1998

Faculty perspective on teaching with digital images : results of focus groups

Lena Stebley
San Jose State University

Follow this and additional works at: https://scholarworks.sjsu.edu/etd_theses

Recommended Citation

Stebley, Lena, "Faculty perspective on teaching with digital images : results of focus groups" (1998).
Master's Theses. 1775.
DOI: <https://doi.org/10.31979/etd.e4aq-u75e>
https://scholarworks.sjsu.edu/etd_theses/1775

This Thesis is brought to you for free and open access by the Master's Theses and Graduate Research at SJSU ScholarWorks. It has been accepted for inclusion in Master's Theses by an authorized administrator of SJSU ScholarWorks. For more information, please contact scholarworks@sjsu.edu.

INFORMATION TO USERS

This manuscript has been reproduced from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps. Each original is also photographed in one exposure and is included in reduced form at the back of the book.

Photographs included in the original manuscript have been reproduced xerographically in this copy. Higher quality 6" x 9" black and white photographic prints are available for any photographs or illustrations appearing in this copy for an additional charge. Contact UMI directly to order.

UMI

A Bell & Howell Information Company
300 North Zeeb Road, Ann Arbor MI 48106-1346 USA
313/761-4700 800/521-0600

**FACULTY PERSPECTIVE ON TEACHING WITH DIGITAL IMAGES:
RESULTS OF FOCUS GROUPS**

A Project Report

Presented to

**The Faculty of the School of Library and Information Science
San Jose State University**

In Partial Fulfillment

of the Requirements for the Degree

Masters of Library and Information Science (MLIS)

by

Lena Stebley

December 1998

UMI Number: 1392840

UMI Microform 1392840
Copyright 1999, by UMI Company. All rights reserved.

**This microform edition is protected against unauthorized
copying under Title 17, United States Code.**

UMI
300 North Zeeb Road
Ann Arbor, MI 48103

© 1998

Lena Stebley

ALL RIGHTS RESERVED

APPROVED FOR THE SCHOOL OF LIBRARY AND INFORMATION SCIENCE

Dr. Blanche Woolls, Committee Chairperson

Dr. Ruth Hafter

Dr. Linda Main

APPROVED FOR THE UNIVERSITY

Abstract

FACULTY PERSPECTIVE ON TEACHING WITH DIGITAL IMAGES: RESULTS OF FOCUS GROUPS

by Lena Stebley

This study examines both the obstacles to and the advantages of teaching with digital images and its impact on visual resource professionals. The primary research data were gathered from focus groups held in February 1998 at the College Art Association (CAA) Annual Conference in Toronto. The focus groups were part of a larger study funded by an Andrew W. Mellon Foundation grant provided to the University of California, Berkeley to study the costs and benefits of the networked distribution of digital museum information for educational use.

The focus groups revealed that visual arts faculty were enthusiastic about the potential of using digital images in teaching, but there were serious impediments to widespread faculty use of digital image technology. The dominant issues in both focus group sessions were technical support and training, tools (software and hardware), and time commitment.

Table of Contents

I. Introduction	1
II. Literature Review	4
III. Methodology	33
IV. Conclusion	43
 Bibliography	 50
 Appendix A: Focus Group Questions	 54
Appendix B: Questionnaire and Informed Consent Form	57
Appendix C: Focus Group Participants - Questionnaire Responses and Brief Summary of Overall Concerns	59
Appendix D: PowerPoint slides from Conference Presentation	68

This project report outlines a study that examines both the obstacles to and the advantages of teaching with digital images and its impact on visual resource professionals. The primary research data were gathered from focus groups held in February 1998 at the College Art Association (CAA) Annual Conference in Toronto. The focus groups were part of a larger study funded by an Andrew W. Mellon Foundation grant provided to the University of California, Berkeley to study the costs and benefits of the networked distribution of digital museum information for educational use.

I. INTRODUCTION

Digital image technology is the most significant new technology in the visual arts. Digital images (which are stored, accessed and presented with the use of a computer) are being used for educational purposes in conjunction with traditional analog media such as slides, photographs, and video. While emulating the function of slides as a medium of reproduction, digital images encourage innovative ways of thinking about art history. Indeed, the rapidly changing nature of this technology is affecting the very methods art history is taught; the role of visual resource providers (sometimes referred to as slide librarians) is one of many traditional aspects that are undergoing fundamental changes. Yet there remain many barriers to the wide-scale use of digital images among university faculty. Certain obvious obstacles were not examined in any depth in this study due to their relative complexity and the limitations of time. Principal among these obstacles was the topic of intellectual property. Copyright and fair use in the digital realm are hotly

debated by exponents and critics, and the outcome will have far-reaching implications on current and future digital image projects. Cost is another significant issue. Some less than incidental expenses incurred in the use of digital images within a networked environment include costs of conversion, acquisition, equipment, training, and technical support -- just to name a few. There is also the question of how these costs will be allocated in the university. Will individual departments assume the costs or will the library? Many slide libraries will function in the interim period as "hybrid" libraries offering both analog slides and digital images. What will it cost to function as a hybrid library? (The issue of cost was examined in the larger Mellon grant study and will not be addressed in this study.)

