This paper describes the development of a World Wide Web site in an art history class at the University of Tennessee. The first section of the paper discusses digital technology in the art history classroom, including a comparison of the quality of digital images with slide projection. The second section describes a Web site created for a history of photography class that includes images, articles, a syllabus, reading list, and definition of terms. The next section addresses challenges in creating the site, including the instructor's lack of knowledge about creating a Web site, the amount of time involved, and cost; student involvement in order to overcome some of these obstacles is also covered. Copyright, specifically the legality of reproducing images and articles on the Web, is considered in the fourth section. The fifth section discusses student feedback and presents results of a poll of the class to determine use of the Web site, including frequency of use, method of access, and general response. It is concluded that the project was a success for all concerned. (MES)
Abstract:

How does one make use of the remarkable technological opportunities available and yet maintain those cherished traditional values inherent in the classroom setting? An intriguing solution has been to make an Art History web site available to students that prepares them for active participation in the classroom. Moving beyond a passive presentation of information, the site contains interactive reading assignments, images previously shown only in the classroom, and various study aids. Students played an integral role in the creation of the site, ensuring its practicality.

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Digital Technology in the Art History Classroom

Digital technology to enhance art history courses has always held intriguing possibilities. As one might expect, art historians rely, perhaps more than any other discipline, on visual aids. Accepted practice has been to dim the lights at the start of class and show slides of works of art throughout the lecture. Although this has been proven as a highly effective method of presenting the material, particularly when comparing and contrasting works is desired, it should come as no surprise that an investigation of digital imagery has become a primary concern among slide librarians and art historians. Despite the obvious advantages of minimal storage space and easy retrieval, however, projection of digital imagery does not compare favorably to slide projection. Slides are more luminous, contain more detail, and the pixelation of digital imagery is distracting. Because of the poor quality of projected digital images, we have generally shied away from classroom use of this new technology. Yet, increasingly, there are programs available that are so helpful in other areas, despite the poor visual quality, that they warrant use. For example, the Vatican has produced a program that enables one to travel through the rooms of the Papal Palace. For the first time, students in Knoxville, Tennessee can stand in the virtual room of the Stanza della Segnatura, turn around,
and view the frescoes on four walls. They can also walk through the door into the adjoining room and see those frescoes on the walls and ceiling. As you can see, however, there are some difficulties with this program. The menu is quite distracting and the resolution is poor, making moving through the rooms rather mechanical and jerky. Nevertheless, with this type of program students can experience a truer sense of Renaissance frescoes and their placement in the rooms. It is not hard to imagine future programs that will take us on a tour through the flowing rooms of a Frank Lloyd Wright house or the soaring cathedrals in Europe. At the moment, however, the emerging technology has only slightly improved the plight of an art historian showing reproductions of art work.

The Art History Web Site

For this reason, we decided that perhaps the best use of current technology would take place outside of the classroom, so a student could prepare for, and review, material presented in the lecture. Although art historians show many images in the classroom setting (often times thirty or more slides each class), students have little opportunity to see them beyond their presentation in the lecture. Placing slides on a light table for students to view is impractical for forty students taking any one art history class. The images are, of course, too small for several students to view at one time; and projecting single images does not accommodate those who need to look at different slides. As a result, students have generally been held accountable only for those limited works of art that are accessible to them through a reproduction in their text.

We have resolved this problem in our History of Photography class by placing all the images shown in class on a web site. Students need only click on the gallery and find a menu that contains the many artists discussed in class. Each artist has a list of images under his or her name. With a click of the mouse, the photograph can be brought up to a full screen complete with title and date. Should they need to review a comparison that was made in class, they can bring a split screen up so that two images can be accessed side by side.

Throughout the semester, reading assignments have traditionally been distributed with the intention that they will be discussed in the following class. Placing those articles online has allowed us to contribute to the depth of understanding expected of the student. The articles are often written by photographers whose work can be accessed by clicking on their name, bringing you again to the gallery containing their work. Specific images can be accessed throughout the article whenever they are mentioned, as can definitions for the technical terms. At the end of each article are questions to help the student prepare for discussion in class. These questions are broad in nature and allow students to interpret what they have read. The site also contains a syllabus, reading list, and definition of terms.

