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# *Analog to Digital: Conversion of the Image Libraries at the City College of New York*

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*Ching-Jung Chen*

In 2003, when the Slide Libraries at the City College of New York were renamed the Visual Resources Libraries, the majority of faculty and students were still using slides for lectures and classroom presentations. Within three years, almost all have switched to digital images. This article outlines the relatively smooth transition from analog to digital at a public urban college campus, offering practical solutions and strategies on equipment, support, management systems, and digital image collections.

## **Introduction**

The two Slide Libraries at the City College of the City University of New York (CUNY) were renamed the Visual Resources (VR) Libraries in 2003 when the production of digital images began with scanning slides that already existed in the collection. Maintained by the Department of Art and the School of Architecture, Urban Design, and Landscape Architecture (SAUDLA), the two image libraries are not division libraries within the City College of New York (CCNY) library system. Rather, they are funded by and located within the Department of Art and SAUDLA, respectively, with completely separate administrations.<sup>1</sup> At the time of the title change, slides remained the principal business of both libraries. In fact, the majority of faculty and students were still using slides for lectures and classroom presentations a year later when Kodak announced its plan to discontinue production of slide projectors. The new titles, therefore, were more an accurate anticipation of future changes than a reflection of the current status. Within three years, the transition from analog to digital is basically complete. At present almost everyone at CCNY uses digital images for presentation, study, and research.

The way visual materials are used for teaching and learning has been dramatically transformed by advancing information technology. This digital revolution has stimulated voluminous publications, most of which focus on pioneering projects, emerging technology, and national and global standards.<sup>2</sup> This article discusses the practical issues experienced during such a revolution at a public urban college campus. By outlining the process used for a relatively smooth transition, I hope to offer solutions and strategies that might be useful for image librarians at institutions similar to ours that strive to move into the new digital age with limited funding and technical support.<sup>3</sup>

## **The Transition**

In the days when everyone used slides, art and architecture history professors spent long hours in the slide library pulling and organizing slides, most of which had been photographed from books. In addition to producing slides, the primary task of the library staff was filing the hundreds of slides circulated

every week. Attention to detail and dexterous fingers were essential qualities in the staff. The two slide libraries, funded by the Art Department and SAUDLA to serve their own faculty and students, were rather insular in their operations. The few faculty members outside of art and architecture who knew about the libraries needed special permission to use the collections.

The Art VR Library began digitizing slides in spring 2003, followed shortly by the SAUDLA VR Library. First a Nikon Super Cool Scan 4000 ED scanner and then a Konica Minolta DiMAGE Scan Elite 5400 scanner were used. Both produced good quality scans. However, they were not used too frequently because a large number of the slides were of poor quality. Instead, faculty members are encouraged to request images from books, which will be digitally photographed. Staff use either an Epson Perfection 10000XL or Nikon D200 camera, depending on the type and size of the images requested.<sup>4</sup> Both produce very good scans, and the production, which is driven entirely by faculty request, has progressed from a few hundred to several thousand a year. There has never been any thought given to systematically duplicating the existing slide collections in the digital format. The poor quality of the slides, limited staffing, and economic considerations all argue for licensing or subscribing to images whenever possible. At present the largest source of images for the digital collection is ARTstor, followed by Archivision.<sup>5</sup>

To manage the growing digital collections, staff tried various solutions from a flat file database on a personal computer to a server-based cataloging utility. No records were kept for slides produced before 2001, at which time new slide data began to be entered into a FileMaker Pro 5.5 database. Residing on a stand-alone computer, its primary function was to generate slide labels. In 2003, a relational database created with MS Access 2000, also residing on a personal computer, was designed for cataloging digital images. In the spring of 2005, SAUDLA purchased EmbARK Cataloguer and Web Kiosk<sup>6</sup> for cataloging and image delivery using the college's technology fee.<sup>7</sup> Server-based, it allows the records from the two libraries to be entered into a single database. This system, which is far more powerful and sophisticated than the previous experiments, took several months to set up.