Perhaps the most interesting perspective is from that of the user community -- visual arts faculty. Understanding the needs of faculty end-users is essential to answer the basic question "if we build it, will they come?". This is a critical issue that is clearly impacting digital image distribution projects that followed the MESL project, such as AMICO (Art Museum Image Consortium, <http://www.amn.org/AMICO/>) and MDLC (The Museum Digital Library Collection, <http://www.museumlicensing.org/>). These consortia intend to deliver digital images to educational institutions and information about the needs of the end-user is critical. This involves understanding what faculty need in order to teach with digital images in the classroom and discovering what the differences are in teaching with digital images versus analog devices such as slides or videos. Seeking these answers requires a means of gathering qualitative data that does not limit the

responses of faculty to a set of proscribed questions such as a survey questionnaire. We chose focus groups as the method of researching these issues.

This study concentrates on qualitative issues raised by users and prospective users of the technology. Data to support the study were gathered from focus group interviews. Some of the questions we sought to answer in the focus groups included: What will any given faculty demand as a requirement to use digital images to teach? What are the perceived barriers and proven advantages to using digital images? Do the problems go beyond issues of infrastructure? Why aren't faculties jumping on this state-of-the-art technology? What needs to be in place for wide-scale adoption of this technology? These are the fundamental concerns of this research project. Supporting data for my study comes from observations from Beth Sandore's MESL-supported pre-and-post classroom survey of faculty and students using MESL images (Sandore, 1997). I examined the results of a recent survey (Corbetta-Noyes, 1998) of faculty and slide curators on using digital images in the classroom. I compared my findings to transcripts from a discussion on MESL impact among MESL project coordinators at the final participants' meeting held on May 20, 1997 in Charlottesville. I also compared my findings to Eileen Fry's study of art history slide librarians and faculty (Fry, 1998, listed in the literature review under Irvine, 1979).

II. LITERATURE REVIEW

Interest in the use of digital images in the visual arts has appreciated greatly over the past ten years. Given the wide range of interest in the capacity to preserve and contain visual information in a digital medium, many digital image projects have been initiated with varying degrees of success. Digital image technology offers a means of broadening access to cultural heritage data, but many issues impede the widespread adoption of digital image technology in teaching.

Visual resources are no longer limited to a one-dimensional, proprietary medium, such as a slide, photograph, video, or other analog device. Digital images can be shared and accessed by many users from a central networked server unlike slides which are physically bound to one location. In a networked environment, the same digital images can be accessed by faculty, students, and other users simultaneously. Multimedia is making its way into the mainstream of teaching, and distance education is emerging as an alternative or enhancement to teaching in the classroom. Image databases have evolved rapidly over the past decade as a result of technological developments and the commitment of users and developers to expand traditional methods of organizing and presenting images.

We now take it for granted that it is possible to store and manipulate an image without specialized hardware. Only ten years ago, the hard disk was introduced in PCs

and 640K RAM was the standard. Networks were slow if you were fortunate enough to have access to one. Visual display devices required special cards for 8-bit, 256 color display. Scanning an image or object could take up to 45 minutes and user interfaces were difficult to use and often required transferring data between several machines to view and manipulate images. Only fax machines had a widely accepted compression standard for images and client-server architecture was not common. Technological advances in all these areas resulted in a surge in image database development. (Besser 1996a)

We are still at the tip of the proverbial iceberg in addressing the challenges posed by digital technologies, and the potential for distance education. The profound impact of the Internet and proliferation of World Wide Web applications was not fully anticipated and was perhaps the most significant technological transformation of this decade.

Digital imaging is not a formal field of study and literature concerning its practical application spreads across several disciplines, from computer science to museum studies. Procedures and industry standards are still being defined even as advances in the field enable commercial interests such as museums to collaborate with universities in harnessing this new technology. The Commission on Preservation and Access has taken the lead in establishing standards and guidelines for the use of imaging. With the health of their research record at stake, university research libraries have assumed the lead in bringing digital technology to libraries for all fields of study. The Getty Information Institute has shown its commitment to improving access to cultural heritage data by sponsoring several

monumental art databases and a standard catalog for describing works of art. The Getty makes this information accessible via the internet. The Getty Information Institute sponsored a pioneering two-year project, The Museum Educational Site Licensing Project (MESL) that explored the legal, technical, and practical issues involved in using digital images for educational purposes (MESL Project, <http://www.gii.getty.edu/mesl/>). Our study examined implications of the MESL project and sought to determine the cost of digital image distribution with a focus on the social and economic implications of the production, distribution and usage of image data. My area of the study examined visual arts faculty's perspective on teaching with digital images. In order to study the cost of digital image distribution, it is necessary to first determine whether faculty, as end users, will use digital images and what the impediments might be to their use. My study presented the findings of focus group interviews with visual arts faculty about using digital images in the classroom.

While we are still in the early stages of development for digital image technology, it promises to offer new opportunities for librarians in research libraries, visual resource centers, and museums. There is significant evidence that the role of the slide librarian has broadened dramatically. While the fundamental role of the librarian as an expert organizer and provider of information has not changed, digital image technology raises many issues that will have to be resolved, not the least of which will be to gain "buy-in" from faculty to use digital technologies.

During the course of my studies at SJSU, I have examined issues that are relevant to this study which include copyright and fair use, and the topic of digital imaging. I have included literature on the technical issues of digital imaging as this literature formed the basis of my early interest in the use of digital images in teaching and ultimately informed this study. In preparation for this study on visual arts faculty's perceptions about teaching with digital images, it was useful to examine a range of relevant topics including existing digital image databases, the use of distance education, the use of multimedia in educational environments, and the practice of art historians and slide librarians.