Creating the Site

The construction of the site presented us with many challenges. I had never created a web site, or even visited them very often, and my knowledge of the process, and the obstacles, was quite archaic. In fact, most of my students had a better understanding of the web than I did and so I was led to them in my quest for rudimentary knowledge. I quickly became aware that their insight would be essential to the success of
the site. Under the guidance of our Visual Resources Specialist, Sandra Walker, I entrusted the design of the site to the very student body that would use it.

At the University of Tennessee we have a unique situation where our Graphic Design students undertake professional assignments. The Art Department Design Center was developed to give students supervised professional experience in design. Projects are presented to the class from the business community or from within the university. The Design Center operates like a design firm. Although there is no charge for the final product, students are requested to behave in a professional manner when associating with their clients. I presented my project to the Design Center with the hope that these students, several of whom had taken my class, would develop a user-friendly site that was also helpful. The response was quite positive and so I went about writing up a proposal that included the essential ideas I wanted to incorporate into the site. Primary among these ideas was that the site make available for review all the images shown in class. Initially, we considered posting the images week by week according to what had been presented in lectures. After much discussion, however, we rejected this idea primarily because some members of the Design Center committee suggested that this might discourage students from coming to class. In an admirably frank way, they admitted that if they knew the images were available in a weekly package they would be more likely to miss class, use someone else's notes, and try to match them to the images. Of course, this can also be accomplished in the present gallery system; however, ease of accessibility, they felt, would become an incentive to stay away from class.

Another obstacle that presented itself to us was that of labor. This became an especially acute problem when we realized that it took approximately ten minutes to scan and adjust images for the site. The time-consuming process of scanning over five hundred slides seemed prohibitive and likely to postpone the project until such time was available. Once again, however, we turned to the student body for a solution. Many students had expressed interest in working on the project because of the practical web experience involved. The more complex work with HTML coding and links was undertaken by two Library Science practicum students who had expressed a keen interest in distance learning. These students created much of the layout for the pages as well as many of the links between pages. Each article was typed into the system because we had not had much success with scanning the articles and then creating links to the images. Our knowledge of HTML coding was limited so we used the extremely informative site at Case Western Reserve University that explains, in layman's terms, how to utilize the coding.

The cost of this venture was also a challenge for us. Our department, like most Art Departments, did not have ample funding for technological innovation. Regardless, we were able to create a remarkable site with limited resources. We used our Zenith PC (purchased by the department a few years ago to service all five art historian's needs!) with Windows95 and Netscape 2.01. The graphics were created with Adobe and WordPerfect software. Images were scanned with a Polaroid Slide Scanner and stored on an external Zip disk. The site was then loaded onto the university UNIX mainframe, on personal space provided to professors for their own web site, for use by those students in the class.

Perhaps the most complex issue we struggled with was copyright. The legality of reproducing images and articles on the web for educational purposes is, at the moment, unresolved. For years, professors have made copies of articles and shown slides in a classroom under the assumption that, in a nonprofit educational setting, these practices fell under the "fair use" clause of the Copyright Act of 1976. This
clause, however, was meant primarily for textual works and has little applicability to visual materials or to digital reproduction of those materials. The ongoing debate may come to a satisfactory conclusion soon as the Library of Congress concludes a six month study that was mandated by Congress through Section 403 of the Digital Millennium Copyright Act enacted October 28, 1998. The Library of Congress's recommendations, which may include legislative changes, will be submitted to Congress no later than April 28, 1999.

