The Academic Library's Role in Transmitting Cultural Heritage Using 21st Century Technology: The University of Arizona Libraries and the Cultural Community Collaboration Model

Patricia Morris [*], *Elaina Norlin* [*], *Stuart Glogoff* [*]
and *Garry Forger* [*]

(*) University of Arizona, Tucson (AZ), USA
E-mail: morrisp@u.library.arizona.edu
Transmitting Heritage via the Web: Through Our Parents' Eyes as a Model of Cultural
Community Collaboration

ABSTRACT
University libraries are in the forefront in utilizing and experimenting with innovative technologies to serve the teaching and research needs of their user communities.   These same organizations have a wonderful array of special collections highlighting local, regional and national cultural heritage of not only our ethnically diverse citizens, but also places and things. This intersection of the application of 21st century technology and the transmission of cultural heritage has created new venues for distribution and access to these audio-visual cultural treasures.   The collaboration between the library and its community serves as a model for blending different areas of expertise and approaches to disseminate an area's cultural heritage.   This presentation features one of the most representative projects, *Through Our Parents' Eyes: Tucson's Diverse Community*. The digital objects within *Through Our Parents' Eyes* are being indexed in a searchable database constructed around the Dublin Core Metadata Initiative and should be compatible with evolving standards, such as the Open Archives Metadata Harvesting Protocol (OAMH).   These digital objects include images of photo slides, historical artifacts and streaming audio and video.   The current exhibits include web sites devoted to the cultural heritage of Mexican Americans, African Americans, Chinese Americans, Native Americans and the Pioneer Jewish Experience.   *Through Our Parents' Eyes* may be viewed at
(*http://www.library.arizona.edu/parents /*)

INTRODUCTION
The University of Arizona (U of A) Library has developed one of the largest collections of community-based World

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Wide Web exhibits in the United States. Under the major thematic headings of *Images of the Southwest* and *Through Our Parents' Eyes: Tucson's Diverse Community*, *http://www.library.arizona.edu/parents* valuable Library collections have been extended to K-12 and college via the Internet.

First embraced as an example of Digital Library services in the mid-1990s, these projects have expanded access to previously limited collections. Since 1994, digital objects have been created from diverse materials: historical photographs, prints from glass negatives, 35 mm slides, archival manuscripts, sound recordings, and video tapes. These resources are now stored on servers, allowing for worldwide distribution in a millisecond via the World Wide Web.

COLLECTIONS RICH IN LOCAL HERITAGE

Among the Library's nearly thirty discrete exhibits are thousands of digital objects featuring local culture and heritage with accompanying text written by scholars, archivists and community members. Brief descriptions of representative exhibits follow:

- *The Promise of Gold Mountain: Tucson's Chinese Heritage (http://www.library.arizona.edu/promise)* : From immigrant railroad workers of the late 1800's to civic leaders of today, Chinese-Americans have consistently contributed energy, talent and culture to enrich the Tucson community. Using text, digital images, and video, this exhibit traces the history of Chinese Americans in Tucson.

- *In The Steps of Esteban: Tucson's African American Heritage* (http://www.library.arizona.edu/esteban/) Founded by homesteaders, cowboys, and soldiers, Tucson's African American community has a long, proud history. Pioneers built neighborhoods, established churches and businesses, and fought to end discrimination and prejudice. This exhibit documents the history of Tucson's African American community, sharing the stories, photographs and memories of some of its members. Images in these exhibits are from numerous sources including the Library's Special Collections and the Arizona Historical Society. In 1998, lesson plans for middle and high school classes were added to this website and training sessions were held for local teachers who were incorporating these activities into the curriculum. Students participating in these exercises rated their learning experience highly.

- *Cuentos de Nuestros Padres: Tucson's Hispanic Community (http://www.library.arizona.edu/cuentos):* The Hispanic Community has been instrumental in transforming Tucson from an isolated Spanish military outpost in the late 1700's, to the bustling Southwestern city it is today. Hispanic Americans have been involved in all aspects of community affairs and these exhibits explore both the history and strong ties with Spanish and Mexican cultures.