Before EmbARK Web Kiosk provided a convenient delivery system, images had to be burned onto CDs for professors who needed them. Students had no access to those images. Now students as well as professors can access the collection from any computer connected to the Internet through EmbARK Web Kiosk or ARTstor. The latter is particularly convenient because, thanks to ARTstor's hosting service, it includes all our images from various sources including ARTstor, Archivision, and locally produced scans. For classroom presentation, MS PowerPoint is the preferred software. However, more and more faculty members are beginning to use ARTstor's Offline Image Viewer (OIV).

Professors and students no longer come to the image libraries for slides. Now they come for help with using the equipment, navigating the image databases, and putting together their presentations. With computers and digital projectors replacing slide projectors in almost every classroom, troubleshooting problems with electronic equipment has become the service requested most often from the image library staff. Library patrons also come for assistance with using the public scanner in the library, searching for images in the databases, editing images using Adobe Photoshop, and creating presentations in PowerPoint or ARTstor OIV.

### **Equipment and User Services**

While we have made mistakes, scrambled, and panicked during the transition to the digital library, we have been pleasantly surprised at the swiftness of the process. What we learned from our experiences is, first of all, to take initiatives. We did not wait until the teaching faculty were ready to start planning for the transition. In the late 1960s when 35mm slides replaced lantern slides for the teaching of art and architecture, many resisted the new medium, citing as a major obstacle the inferior quality of the 35mm slides. A similar argument is now made to resist the transition from slides to digital images. While it is true that the early digital images cannot match the sharpness and depth of slides, quality is not the real reason for the resistance. It is often the case that the teaching faculty are either nervous about unfamiliar and intimidating technology or simply unwilling to devote time to learning new tools when the old ones are working well. Therefore, library staff should take the initiative by making it easy for them to adopt new ways of doing things.

The equipment should be readily available to ease the transition. The turning point for us occurred in the summer of 2004 when the Art Department bought digital projectors for use in art history classrooms. Before this time, only one or two professors every semester would teach with digital images, and they were typically assigned classrooms outside the Art Department and needed to reserve projectors from iMedia, the college's central service for audiovisual equipment. After this purchase of digital projectors, over half the teaching faculty switched to teaching digitally in the fall of 2004. At that time no classrooms were permanently equipped with projectors and computers; a sturdy and lightweight cart with a projector and a computer worked very well. In the beginning the projector was paired with a laptop computer. After the laptop and projector, both locked to the cart, were stolen from a classroom, we switched to a desktop computer instead. Professors used the projected image instead of a monitor. This configuration can be put together inexpensively and presents less of a security risk.

The theft occurred in a classroom that was used all day every day for a core requirement course, causing serious scrambling on our part. This incident highlights the importance of having a backup. A spare "smart cart" is very useful in cases of a burned-out bulb, failed equipment, and theft. This is especially important for smart classrooms—the more complicated the system is, the longer it takes to resolve any problems.

Proficiency in using computer equipment becomes a critical skill for the visual resources staff, who typically feel a lot more comfortable dealing with art than computers. It is important to be willing to learn and to be creative in getting assistance. Reading manuals and playing with the machines provide us with most of the requisite skills. When we cannot find a solution, we ask for help from anybody who might know the answers. In addition to the departmental technical support staff, we have called upon, for example, the library, iMedia, the Department of Communications and Media, and other local visual resources libraries. Manufacturers and vendors are another good source of information. Once when an outside technician who charged \$100 an hour failed to identify the cause of poor image quality in a smart classroom, we figured out the problem with information queried from campus tech support and projector manufacturers.

Even more important than having projectors readily available is to make it easy for faculty to use them. Over the years, staff members have organized workshops on MS PowerPoint, Adobe Photoshop, and ARTstor. Workshops are, however, most effective at promoting new technology, making people aware of what those tools can do. Many faculty and students prefer, and need, one-on-one training sessions geared for their specific requirements. In other words, they need to have their hands held venturing into the digital world. At the City College of New York, faculty and students alike can make appointments with VR Library staff for help relating to the use of digital images, from the most basic task of downloading images from the Internet to scanning, navigating databases, and preparing presentations in PowerPoint or ARTstor OIV. This popular service, which provides a relaxed environment for library patrons to develop new skills at their own pace, is instrumental in faculty adoption of digital images. One of the last art professors to switch to digital not only donated to the library the images he photographed with a digital camera during two recent research trips to Istanbul and India, but he then spent hours helping us to identify those images.