The following literature review is organized beginning with articles on digital imaging, followed by a brief section on technical issues and methodology. The review turns to literature on the practice of art historians and slide librarians, and then focuses on specific uses of digital images such as using digital images in the classroom, multimedia as a teaching tool, and the related topic of distance education. This is followed by works about image databases and the use of digital image technologies. The review concludes with practical guides on conducting focus groups.

Digital Imaging and Information Management

Besser, Howard. (1991). Imaging: fine arts (Getty Art History Information Program). *Journal of the American Society for Information Science*, 42, 589-96.

Besser is concerned with two facets of imaging activities in fine arts: retrieval and display of surrogate images from a collection; and activities to restore, preserve, or conserve original objects. Besser presents a thorough and engaging discussion addressed to arts administrators and relevant to librarians in the visual arts. He mentions a single study done with art historians to determine an appropriate level of image quality, and calls for further studies with a broader scope. He asserts that increased access to images of art objects is likely to lead to the democratization of museums and the way in which the average person looks at art. Besser, in his conclusion, concedes some trepidation on several of the same issues as Conway, Graham, and Lesk (see below); standardization, user needs, and image quality (He cites Lesk.). He also warns that issues of funding and privatization should be addressed. He provides further published resources. Howard Besser (howard@sims.berkeley.edu) is Associate Professor at UCLA's School of Education and Information and is also Adjunct Associate Professor at UC Berkeley's School of Information Management & Systems.

Conway, Paul. (1994). Digitizing preservation. *Library Journal*, February 1, 1994, 42-45.

A cautious look at converting text or microfilm to digital images intended for librarians and library administration. A warning for librarians to take charge of this technology and not rely on vendors and manufacturers to address the needs of libraries. Conway sets up a dichotomy between the seductive nature of imaging systems promising universal access, and the consequences of blindly embracing this technology. He extols the virtues of the technology while warning of the potential for disaster both in monetary terms and in the realm of access to the data. He is concerned that indexing and media format standards must be developed. He stresses the importance of long-term commitments to ensure long-term access to digital resources. He encourages forming alliances with corporate entities but warns that the secretive and competitive nature of the R&D industry is fundamentally at odds with libraries' goals of access and information sharing. He is concerned with the longevity of data media, possible only 25 years for magnetic tape and discs. Conway concludes by noting the inherent value in digital imaging as a means of preservation, but warns that it is not appropriate for everyone. He notes that libraries should wait until digital conversion standards have been developed, while in the same breath entreats those libraries who forge ahead with this technology that the results are striking. Pilot imaging projects are listed. Paul Conway is Head of the Preservation Department at Yale.

Graham, Peter S. (1995) . Requirements for the digital research library. *College and Research Libraries*, 56 (4), 331-339.

Graham believes successful implementation of digital research libraries will be a result of the joint efforts of librarianship and computing. He points to expense and difficulty as the principal barriers. He states the importance of the scholarly community being able to trust that the digital medium will be dependable and maintain integrity for periods of time longer than human lives. Graham informs librarians and universities of their stake in determining the success of electronic publishing. In his footnotes, Graham notes his preference for the term "digital research library" over "digital library" and "virtual library", terms favored by Al Gore and the National Science Foundation, respectively. Graham stresses long-term organization of electronic information. His implication is that Gore's vision of the NII and virtual library are narrow terms denoting an ephemeral body of shifting data, unorganized and short-lived -- a virtual mirage. Graham cites Conway's article (reviewed above), noting similar concerns for establishing standards and commitments before proceeding. Graham examines the issue of access vs. ownership of data and concedes that some institution must take responsibility for the ownership of the data. He mentions the issue of copyright and briefly discusses technical facets of digital imagery, such as storage, backup, and access, underscoring the commitments required to make it work. Basically, Graham believes that digital research libraries are a natural evolution to be embraced by research librarians. He notes emphatically that not to do so "would be an abdication of that role". What is required is not technical skill or knowledge, but "commitment" and "will". This is the future of the library profession in the

electronic age as Graham sees it. Peter Graham is Associate University Librarian for Technical and Networked Services at Rutgers.

Lynch, Clifford A. (1991). The technologies of electronic imaging. *Journal of the American Society for Information Science*, 42, 578-585.

Succinct overview of the components of electronic imaging, although dense reading, addressed to the library and information science communities. He notes that electronic imaging is not yet a discipline, and therefore, lacking in an overall systems perspective for the development of electronic imaging applications. His perspective is highly technical with engineering overtones. In his conclusion, for example, he refers to closed-system applications versus open applications. He views the biggest challenge in imaging as clarifying the architectural models that are used for different types of applications. He lists as further resources proceedings from several technical conferences. This article serves as an overview for the Besser article (see above) in a JASIS Perspectives devoted to imaging. Clifford Lynch is Director of Library Automation at University of California.

Waters, Donald J. (1992). *Electronic technologies and preservation*. Based on a Presentation to the Annual Meeting of the Research Libraries Group, June 25, 1992. Washington, D.C.: The Commission on Preservation and Access.