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- *Bloom Southwest Jewish Archive (http://www.library.arizona.edu/bloom/)*
Drawn from a rich historical collection of the pioneer Jewish experience in the U. S. Southwest (West Texas, New Mexico, and Arizona) this site includes a related exhibit entitled *Synagogues of the Southwest*, presenting both historical and contemporary views of these synagogues.

- *Mission Churches of the Sonoran Desert*
(http://www.library.arizona.edu/)
This site offers the viewer a cybertour of historical and cultural treasures of the region. Dr. James S. Griffith, a Folklore Professor and Director of the University's Southwest Folklore Center provided the text and images for this exhibit.

- *Southern Arizona Folk Arts (http://www.library.arizona.edu/):*
This features images and text of crafts and artists gathered during Dr. Griffith's two decades of organizing and directing the annual Tucson Meet Yourself festival. This extremely popular Tucson event brings our diverse peoples together for a weekend of eating, arts and crafts, dancing, and music. Many of these performances are recorded on audio and video.

- *The War Relocation Camps of Arizona 1941–1946 (http://www.library.arizona.edu/wracamps/)* This exhibit features images of approximately forty photographs taken for the U. S. government's War Relocation Authority and vividly depicts life in Arizona's two camps. This exhibit ranks among our most frequently visited web exhibits attracting attention worldwide.

COMMUNITY

As the technological base to communicate these culturally rich Web exhibits has grown over the past five years, so too has our ability to add richer content. This is particularly true of digital objects requiring special audio-visual plug-ins. New partnerships have been forged with local video producers and awareness of these resources for inclusion in the university curriculum has increased. This is also an area where the most interesting technological advances are being witnessed.

In 1998, the *OldPuebloMOO* (*http://oldpueblomoo.arizona.edu/*) was created as an online teaching and learning technology environment for U of A students. From the beginning, it was conceived as an environment built around the special geography and history of Southern Arizona. Students who visit *OldPuebloMOO* find a virtual world designed to teach them about the history of Tucson and the area. *OldPuebloMOO* hosts undergraduate classes and, in particular, is used within first-year English composition courses. Because these are required courses for most students, it exposes a broad group to both the U of A Library's extensive collection of historic Web exhibits and to the MOO. Students research and write about the local history and culture with the best papers being posted on the library's web sites or the MOO.

As the Web became less of a static representation of text and images on the screen to one that is more interactive, we looked for ways to make the different Web exhibits more interesting. Once audio-visual plug-ins became freely available and, more importantly, easy to install, we began to digitize audiotapes and videotapes. Initial efforts involved experimentation with file sizes, formats, and delivery methods. The audio and videotapes used in the Web exhibits are provided from different sources. Friends of Judge Lawrence Huerta provided clips to the exhibit honoring the first Native American to graduate from the U of A's College of Law. (http://www.library.arizona.edu/huerta/) . Clips from professionally produced television productions were digitized for *Cowboy Songs and Singers: Of Lifeways and Legends* (http://www.library.arizona.edu/cowboy songs) an ethnomusicology site that presents authentic cowboy music and poetry.

Audio in the *Cowboy Songs and Singers* Web site came from 7- and 12-inch reels that had been stored in the library's archives for almost twenty years. This digitization process of these tapes created numerous challenges. Unfortunately, they exhibited "sticky shed syndrome" which meant that the tapes needed to be spooled onto hubs (no flanges), "baked," and then re-spooled back onto the original reel. Baking the tapes involved purchasing a food hydrocolator that could hold up to four tapes. The tapes were "baked" about 30 minutes per reel, and allowed to cool another 30 minutes per reel. Since we stacked multiple reels in the hydrocolator, the actual baking time

was 4 hours and the same for cooling. While this project entailed a fairly significant learning curve, it provided the necessary information to prepare a budget case for a pilot and production project to conserve the collection, create new analog copies on audiotapes, and new digital copies on DVD. Clips from these resources will comprise the heart of a new, ethnomusicology Web site, *Music of the Southwest*.