### **Collaborations**

Collaboration begins with engaging the teaching faculty, whose input is valuable and support is critical in developing new projects successfully. To sell the digital plans effectively, staff must articulate the grand visions as well as suggest small steps in the new direction. A transformation as dramatic as the one we undertook cannot succeed without the partnership of the teaching faculty.

Given the high cost of developing and maintaining a digital image library, often the only way to secure sufficient funding is to work with units outside the individual department. At the City College of New York, for example, it took the combined efforts of the Library, SAUDLA, and the Division of Humanities and the Arts to secure funding for the ARTstor subscription.<sup>8</sup>

Opportunities for collaborations extend beyond funding support. Transitioning to digital opens up the possibility of

consolidating the various image collections on campus into one single database accessible to all. At present, the City College's image database includes images from the two VR Libraries, Archives and Special Collections, and the CCNY Artistic Properties Collection. First created in 1997, the digital components of the Archives and Special Collections were added into the system on a limited scale beginning in the summer of 2006. The entire content of the Artistic Properties Collection, art works that had been acquired by the college over the years since 1852, is already part of the EmbARK system and will be available through ARTstor hosting service in 2009.

Outside the campus, the City College has begun sharing images with several campuses within the City University of New York system. In December 2006, art historians and librarians from four CUNY senior colleges—Brooklyn, Baruch, Queens, and City—met at Brooklyn College to explore opportunities for collaboration. Participants agreed that the four colleges would share their locally produced scans through the ARTstor hosting service and make their collections available to any junior colleges that subscribe to ARTstor. In addition, the participants have been working to establish metadata and scanning standards to facilitate resource sharing.

## Standards and Best Practices

Standards are of great importance in setting up digital image collections. A slide, residing in one drawer within one single facility, cannot be shared among different collections. The purpose of slide classification is for the small number of users to find any particular slide easily. While slide librarians can, and often do, function in isolation, digital image librarians work as members of an expanding network. Following best practices is essential not only for resource sharing, but to ensure that the system in place will survive the rapidly advancing information technology to serve users into the future.<sup>9</sup>

Since the ARTstor hosting service will be the delivery tool for all of our images, we follow its guidelines in both image capture and metadata standards.<sup>10</sup> Standards for scanning are relatively straightforward—capture in high resolution and save in an archival format so that the image will be preserved and display well for the future. The images are either 3200 pixels on the long side if scanned from a scanner, or a bit smaller if captured with a digital camera. For metadata, we adopt a simplified version of ARTstor core due to the constraint of available staffing. While we choose speedy cataloging over ideal practice, we make sure the system allows for easy expansion in the future by following a widely-used data structure standard.

The importance of striking the balance between functionality and sustainability is most clearly borne out by our experiences with different software. Since we have to rely on the existing technical support staff for the increased needs of the digital library, software has to be carefully evaluated for the level of technical support required. The limited technical support staff at the City College is not equipped to provide extensive customization of any vendor product. Therefore, open source software—such as MDID developed by the Madison University in Virginia and Almagest developed by the Princeton University—is not a viable solution for us.<sup>11</sup> EmbARK Cataloguer and Web Kiosk have been working quite well, thanks largely to the excellent technical support provided by the annual maintenance plan. A promising

option for the future is ARTstor's cataloging tool, scheduled for release in April 2009. This Web-based, intuitive software, the technical aspects of which will be handled by ARTstor, should provide an excellent tool for ARTstor subscribers.

## Future Plans

Reflecting the changing roles of the image libraries, the Art VR Library is in the process of reconfiguring its space to replace slide cabinets and light tables with computer workstations. When it moves to a new building in 2009, the SAUDLA VR Library will occupy a space totally redesigned from its original plan drawn in 2002 that features a state-of-the-art digital imaging lab where flat-bed scanning, digital photography, and image editing take place in a light-controlled environment.