As a part of this study, on Tuesday, January 26th, Virginia M.G. Hall, Senior Information Technology Specialist for the Humanities at Johns Hopkins University and co-chair of the Visual Resources Association Intellectual Property Rights Committee testified at the Library of Congress hearings as to the insufficiency of the Copyright Act of 1976 in covering transmission of digital images. As she explained: at that time "distance education was defined according to the technology of the time: primarily closed circuit television broadcasts to overflow classrooms, with the requirement that such teaching technologies be face-to-face or synchronous." Accessibility to a web site would seem to conflict with that definition. New fair use guidelines should apply, she concluded, to new digital practices:

"In real-life digital practice, distance education is a term used broadly to include a range of instructional concepts from courses taught completely on-line, with little or no true face-to-face contact, to selected enhancement materials placed on a web site by a professor for students to view. Generally speaking, the term distance education as applied to digital media should cover any course related material that is intended to be accessed via computer."(10)

Ms. Hall also brought to light an important aspect of the art historian's classroom that for years has pertained to slide libraries. Namely, that the works of art we show in class are often of an esoteric nature, little-known images which "typically have inconsequential commercial value and even less general market interest and are therefore unlikely to be targeted for licensed distribution."(11) She concluded that fair use should not be restricted in any way for digital media. She did concede, however, that availability may be limited to students registered at the institution and enrolled in the course; and that it is fair to require some measure of security such as a PIN or password to course materials protected by copyright.(12) We recognize the importance of complying with the spirit of the Copyright Act and have incorporated a password system onto our site. This was a relatively easy adjustment and, in fact, the software, called Codelink, was shareware available from Silk Webware.(13) Because we wanted to keep our attractive graphics and make the first page accessible, without a password, to all students who would like to preview the syllabus and use the links to the Art Department, the images on the first page were either taken by our Professors of Photography or are part of my own collection and thus copyright is not an issue.

Ms. Hall's effect on final legislation is yet to be determined; however, most academics would applaud her clarification of the fair use issue and agree with her summation in which she quotes the Copyright Office's General Guide to the Copyright Act of 1976:

"... the primary purpose of copyright legislation is to foster creation and dissemination of intellectual works for the public welfare..."(14)
The College Art Association has also filed comments with the Copyright Office. They have systematically taken issue with some points of the 1976 Copyright Act. A crucial point for them is one that Ms. Hall had also addressed: the fair use provision that considers "the amount and substantiality of the portion of a work used in considering whether the use is fair.\(\text{(15)}\)"

Although this seems appropriate for literary works, it does not make sense when considering the study of the visual arts. The art historian must have access to the entire work of art. All of us would agree that showing only a portion of Michelangelo's *David* or Titian's *Venus of Urbino* would not be very helpful. As mentioned earlier, professors have been using slides for many years in the classroom. Digital images are simply what the most recent technology has to offer and should be treated in the same manner as other fair use material. Professors must be free to propagate knowledge using the best technology available to them and non-profit educational institutions must be secure in their belief that they will not be sued if they pursue the goals of their charter using the newest technology.

Indeed, the copyright issue has already curtailed the progress of education. The College Art Association has explained that institutions everywhere have "fundamentally limited the quality and breadth of academic programs for fear of lawsuits and, in some cases, have been prevented from embarking on digital projects."\(\text{(16)}\)

It should be stressed, once again, that commercial vendors are not a viable option because of the esoteric nature and breadth of material that a professor might use in the classroom. Much of the material is simply not available, and undoubtedly will never be available because of its unprofitable use. Should an institution limit its curriculum according to the few options available in the commercial market place?

The conclusion of the College Art Association is, I believe, one that should guide the ongoing discussion as to how to resolve the copyright issue:

"that the traditional classroom and the traditional relationship the student has with the learning process should serve as the paradigm for the exploitation of new educational media and processes."\(\text{(17)}\)

Student Feedback

Student feedback has been very positive and my initial misgivings about use of the site were allayed almost immediately. To ease the transition into text and image online, I made available paper copies of the first assigned article, suggesting that those who were hesitant to use the site could still read the material on a hard copy. Only one student obtained the paper copy, and it was unnecessary to provide them again. Shortly after the midterm, we polled the class to determine their use of the web site. The approximate percentages of that poll are as follows:

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<th>Frequency of use</th>
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6
1) 100% of those polled had used the site for study and review
2) 60% had used the site once a week
3) 10% had used it several times a week
4) 10% had used it before every class to prepare for class
5) 20% used it less than once a week

Accessing the site
1) 30% accessed the site at computers at the main university library
2) 40.5% accessed it from a computer lab on campus
3) 40.5% through a modem connection from a home computer or dorm room.