Waters' tone is humorous and optimistic and under the circumstances serves as a rallying of the troops. He addresses electronic technologies, specifically imaging, along

with the issue of preservation, to an audience of research librarians. Waters notes the importance of understanding the nature of documents in digital form; they are digitized at the page-level, not at the character-level, thus, individual words of the page cannot be searched. He highlights the "challenges" not roadblocks associated with imaging, such as short life span of the digital storage media, software, and hardware, and the issue of copyright. He does not see the issue of permanence as significant, rather he endorses digital imaging because of its relative ease of use, as an effective means of preserving access, compared to microfilm. He stresses the importance of moving forward and suggests temporary solutions to challenges. For example, he suggests working around the issue of copyright by working with documents out of copyright. In contrast to Graham and Conway, Waters takes an incremental approach to using this new technology and one of his mandates is the "willingness to walk away from the process at any time" (p. 5). He addresses his speech in terms of "enabling principles" and "arenas of action" empowering the librarian. Waters is Director of Library and Administration Systems at Yale University Library, and heads the digital library project "Project Open Book".

Technical Issues and Methodology

Lyman, Peter, & Besser, Howard. (in press). *Defining the problem of our vanishing memory: Background, current status, models for resolution*. Santa Monica, CA: Getty Publication).

Lyman and Besser tackle the crucial issue of preservation. This article expands on an background piece written for the conference held at the Getty Conservation Institute

entitled "The Time and Bits: Managing Digital Continuity". The conference was held at the Getty Center on Feb 8-10, 1998 and produced some remarkable insights into the future uses of digital technologies and their impact on the documentation of cultural heritage. Available online at: <http://www.ahip.getty.edu/timeandbits/index.html>. Peter Lyman is University Librarian, and Professor in the School of Information Management & Systems at the University of California, Berkeley. Head Librarian, UC Berkeley. Howard Besser is a digital archiving specialist, Associate Professor at UCLA's School of Education and Information and Adjunct Associate Professor at UC Berkeley's School of Information Management & Systems.

Star, Susan Leigh, & Ruhleder, Karen. (1996). Steps toward an ecology of infrastructure: design and access for large information spaces. *Information Systems Research* 7 (1).

This article was as much about methodology as it was about a systems design project. It was recommended reading for the graduate students working on the Mellon Foundation Grant study, suggested by Nancy Van House of UC Berkeley's School of Information Management & Systems. The study analyzes the failure of the Worm Community System (WCS), a collaborative system designed for a geographically dispersed community of geneticists. The authors use Bateson's model of levels of learning to analyze the levels of infrastructural complexity involved in system access and designer-user communication. The authors establish a complicated dual-faceted focus by choosing to explain Bateson's model at the same time as they are analyzing the outcome of the WCS

project. Needless to say, this article is dense and sometimes difficult to follow. However, Bateson's model of assigning different levels of meaning to data is interesting and I pondered this model when I was analyzing my own focus group data. Susan Leigh Starr and Karen Ruhleder are affiliated with the Graduate School of Library and Information Science, University of Illinois at Urbana-Champaign and the Institute for Research on Learning in Palo Alto, California.

Practices of Art Historians and Slide Librarians and The Role of Image Surrogates

Bakewell, Elizabeth, Beeman, William O., Reese, Carol McMichael. (1988). *Object, image, inquiry: The art historian at work*. Marilyn Schmitt (Ed.). Santa Monica, CA: Getty Art History Information Program.

Considered the bible on how art historians do research. This report is based on a collaborative study by the Getty Art History Information Program (AHIP) and the Institute for Research in Information and Scholarship (IRIS) at Brown University. Eighteen scholars were interviewed from the US and Europe. They were chosen to represent a diversity of specialization in art history and different conceptual approaches to research. The main subjects covered in the report include: The process of art-historical inquiry, and art-historical points of view which are subdivided into 17 categories including iconography, connoisseurship, present use of computers, and criticism. Two case studies follow the work of art historians on particular research problems. The appendix includes information about the interviews with art historians, and detailed information about the

case study methodology. The participating scholars are listed in the appendix. A thoroughly documented study and required reading for anyone interested in the process of art historical research.

Irvine, Betty Jo. (1979). *Slide Libraries: A guide for academic institutions, museums, and special collections*. Littleton, CO: Libraries Unlimited.

Although the earliest edition of this work is twenty-five years old, it is still considered a standard reference work for understanding the workings of slide libraries. The book is divided into parts on Background for Slide Librarianship; Administration and Staffing; Classification and Cataloging; Use of Standard Library Techniques and Tools; Acquisition, Production Methods, and Equipment; Storage and Access Systems; Planning for Physical Facilities; Projection Systems; Miscellaneous Equipment and Supplies; Selected Bibliography; Directory of Distributors and Manufacturers of Equipment and Supplies; Directory of Slide Sources; Directory of Slide Libraries; and an Index. Betty Jo Irvine is Fine Arts Librarian at Indiana University. Assistance was provided by Eileen Fry, Slide Librarian at the Fine Arts Slide Library at Indiana University. Eileen Fry recently concluded a study that provides a breakdown of slide usage in university slide libraries. Her study will be published in the Fall 1998 issue of the *VRA Bulletin*.

Rhyne, Charles S. (1998). *Images as evidence in art history and related disciplines*. [Available online: Internet]. <http://vrl3.arts-ohio-state.edu/vrab/251/rhyne.htm>. Visual Resources Association.