COMMUNITY LIAISONS

The evolution of our web exhibits has followed the evolution of the Internet and information technology. A good example of this, is the *Old Fort Lowell Neighborhood* Web site (*http://www.library.arizona.edu/ftlowell /*). One of Tucson's oldest continuously occupied neighborhoods, the Fort Lowell area developed around the old U.S. Army fort. The heart of the Fort Lowell neighborhood is the restored San Pedro Chapel, now a community-meeting place. This website began as a service to the neighborhood association, providing an online history, from prehistory to the present, of the Fort Lowell area. The site has been used in local school programs and the Neighborhood Association quickly adopted the site as a way to disseminate information the history of the area as well as local events. What began as a web site using text and images has evolved into a site using latest video streaming technology to provide a 'living history' tour of the area.

EXPANDING CONTENT WITH PRODUCTION QUALITY VIDEO

In looking at ways to expand the quantity and the quality of the Web exhibits, we approached KUAT-TV, Southern Arizona's Public Broadcasting

Service. For over two decades, hundreds of hours of award-winning high quality video programming has been created at this TV station and now has brought unique and invaluable content to these community-based Web exhibits.

An important component of *Through Our Parents' Eyes* is the Native American section, featuring the two Native American tribes in the Tucson area, the Tohono O'odham and Pascua Yaqui. The Tohono O'odham Indian Nation has been the focus of valuable archived videotape material indexed by KUAT since 1991.

Understandably, digitizing these videotapes of KUAT programs was replete with challenges. Up until now, we have dealt piecemeal with three-quarter inch videotapes, a format no longer in use. Finding suitable equipment to convert the tapes to VHS was an obstacle. It was terribly time consuming, moved us one generation from the original, and is a technology that may not be readily available in the future. At the time this paper was drafted, we had identified new ways to streamline the process and receive all new shows in digital formats, transmitted in real time or within twenty-four hours of production. Real time transmissions would be accomplished by installing fiber cable terminating in the video archiving unit of the University's computer center.

As these logistics began resolving long-standing barriers to creating new resources in *Through Our Parents' Eyes*, we began addressing how to create new searchable databases that students and faculty could use. We found a willing partner in the campus' Virtual Adaptive Learning Architecture Project (VALA). (http://www.vala.arizona.edu) VALA is a 3-year grant project sponsored by the U.S. Department of Education's Learning Anytime, Anywhere Partnerships (LAAP) program. It focuses on developing a learning architecture with individual, personalized user interface adaptability. Within its instructional environment, teachers from multiple disciplines can easily find, develop, edit and publish multimedia content in support of their instructional endeavors.

For our purposes, the VALA project's Virage Video Application Server fulfilled our vision of creating a searchable database with links to streaming Real and QuickTime video. It also offered us new capabilities to manage and distribute media on an enterprise scale. Its VideoLogger application comprises video cataloging software that creates an index of our video assets in real time, giving us immediate access to every point of our video. Its AudioLogger application is used in conjunction with VideoLogger, to "listen" to the audio track of a video signal and identify spoken words, speaker names and audio types. Our initial efforts have enabled us to create video clips and seamlessly embed links from *Through Our Parents' Eyes* pages. For an example, see http://www.library.arizona.edu/ftlowell/band.html. Once the campus network enhancements are made, KUAT video can be fed directly to the Virage workstation, processed, and stored. This includes text transcripts, which are created during the Virage voice recognition process.

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Another VALA resource that the Web exhibits will utilize is a web-accessible interface constructed in accordance with the Dublin Core metadata standards. This interface comprises the front-end to an Oracle database that will store the data elements and make them searchable. In this way, we will be able to create searchable indexes to the thousands of digital objects in *Through Our Parents' Eyes* and expand the database to include digital objects from numerous other campus projects.

