and accessing the virtual objects.

**INTRODUCTION**

Museums have long been repositories of important cultural items. They make these objects available for public exhibition in carefully designed architectural spaces and, more recently, on CD-ROM and in the virtual space of the World Wide Web.

Schools share the mission of cultural preservation with museums and are natural partners in developing effective educational experiences for young citizens. Schools are exploring the creation of virtual museums as classroom learning activities. In these projects children and their educators use new digital media, the World Wide Web, and multimedia authoring to construct educational resources that others can use to construct meaning. This paper will describe such a project that involved educators and
three Native American communities in the construction of a virtual tour now available on the Web site of the National Museum of the American Indian (http://www.conexus.si.edu/).

**AN EMERGING MODEL**

This museum and school collaboration was guided by three aims.

**Cultural Responsive Teaching.**

A culturally responsive virtual museum project teaches through the culture of the child, bringing community concerns and values to the center of the teaching-learning process. Students engaged in these activities are motivated to excel because their work is important and original and serves an important role in preserving their heritage using cutting-edge information technology such as QuickTime Virtual Reality (QTVR). They gain from the knowledge of museum professionals and the wisdom of involved community elders. Students develop skills in research, writing and information literacy. Their learning follows a thematic approach as they explore ideas across disciplines including social studies, science, mathematics, Native arts, and music.

**Cultural Revitalization.**

Much of traditional material culture resides in museum collections far from Native American homelands. Virtual museum projects provide a way for communities to “digitally repatriate” precious items of cultural heritage. Local resources such as oral histories, cherished heirlooms, traditional stories, dances and songs, Native language and contemporary arts are combined in a virtual space with museum materials to represent a vital living culture.

**Cultural Collaboration.**

Although museums aim to preserve heritage and educate the public, Native Americans sometimes object to how museum exhibitions appropriate cultural property. Native Americans often want the public to have access to authentic knowledge of their histories and cultures but they also believe that some aspects of their cultures should not be shared with others. Virtual museum collaborations can provide a venue to address thorny issues of cultural property rights, to design protocols for cultural collaboration, and to determine levels of access.

Expressions to achieve these three aims are mutually supportive. Students who work on creating virtual museums related to their culture are participating in an authentic, culturally responsive learning project that also revitalizes their communities’ cultures by enhancing community access to physically distant cultural objects. When museums offer Native Americans access to their collections in a digital environment they are entering into a type of cultural collaboration where the interpretation, accessibility, and appropriation of important cultural property is negotiated rather than dictated.

**THE STORY OF THE PROJECT**

In fall 1998, the Pueblo of Laguna Department of Education, the College of Education and Graduate School of Library and Information Science at The University of Texas at Austin, and the Smithsonian’s National Museum of the American Indian (NMAI) began the first collaboration that brought Native American students, teachers, and cultural representatives to the NMAI George Gustav Heye Center in New York City.

In the spring of 1999 two school teams, one from Santa Clara Day School (New Mexico, Pueblo culture) and one from Hannahville Indian School (Michigan, Potawatomi culture) traveled to New York to research and digitally record selective items from the NMAI exhibits. These materials were assembled into the Virtual Tour of the National Museum of the American Indian, which has been accessible via the World Wide Web since February 2000. In May 2000, Marty Indian School (South Dakota, Lakota culture) sent another team of students and cultural representatives to extend the tour. The additional material was added to the virtual tour in fall 2000.

The NMAI Resource Center staff coordinated the virtual tour activities. NMAI staff used the Web to prepare students before they arrived at the Museum. The staff uploaded information about the Museum to a private Web site on the Museum’s Web server for the students. NMAI also used the Web to communicate the progress of the project. At school, the
students selected objects from exhibition catalogs and e-mailed their lists of objects to the Resource Center. The Museum’s Conservation and Exhibition departments let Resource Center staff which objects could realistically be taken out of their exhibitions for photography.

The Web was also used for planning and coordinating the de-installation of objects and the scheduling of panoramic photography. Floor plans of the galleries were posted on the Web and the virtual tour activity schedules were indicated on the floor plans.

The students knew beforehand that they would not be allowed to touch or handle the artifacts. Some objects would not be suitable for QTVR treatment. Some items were too fragile. Others, like buffalo robes, were essentially flat and did not lend themselves to three-dimensional digital photography. Some exhibit cases were too difficult to open and it was not possible to remove some objects from cases without disturbing other objects.

The project schedule was adjusted to fit into the museum’s schedule and to take into account that most of the students were grade school students. Panoramic photography in the galleries took place between 8 a.m. and 10 a.m., before the museum opened. While the students photographed the galleries, the object handlers and exhibit personnel de-installed the artifacts that were to be photographed that day. Project planners scheduled four objects a day for QTVR photography, which proved to be a reasonable pace for the students. When the museum opened to the public at 10:00 a.m., half of the students moved to the Resource Center library so they could prepare the text labels that would accompany each artifact featured on the virtual tour. The other students were involved in creating the digital movies of the objects in an extemporaneous photo studio. By 3:00 p.m., the students were finished for the day. This schedule roughly followed their school day. The reinstallation of objects into exhibit cases could then take place during the relative quiet of the late afternoon rather than during times when the galleries are typically full of touring school groups.

Other Museum departments were involved in the project. The Education Department needed to know which objects were de-installed each day. The cultural interpreters could then omit references to these objects during tours. The Security Department kept visitors at bay when the de-installation and reinstallation were in progress. One case had objects of gold and required an armed guard to be on hand when the case was opened.