Rhyne discusses the opportunity digital imagery offers of broadening access to "visual evidence for the man-made and natural worlds." He argues that it's not just art historians who rely heavily on images as evidence but all disciplines that study artifacts. His article is broken into a discussion of Important Characteristics of Images including: quality of individual images; different overall views of each object; details of single objects; images of all parts of a multiple object; the ability to move around sculpture and through architecture; images of all or nearly all of a collection; a large number of images, with details, in a distinct subject area; many different types of visual material; choice of multiple sizes and resolutions. The second section of the article is devoted to Important Information about Images including: multiple search fields for locating images; the ability to search by visual characteristics; the timely provision of images; multiple types of information about images, closely integrated; a complete image trail; information on how to order or site license high quality images; the ability to add one's own images to a site, for sharing and peer review. Each topic includes references to digital projects that showcase the feature being discussed. Most of these examples include the URL to the project. This is a well-organized article that attempts to gather the best examples of projects using digital images as visual evidence. Charles S. Rhyne is Professor Emeritus of Art History at Reed College (email: charles.rhyne@reed.edu).

Roberts, Helene. (1994). Second hand images: The role of surrogates in artistic and cultural exchange. (Keynote address from the 1992 VRA Satellite meetings of the 28th CIHA conference in Berlin) James Bower, (Ed.). *Visual Resources, An International Journal of Documentation*, IX (4), 335-346.

This article summarizes the history of surrogate images. As in the article by Charles Rhyne (above), the focus is narrowed to the specific topic of images. Helene Roberts contends that most people learn about works of art through verbal descriptions and surrogate images, not by seeing the work itself. She tests this theory by asking people how they learned about art and how they remember a selection of well-known works of art. The textbook of their first art history course was the place most people first saw an image of a particular work. The second most prevalent source of images was the slides shown in art history courses. The third source cited and the least frequent was "grandmothers' parlors" (i.e., framed reproductions at the home of a relative). She summarizes that visual collections today focus not on the object itself, but on the complex array of images in cultural exchange. She likens this change in perspective to that of a kaleidoscope. "The fragments and mirrors of the kaleidoscope represent the work itself, representations of the work in related images, and textual interpretations of the work that have been perceived by the public. If one is no longer focusing on the 'real' work, but upon how it has been perceived, it is these complex kaleidoscopic patterns which become of greater interest." (p. 345). The challenge for visual resource curators is to track and organize the aspects and images related to a work of art. Helene Roberts is the Curator of Visual Collections in the Fine Arts Library, Harvard University. She is the Editor of *Visual Resources*.

Using Digital Images in the Classroom

Corbetta-Noyes, Lorna. (1998). *Using Digital Images in the Classroom: User Survey Report*. A summary of the results of the Digital Images Survey conducted in May and June 1998. [Available online: Internet]. <http://www.rlg.org/disummary.html>.

This survey was done as graduate coursework in art history. Lorna Corbetta-Noyes sought to determine who in the arts community is using digital images in teaching, where they are using them, why they are using them, how it is different from using traditional slides, and where people are in the process of converting from one form to another and whether the effort is worth it. The survey was mounted on a web page and posted to three pertinent electronic mail lists: ARLIS-L (Art Libraries Society), VRA-L (Visual Resources Association), and CAAH (College Art and Architecture Historians). The first request to participate in the survey was mailed on May 15, 1998 followed by a second request on June 10, 1998. She received 68 responses from users which can be divided into the following demographics: slide curators (39%), faculty (33%), graduate students (5%), staff (16%). More than half the users (56%) were from an art history department. She concludes that the future of digital images in the classroom looks promising. This survey reinforces my findings from the focus groups and I refer to it several times in my report. The original survey can be found at <http://www.rlg.org/disurvey.html>. Lorna Corbetta-Noyes, MLS, works for Research Libraries Group.

Promey, Sally. (1998). Digital images in the art history classroom: Personal reflections. In Christie Stephenson and Patricia McClung (Eds.), *Images online: Perspectives on the Museum Educational Site Licensing Project* (pp. 13 - 22). Santa Monica, CA: Getty Information Institute.

This article is part of a larger work which summarizes the Museum Educational Site Licensing Project (MESL). Sally Promey was one of the participants in the MESL project and has written a thorough and engaging account of her experiences using digital images to teach. Her article reinforces many of the findings of my focus groups. For example, she describes her concern with the time required to develop her curriculum. She valued the close cooperation among people with expertise in different fields. She discussed how she used digital image technology to bring together art and art history students. She discusses many of the benefits of digital images and describes the process she went through to incorporate the MESL images in her course. She also looks at the student response to using digital images and summarizes her experience and encourages art history teachers to take part in the decision-making process of creating art history software products: "As educators in the museum and the academy, we have an opportunity to take responsibility for the content we value and want to share." (p. 21). Sally Promey is a Professor in the Department of Art History and Archaeology at the University of Maryland.

Sandore, Beth and Shaik, Najmuddin. (1997). *The use of an art image database in the classroom: Instructor and student evaluation report*. Manuscript submitted to the Getty Information Institute.