BUILDING AND SHARING CULTURAL DATA REPOSITORIES

For the past year, we have applied metadata protocols and standards to *Through Our Parents' Eyes*. Working with the standards, protocols and models that have been developed by the World Wide Web Consortium (W3C), Gateway to Educational Material (GEM), Dublin Core and IMS Metadata has provided the templates needed to manage our data, the capability to create database records, and enable the interoperability and sharing of resources between databases. A proactive method selected for the *Through Our Parents' Eyes* web exhibits has been to enter the appropriate metadata in GEM.

GEM resources can be searched in several ways - specific fields, multiple fields or browsing. Classification of the resources uses the GEM Subject heading, a broad based subject classification developed internally. Future plans for the GEM database include providing for the use of multiple thesauri for classification and searching for resources, and a Z39.50 interface that will allow for other Z39.50 enabled

datasets to be connected and searched using the GEM search engine.

By searching in GEM < http://www.thegateway.org/simplesearc h.html > on the term "buffalo soldiers," a link to the Lessons and Activities section within In the Steps of Esteban's Web site is retrieved. Creating the metadata also leads to a GEM master record, which includes such fields as description, grade levels, subject headings and keywords, audience, pedagogy, and rights management. GEM is an excellent resource for educators to consult for instructional support materials on the Web and by including an institution's digital resources within GEM, broad accessibility is promoted.

Another important metadata initiative is the Multimedia Educational Resource for Learning and Online Teaching (MERLOT) database, a "free and open resource designed primarily for faculty and students in higher education." MERLOT was developed by California State University Center for Distributed Learning, and has attracted many partners. MERLOT uses an internally developed subject classification scheme, can be searched through a Web interface by keyword or by discipline. A key feature of MERLOT is its peer review function, which provides potential users with feedback on resources by subject experts. Although institutional membership in MERLOT is fee-based, individual membership is free and includes the capability to add resources to the database. Both individual and institutional members may enter comments on existing MERLOT resources and link local lesson plans to those contained already

in the database. This is consistent with MERLOT's goal to form discipline-specific communities to evaluate resources. At the time this ICHIM 2001 proposal was being drafted, the University of Arizona is negotiating an institutional membership in MERLOT.

COMMUNITY OUTREACH

One of the University of Arizona Library's 2000-2001 strategic goals is to make electronic resources more available to diverse populations. The *Through Our Parents' Eyes* website can be described as a rich, wonderful, educational, historical and uplifting Web exhibit for people of color who live in the Southwest and successful accomplishments in integrating the site into the student's curriculum and increasing community awareness do exist. However, more librarians and other advocates need to join forces to market this very special and unique information resource.

Minority Student Affair Departments

There are four major minority departments on the University of Arizona campus: Africana Studies, East Asian Studies, Mexican American Studies and American Indian Studies. The goals in working with these minority departments was to have faculty members incorporate web exhibits into their curriculum and/or link this information resource to their department website. Sending links of *Through Our Parents' Eyes*, with an abstract of some key selling points about the web exhibits to departmental faculty members was only partially successful. Certain faculty representatives from every Minority Studies Department meet regularly with cultural center directors. At the

University of Arizona, the library already has a strong connection to the cultural center directors on campus and representatives also meet with them regularly. Librarians are now often included on the agendas for faculty/cultural center director meetings and demonstrate the *Through Our Parents' Eyes* exhibit emphasizing specific steps on how faculty members can utilize this information resource. This strategy has been a complete success and it was found that faculty members react more positively when concrete examples and applications are provided during the presentation.

Another tremendous opportunity that resulted from the initial demonstration was the interest from cultural center directors. When the two cultural center directors saw the demonstration of *Through Our Parents' Eyes*, they both wanted to utilize the web exhibit at their cultural centers. This collaboration with the cultural center directors now includes introducing *Through Our Parents' Eyes* directly to the students. Overall, working with minority academic departments on campus has been a slow process, but with careful planning, the library is making significant strides for reaching people of color at the University of Arizona.