General response
1) 100% of those who responded felt that the web site helped them study for the class
2) 83% stated that they would be more likely to select a course that included similar web sites for study and review

The project was a success for all concerned. Student response was extremely favorable and we were encouraged to continue to put our art history courses online. This initial site was time-consuming and labor intensive with much trial and error. (In fact, our Visual Resources Specialist is hoping I wait until she retires before I pursue another course!) Everyone involved agrees, however, of the merit of the venture, and result, and would like to see all of our art history courses online. Cost is no longer a prominent factor, now that the software has been purchased, and consists mostly of labor and storage disks. The learning experience of creating the site was invaluable. The student who created most of the graphics is now gainfully employed in an organization that designs web sites, and one of our practicum students is now working at the Metropolitan Museum of Art helping to digitize their images. We seem to have stumbled across, for this brief shining moment, a win-win situation.

References
1. Raphael: An Artist for the Vatican. Films for the Humanities and Sciences, 1997. System requirements include: MS DOS operating system version of Windows 3.1, 3.11, or 95; a multimedia PC or compatible with a 486 DX 66 MHZ processor or higher (Pentium recommended); 8 MB of RAM (16 MB of RAM recommended) 4 MB of available hard disk space; SVGA monitor (640x480, 32,000 colors or higher); double speed CD-ROM drive minimum (300 Kb/sec); windows compatible sound card;
speakers/headphones; mouse.


3. Software provided with the Polaroid Sprintscan 35 LE previewed each slide to be scanned and then scanned the image. We chose to scan at 72 dpi. The scanned images were saved as JPEG files and then opened in Adobe Photoshop. For the black and white images, the color information was removed to make the file smaller and the "auto function" was used to sharpen the image. Color photos were more time consuming because of the color shifts that often occurred. In one instance, for example, a sepia toned image took one half hour to complete. The final image was saved as a JPEG file. Then the file was copied to the university web server site from a Zip disk using file transfer protocol (FTP).


5. We used the Zenith, Z Station, multi-media PC (pentium) with a minimum of 32 MB of RAM. Windows95 was used in conjunction with Netscape 2.01 (although we found that Netscape 4.0 is more flexible and offers more features).

6. Adobe Photoshop was used to manipulate the images, and Wordperfect 5.2 was used for the text.

7. The Polaroid Sprintscan 35 LE was used because it was compatible with the plastic mounted slides of our slide library. Other scanners we considered have difficulty with slides that are not paper mounted and also do not open up if a slide becomes jammed.

8. The university campus is wired with the fiber optics ethernet cable system. It was possible to work on the site from my phone modem at home; however, the process was much slower.

9. The text of this testimony was e-mailed to members of the Visual Resources Association, of which our Visual Resources Specialist is a member. Testimony of the hearings are available at <"http://lcweb.loc.gov/copyright/disted/>.

10. Ibid.

11. Ibid.

12. Ibid.

13. Code link from Silk Webware is Java Shareware. The file size is 61.1K and it is available in version 4.1 at:

<http://www.download.com/pc/software/0,332,0-48824-s,1000.html?st.dl.redir.txt.tdtl>


15. Comments of the College Art Association were submitted to the Library of Congress, Copyright Office by Robert A. Baron, Kathleen R. Cohen, and Jeffrey P. Cunard. The text of these comments is available at <"http://www.pipeline.com/rabaron/CIP/CAA-DxEd.htm>. The College Art Association is located at 275 Seventh Avenue, New York, New York 10001.


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