Equipment service will become the most visible part of the daily operations. Demands on projectors and related services will continue to grow as digital presentations gain widespread use, attracting far more users than slides in the past. The challenge, in addition to ensuring smooth equipment circulation, will be to promote specialized image databases for study and research. At a time when many fine art images can be obtained freely from the Internet, we need to convince library patrons of the value of building scholarly resources and the reward of searching beyond Google Images.

## Conclusion

What does it take to guide a smooth transition from analog to digital? First of all, be proactive, taking initiatives in planning for the transition and promoting the new image library. Second, provide services to make the changes as easy as possible for the faculty. Effective retrieval of digital images depends on sound cataloging and database systems. It is imperative to keep up with the advancing computer technology and evolving cataloging and database standards. In addition, the ability to develop new skills is absolutely essential.

The digital image librarian cannot work in isolation. It is vital to create opportunities for partnership within and beyond the campus. Many image libraries in the United States are located within and funded solely by the art or architecture department. While the two VR Libraries at the City College remain departmental libraries, they have become an integral part of the college in serving the image needs of the entire campus. This is the key to their successful transition to the digital world.

## Notes

1. Since 1996, the two VR libraries have both been headed by a single member of the City College library faculty. The visual resources librarian manages the two VR libraries with staffing provided by the respective programs. She splits her time between the two libraries and is assisted by the equivalent of one full-time worker in the Art VR Library and two and one-half full-time staff in the SAUDLA VR Library.

2. For a review of literature on visual resources librarianship, see Joan E. Beaudoin, "Visual Materials and Online Access: Issues Concerning Content Representation," *Art Documentation* 26 (2007): 24-28.

3. For the development of digital collections in some of the best-funded universities, see Georgia Harper and Elizabeth

Schaub, "Digitizing, Licensing, and Fair Use: A Case Study in Transition Strategies for Image Collection Conversion," *VRA Bulletin* 34 (2007): 79-88.

4. We had also used an HP Scanjet 7400C, Epson Perfection 4990, and a Nikon D70 before settling on the current scanner devices.

5. Archivision is one of the most comprehensive sources of architecture images. Since 2007, its digital image collections have been conveniently accessible through ARTstor. See <http://www.archivision.com> for more information. CAMIO, OCLC's Catalog of Art Museum Images Online, is another art image database to which we would like to subscribe. See <http://camio.oclc.org>. For discussion on image vendors, see Deborah K. Ultan Boudewyns, "Licensable Digital Image Collections: The Impact on Art Library Collections, Acquisition Practices, and the Research Environment," *Art Documentation* 26 (2007): 37-39.

6. EmbARK is a suite of software tools developed by Gallery Systems to catalog and manage image collections. See <http://www.gallerysystems.com/products/embark.html> for details. LUNA Insight, which combines cataloging, classroom presentation, and online delivery in a powerful package, is another popular software among visual resources libraries. See <http://www.lunaimaging.com/insight/index.html>.

7. The technology fee is a fee collected from all students to fund technology-related projects. Proposals are evaluated by a committee chaired by the assistant vice president for information technology.

8. For details on our efforts to secure the ARTstor subscription, see Ching-Jung Chen and Sydney van Nort, "Image Collections at the City College of New York: Collaborative Efforts at a Public Urban College Campus," *VRA Bulletin* 35 (Summer 2008).

9. See <http://www.vraweb.org/resources.html> for resources on best practices. For discussions on metadata standards, see John Attig, Ann Copeland, and Michael Pelikan, "Context and Meaning: The Challenges of Metadata for a Digital Image Library within the University," *College and Research Libraries* 65 (May 2004): 251-61.

10. *ARTstor Scanning Specifications*, May 2006, and *ARTstor Core: Data Dictionary and Cataloging Guidelines for Use with Institutional Collections in ARTstor*, 2007.

11. See <http://did.cit.jmu.edu> and <http://mdid.org/> for details on MDID, an online image database and multimedia instructional system. For information on Almagest, a relational database and lecture building tool for the storage, cataloging, and display of images, text, video, sound, and other file types, see <http://www.princeton.edu/~almagest/opensource>.

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