Historically Black Colleges and Universities

Another venue by which we have marketed the *Through Our Parents' Eyes* (TOPE) site is through our interactions with Historically Black Colleges and Universities (HBCUs). Providing a culturally enriching academic environment is among the goals and mission of these institutions. Through our presentations at

conferences such as the Annual Minority University-Space and Planetary Information Network meeting (MU-SPIN) and the Black Caucus of the American Library Association (BCALA) we have introduced this project to a range of personnel from librarians to professors, administrators and community leaders. We have presented TOPE to these audiences with a wide variety of ideas on how to utilize the site other than just as a component to their curriculum.

Most HBCUs have websites but few have truly integrated the power of the Internet to enhance either their curriculum or their student non-sport activities. We are in the planning stages of organizing a unit within BCALA to focus on HBCUs. This consortium would help develop projects, such as standards for the ratio of academic versus non academic content on individuals' web pages. Consequentially, cultural heritage websites, such as TOPE, that are of high value due to their content and qualitative use of innovative technology, will attain increased visibility.

As mentioned earlier the total potential of TOPE does not stop with its diverse content and innovative use of technology. This project as a whole provides a model for others contemplating or embarking on digitization projects that focus on cultural heritage. A case in point is the rich and unique archival collections of HBCUs (most of which are located in the southeastern United States) documenting the history of their home institutions. Although these institutions own a rich array of formats of cultural heritage materials, most have not provided any dynamic Internet access to them. Web exhibits on the history of HBCU's would provide information on the culture and history of the southeast much as TOPE does for the southwest. Unfortunately many of these materials are in danger of being lost forever due to the lack of funding for proper storage facilities and adequate preservation techniques. Digitizing these collections would not only create an educational tool but one that preserves an important part of the history of the U.S. southeast.

A fantastic example of some of the digitized treasures existing at these institutions is the website version of a traveling art exhibit entitled "To Conserve a Legacy." An exhibit composed of African American art from 6 HBCUs , it represents the work of HBCU students and faculty from the 1800s through the mid 1900s. *http://www.africana.com/exhibition/*. Many of these treasures had to go through rigorous restoration treatments due to high levels of deterioration. These works document the self-sufficiency and talents represented at these institutions during the period in American history following the Emancipation Proclamation of 1863. Digitizing projects such as this is another area that the HBCU consortium is examining for group action.

CONCLUSION
Through Our Parents' Eyes: Tucson's Diverse Community represents a vibrant merger of technology and cultural heritage that has attracted strong institutional support. Librarians at the University of Arizona have found it to be an excellent resource to promote an understanding of the contributions of

people of color and to attract participation in using the new technologies among members of the more traditionally disenfranchised groups. By adhering to appropriate standards, resources such as *Through Our Parents' Eyes* will become more readily accessible across the Internet.

ABOUT THE AUTHORS

Patricia Morris is a Science-Engineering Team member and has published articles on building an education vision, customer satisfaction surveys and serving minority students on university campuses. She has presented at meetings as diverse as the NASA sponsored MU-SPIN Annual Conference and the Internet Librarian International meeting in London. Her research interests include methods for collecting user data, assessing and improving classroom instruction and the integration of information literacy into post secondary education.
E-mail: *morrisp@u.library.arizona.edu*

Elaina Norlin is an alumni of the UIUC GSLIS Program (MS 1997). She works as an Undergraduate Services Librarian at the University of Arizona Library. Elaina is also a published author with national and international presentation experience. Elaina has a background in marketing and public relations and her interests lie in qualitative research, multimedia/interactive instruction, recruitment and library outreach.
E-mail: *norline@u.library.arizona.edu*

Stuart Glogoff has been responsible for the Through Our Parents' Eyes: Tucson's Diverse Community websites since the project's inception in 1994. He has held numerous regional and national positions, has regularly contributed to

the professional literature, is a frequent invited speaker at professional meetings, and has taught graduate and undergraduate courses for the University of Arizona and Pima Community College.
E-mail: *stuartg@u.arizona.edu*

Garry Forger is an Academic Data Specialist within the Learning Technologies Partnership Coordination Office at the University of Arizona.
E-mail: *gforger@u.arizona.edu.*