This report analyzes the results of surveys administered to participants in the MESL project both before they used the MESL images in the classroom and after using the images. A total of 18 instructors and 360 students were surveyed at 7 of the MESL institutions at the end of the Spring 1997 term (the final term of the MESL project). The 18 instructors offered a total of 13 courses using the MESL images during the Spring term, 1997. The findings point to areas that need improvement if the MESL project is to be adopted as a prototype for other digital image distribution schemes. Topics ripe for further investigation were suggested and the data served as a springboard for the focus group questions I devised for my study on faculty's perspective on teaching with digital images. The report is extensive with data presented in charts, summarized in bullet points, and further described in paragraphs. Beth Sandore is Coordinator for Imaging Projects and Associate Professor of Library Administration at University of Illinois at Urbana-Champaign. She was also an advisor on our Mellon Foundation Grant study and offered advice to me on methodology and interpretation of the focus group data.

Multimedia as a Teaching Tool

Reibel, Joshua, Balsam, Rachel, Meyer, Raoul, Hogan, Jennifer, Hasher, Karen. (1996, October). *The Multimedia Classrooms Initiative: First year evaluation report*. Institute for Learning Technologies, Columbia University. Version 1.0.

This article was recommended reading for the graduate students working on the Mellon Foundation Grant study, suggested by Howard Besser, study Principal Investigator. The report looks at a class designed to provide students with a foundation in visual literacy of the arts at Columbia University. Findings were relevant to our study and provided further evidence for the challenges posed by digital technologies. Inadequate training was an issue. Students expressed an interest in more interactive models rather than just didactic resources that tell a story and treat the students as an audience rather than as participants. The report also found that teachers' reservations with using digital image resources were "not rooted in a sense that the digital images are of inadequate quality". (p. 43). Many of the findings of the report mirrored those of my focus groups. Joshua Reibel is Assistant Director of the Institute for Learning Technologies at Columbia University. The Institute for Learning Technologies, founded in 1986 at Columbia Teachers College, works to advance the role of computers and other information technologies in education and society.

Thomas, Selma, & Mintz, Ann (Eds.). (1998). *The virtual and the real: Media in the museum*. Washington, DC: American Association of Museums.

Although the subjects covered in this book are relevant to the field of Library and Information Science, it is most valuable for its perspective on museums and the interests of museum users, "visitors". It examines the way technology mediates the real objects and real experiences that museums present to visitors. "The use of media compels museums to re-evaluate the complex relationships among object, venue, and audience, and perhaps to redefine approaches to education and interpretation." (back cover). One of the chapters presents arguments against using digital images. Some of the reasons cited were the experience is inauthentic (not the same as visiting the object in person); all images are the same size which distorts the perspective of the actual object; the random juxtaposition of digital images challenges the hierarchy of the museum curator's arrangement; the digital environment encourages hierarchical fluidity. (p. 86). In the Introduction, Ruth Perlin, head of education resources at the National Gallery of Art and an art historian reminds us that "New technologies are not ends in themselves; they represent powerful means for attaining the goals of educating the public and integrating art into their lives." (p. ix). One author points out the increasing commercialization of art by noting that museum bookstores are now renamed museum "shops". (p. 98). This book which focuses on the relationship between the museum and visitor can be contrasted to *"The Wired Museum"* (reviewed below) which looks at the changes electronic media has posed on internal issues.

Jones-Garmil, Katherine (Ed.). (1997). *The wired museum: Emerging technology and changing paradigms*. Washington, DC: American Association of Museums.

Like *The virtual and the real: Media in the museum* (reviewed above), this book is a collection of articles written by experts in their field which in this case is information management. The articles range from "Imaging in museums" to "The transformation of the museum and the way it's perceived" to "New economics for administering cultural intellectual property". Prominent scholars in the area of image databases such as Howard Besser, David Beardman, and Leslie Johnston are featured. These are the critical information management issues facing museums and the cultural heritage area and others who manage images. Maxwell Anderson, who oversees initiatives in new media for the Association of Art Museum Directors wrote the introduction and Katherine Jones-Garmil edited the book. She is Assistant Director for Information Services and Technology at the Peabody Museum of Archaeology and Ethnology at Harvard University.

Distance Education: Multimedia and Digital Image Technology in Education

These three articles examine the challenges posed to existing academic culture by distance-independent education. They collectively represent the study of a distance-independent class taught research at the University of California and the University of Michigan and implications that were raised by that experience. The last two articles were published in a special issue of JASIS (volume 47, number 11) entitled Perspectives on

distance independent education. These articles provide an understanding of many of the issues that are at the forefront of debate today.

Besser, Howard, & Bonn, Maria. (1997). Interactive distance-independent education: Challenges to traditional academic roles. *Journal of Education for Library and Information Science*, 38 (1), 35-42.

Topics covered include: questions and challenges posed by distance learning; logistical issues; changing personnel and roles; new ways of supporting the classroom experience; changes in the power and relationships in the classroom and between administration and faculty; challenges to education in general. Howard Besser and Maria Bonn, at the time of this article, were both professors at the School of Information, University of Michigan.

Besser, Howard. (1996b). Issues and challenges for the distance-independent environment. *Journal of the American Society for Information Science*, 47 (11), 817-821.

This article addresses the topics of framing distance education activities; infrastructure and resources needed; differences in classroom presentation; the role of the instructor and instructional support; multi-campus sites; and locus of control.

Besser, Howard, & Bonn, Maria. (1996). Impact of distance-independent education. *Journal of the American Society for Information Science*, 47 (11), p. 880.