After the Conservation and Exhibition Departments approved the list of objects to de-install, the Registration Department had to know the location of each object. Object handlers from Collections Management were the only people authorized to handle the objects. Finally, the Museum hired a mount maker to make mounts for objects so that they could be propped safely on the turntable for QTVR photography.

**USE OF TECHNOLOGY**

The virtual tour makes extensive use of QuickTime Virtual Reality (QTVR). The students created two kinds of QTVR movies: panoramas and object movies. Panoramas (panos) are made from a series of overlapping photographs taken from a tripod using a specially designed panning head with regulated camera stops. Software “stitches” the individual photographs together into one seamless 360 degree scene. A viewer can interact with a pano by pressing the mouse button when the cursor is on the opening image of the pano and then dragging the mouse cursor in a selected direction. The pano then scrolls in that direction, creating the sensation of viewing the image from all sides.

The second type of QTVR media is the object movie. To make an object move, one places the object on a turntable and takes a series of photographs at evenly spaced angles, moving the object a measured distance before each photograph. The QTVR photographer can make more complex object movies by using a specially designed supportive frame on which the camera can be secured and then rotated over the object being photographed. The resultant movie has both vertical and horizontal rotation. One can zoom in or zoom out of both types of QTVR movies. Also, invisible regions called hot spots can be painted on. Hot spots
trigger special actions when clicked on. They may launch new Web pages, label points on an object or in a pano, or bring up magnified details of an object.

Both types of QTVR are used in the finished Virtual Tour. The panos of the exhibition space serve as an interface for accessing the featured objects selected by the students. Clicking on a hot spot over the museum display of a featured object causes the QTVR object to load in a separate Web page frame accompanied by an interpreted essay written by a student. Clickable floor plans of the exhibition space offer another method of navigating the virtual tour and accessing the virtual objects.

VIRTUAL MUSEUM TEXT LABELS

Each student individually researched and wrote the interpretive essays to accompany the QTVR object movies they created.

Historically, museum curators responded to their role in public education by writing and posting exhibition labels—captions that accompany an exhibited artifact or artwork. Museum labels became so revered that they often overshadowed the objects they described. In one of the earliest texts on museology, Good (1895) went so far as to define “an efficient educational museum” as a “collection of instructive labels, each illustrated by a well-selected specimen.” By contrast, contemporary museums now provide a forum for what Hemmings (1997) describes as the “multiplicity of narratives and the contestation of knowledge claims.” For indigenous peoples, this approach translates to an invitation to participate in the digital repatriation of cultural objects to their centers of origin and an opportunity for Native voices to interpret their own cultural objects.

The children themselves interpreted the objects featured in the virtual tour. They wrote essays between 60 and 240 words. Their research process started with a review of information about the objects in the published exhibition catalogs. They then studied the origins of the object by locating the culture’s geographic homeland in atlases. They gathered published material in the Resource Center’s reference collection and consulted with the Resource Center staff, especially those from cultures that created objects in the tour. They reflected on their own responses to the objects and on their own cultural heritage. In creating these essays, the children not only had an opportunity to become involved in interpreting the objects but they also honed their own skills in conducting library research and writing. Students considered the following questions when writing these essays:

- Who created this artifact?
- Where did these people live?
- What was the object’s purpose? Why was it created?
- What was it created from?
- How was it created?
- Why did I select this object for the tour?
- How is this object connected or not connected to my culture?

The technologies supported on the World Wide Web offer many ways of expanding the function of the traditional text label. One can, for example, add links to culturally appropriate Web sites and develop an online dictionary or thesaurus to define terms used in the essays and to refer to additional terms. The labels can provide different levels of information for different audiences, add sound files and lesson plans, or add an interactive chat or discussion area that allows virtual museum visitors to discuss objects and their meanings online.

CULTURAL APPROPRIATION, CULTURAL PROPERTY RIGHTS, AND LEVELS OF ACCESSIBILITY

Virtual museum collaborations between Indian communities and museums with Native American material can provide a venue to address issues of cultural property rights and to design protocols for collaboration. Open access to material must be balanced with a Native community’s right to control delivery of content. Even within tribes there are varying levels of access to information. Some information may be available only during certain times of the year. In some traditions, storytelling is a winter activity. Other information may be shared only with those who meet qualifications of gender or level of expertise or training.
CONCLUSION

This virtual museum model is a vehicle for cultural responsive education, cultural revitalization, and cultural collaboration. These three overlapping and interacting concepts illuminate the implications and potential benefits of school-museum partnerships. This model has been developed in the particular context of American Indian education and a museum with a world-class American Indian collection.

Although cultural change is inevitable, institutions such as schools and museums can moderate cultural change by seeking to preserve cultural heritage. Central to this model is the notion of cultural revitalization. Native American children and their communities collaborate with museums in cultural recovery by “digitally repatriating” to Native communities objects long removed from their origins. By giving Native people central, authoritative roles, the virtual museum model has provided a forum for cultural exchange as well as cultural recovery. It has provided a venue for cultural collaboration that reaches out to the global community through the World Wide Web.

ACKNOWLEDGEMENTS

The authors acknowledge financial support from the Four Directions Technology Challenge Grant (#R303A50083), provided by the U. S. Department of Education and managed by the Pueblo of Laguna Department of Education.

References