Issues included in this article address motives behind the movement to distance independent learning; impact on instructor and instructor community; impact on student experience; and a section on important questions which include: What is the appropriate subject matter for distance independent learning; Is distance independent learning viable for the liberal arts; What is the appropriate context for distance independent learning; What is the appropriate teaching methodology for distance independent learning.

Digital Image Technology and Image Databases: Background and Issues

Albrecht, Kathe Hicks. (1998). *Networked museum images on campus: Applications and impact of the Museum Educational Site Licensing Project*. [Available online: Internet]. <http://vrl3.arts-ohio-state.edu/vrab/251/albrecht.htm>. Visual Resources Association.

Kathe Albrecht was a participant in the MESL project and her article is a description of what the MESL project has meant to her university and the slide library, and how she applied the museum information on her campus. She also comments briefly on the future of networked cultural information in academia. The article covers The Planning Phase; MESL implementation begins at American University; The Project's Second Year (which describes her use of tutorials to entice users); MESL implementation on Other Campuses; MESL Lessons (she discusses infrastructure, the need for the right images, and student access); and finally The MESL Report (she mentions a best practices web site for

public viewing of sample applications, but she does not provide the URL). In her conclusion she discusses several second generation projects that are being developed that build on the MESL model, including the Art Museum Image Consortium (AMICO), and the Museum Digital Licensing Collective (MDLC). Kathe Hicks Albrecht is affiliated with American University.

Besser, Howard. (1996a). Image databases: The first decade, the present, and the future. In P.B. Heidorn and Beth Sandore (Eds.), *Digital Image Access & Retrieval* (p. 11-28). Papers presented at the 1996 Clinic on Library Applications of Data Processing, March 24-26, 1996. Urbana-Champaign, Ill. : Graduate School of Library and Information Science, Univ. of Illinois at Urbana-Champaign.

Besser's opinion a decade ago that he might not see viable image databases in his lifetime is illuminating. It makes evident the profound technological innovations that have occurred in the past decade and are certain to occur exponentially in the coming decade. This article is timely and provides a lucid summary of critical issues. Besser mentions several committees and projects at the forefront of standards issues. He is involved with several of these committees and relays his first-hand experience with issues. What is most valuable about the article are Besser's insightful observations on issues that are just beginning to surface (image quality, retrieval trends, new tools) and his perspective on the future of image databases. Besser writes from a Library and Information Science viewpoint. He sees the LIS community as key stakeholders in the issues outlined. Howard Besser (howard@sims.berkeley.edu) is Associate Professor at UCLA's School of

Education and Information and is also Adjunct Associate Professor at UC Berkeley's School of Information Management & Systems.

Besser, Howard, & Stephenson, Christie. (1996). The Museum Educational Site Licensing Project: Technical issues in the distribution of museum images and textual data to universities. *Electronic Imaging and the Visual Arts (EVA)* (pp. 5-1 - 5-15).

This paper discusses the technical and logistical issues involved in the delivery and exchange of museum images and textual data as part of a large multi-site collaborative project, The Museum Educational Site Licensing Project (MESL). This paper is the first attempt to explain the technical problems of data distribution identified in the course of the MESL project through its first full year of implementation. The article predicts that the lessons learned from the MESL project are likely to prove invaluable in planning for any large-scale scheme for the distribution of museum images and text to educational institutions who will then, in turn, make them available to individual users. Christie Stephenson is digital projects manager for the New York University Libraries and project manager for the MESL project. Howard Besser (howard@sims.berkeley.edu) is Associate Professor at UCLA's School of Education and Information and is also Adjunct Associate Professor at UC Berkeley's School of Information Management & Systems.

Besser, Howard. (1995). Getting the picture on image databases: The basics. *Database*, 8 (2), p. 12-19.

This article does exactly what it states; it gives the reader a basic overview of image databases. The article includes basics such as "what is a digital image", "users and

uses", "documentation/standards", "access", "image quality", "integrating images and text into a database: commercial software systems", "selecting scanners", and a large section on "other resources". The treatment of the topic allows for a broad audience and could include anyone interested in database management and images. Since the article is framed around information management concerns, it is especially useful for people with a background in Library and Information Science. Howard Besser (howard@sims.berkeley.edu) is Associate Professor at UCLA's School of Education and Information and is also Adjunct Associate Professor at UC Berkeley's School of Information Management & Systems.

Besser, Howard, & Trant, Jennifer. (1995). *An introduction to imaging: Issues in constructing an image database*. Santa Monica, CA: Getty Art History Information Program. [Available online: Internet] [http:// www.gii.getty.edu/intro_imaging/0-Cover.html](http://www.gii.getty.edu/intro_imaging/0-Cover.html).

A compelling and visually tantalizing hypermedia document. This article takes advantage of hypertext links and exploits full-color images to contrast levels of quality in imaging. The use of imaging technology, that is, scanned images, to illustrate points makes for a striking comparison to an earlier article by Besser on the same subject (reviewed above, Besser 1995). Both works are excellent examples of the trend in the information science field of researchers joining forces with organizations to forge standards and promote awareness of new technologies. This project was commissioned by the Getty Information Institute. The mission of the Getty Information Institute (GII) is to promote access to cultural heritage, and this a foremost interest of Howard Besser as

well. This document targets a scholarly audience, art historians, art research librarians and visual resource librarians. Although titled an introduction, this document is extensive and offers a comprehensive and well-structured view of the subject. Howard Besser (howard@sims.berkeley.edu) is Associate Professor at UCLA's School of Education and Information and is also Adjunct Associate Professor at UC Berkeley's School of Information Management & Systems. Jennifer Trant is Partner and Principal Consultant with Archives & Museum Informatics (jtrant@archimuse.com).

Besser, Howard. (1992). Adding an image database to an existing library and computer environment: Design and technical considerations. In Susan Stone and Michael Buckland (Eds.), *Studies in Multimedia: Proceedings of the 1991 Mid- Year Meeting of the American Society for Information Science* (p. 31-45). Medford, NJ: Learned Information.

This article is much more technical in contrast to Besser's article "Getting the picture on image databases" (see review above). Subjects covered include: image collections and their environments; image database implementations; image database basic system requirements; the content side: MARC, AACR2, and vocabulary standards; implementation concerns; compression; display (asks the question "what resolution is good enough?"); networking; technical considerations and trade-offs; design characteristics; separation of the user interface from the database; locating the proper retrieval set. This article examines several of the problems involved in creating an image database with particular concern to the problems faced in adding a collection of images to an existing online multi-user environment. The article suggests a number of approaches

that are likely to prove fruitful. Howard Besser (howard@sims.berkeley.edu) is Associate Professor at UCLA's School of Education and Information and is also Adjunct Associate Professor at UC Berkeley's School of Information Management & Systems.

Durran, Jennifer. (1994). Developments in electronic image databases for Art History. *Visual Resources Association Bulletin*, 21 (4), 15-24.

This article examines some recent developments in the creation of databases of electronic surrogate images in European and American libraries, museums and educational institutions, ranging from prototypes to small, successfully implemented systems. The author contends that the widespread development of large-scale digital image databases is impeded by a number of factors such as insufficient understanding of user needs; a lack of standards for intellectual access, image quality and information interchange; rapidly changing technology; copyright restrictions; high costs and uncertain funding. She offers relevant initiatives to resolve these problems. The article is divided into sections on the following topics: art history and the need for surrogate images; recent developments; factors impeding the development of image databases for art history. She predicts accurately that "despite current financial, technological and institutional obstacles, the mid 1990s will undoubtedly see a proliferation of activity in the development of digital image databases." (p. 10). She ventures that "the ability to reproduce art works in digital form is sure to have as dramatic an effect on the field as the introduction of the photograph in the mid 19th century." (p. 10). Jennifer Durran is Visual Arts Librarian at Monash University in Melbourne Australia (email: jdurran@arts.cc.monash.edu.au).

Focus Groups: Practical Guides

These books provide an understanding of the elements of focus groups including how to design focus groups, and analyze and report the results of focus group interviews. They demonstrate when it's appropriate to use focus groups vs. other qualitative methods, and cover the significant factors about this method of qualitative research.

Krueger, Richard A. (1994). *Focus groups: A practical guide for applied research* (2nd ed.). Thousand Oaks, CA: Sage Publications.

The book is divided into the following parts. Part I contrasts groups with focus groups. Part II covers the "Process of Conducting Focus Groups" from asking questions in a focus group to reporting focus group results. Part III is devoted to "Issues and Concerns" including using nonresearchers in focus groups. Part I and II are useful for their practical advice on how to hold a focus group and report the results. They help the reader to determine whether focus group interviews are the right research tool. The book is well-organized and written in a straight-forward manner with many examples. Richard A. Krueger is Professor and Extension Evaluation Specialist at the University of Minnesota.

Morgan, David L. (1997). *Focus groups as qualitative research* (2nd ed.). Thousand Oaks, CA: Sage Publications.

This book is slightly more theoretical in focus than Krueger's (see above). Topics covered include "Focus Groups as a Qualitative Method", "The Uses of Focus Groups",

"Planning for Focus Groups", "Conducting and Analyzing Focus Groups", and "Additional Possibilities". The style is more narrative with fewer examples than Krueger provides (see above). This book is a good complement to Krueger's . It's a quick read and it further explains focus group theory by comparing and contrasting several other methods. David L. Morgan is an Assistant Professor in the Institute on Aging and Department of Urban Studies at Portland State University. He received his Ph.D. in sociology from the University of Michigan and did postdoctoral work at Indiana University.

III. METHODOLOGY

The reasons faculty members choose to work with or not work with digital images in the classroom are complicated. Because the latest choice of media presentation is relatively new and the mercurial nature of the relevant technology tends to provide detractors with reasonable objections to trends, we need to choose a data collection methodology that allows the subjects to articulate the broad range of reasons underlying their decisions. Focus group methods are intended to tease out underlying issues and concerns that might otherwise be missed using other research methods.

The goals of the focus groups were to probe further into issues raised in the MESL project and to gain a more comprehensive understanding of some of the barriers and facilitators to using digital images in the classroom. The focus groups were intended to raise underlying issues and concerns that might otherwise be missed using other research methods. We chose to use focus groups because they were a way to encourage self-disclosure and observe the thought processes of participants. These discussion groups offer participants the opportunity to raise buried or neglected issues for discussion and encourage alternative explanations. It has been noted elsewhere that focus groups are not intended to reach a consensus, develop a plan, or to substantiate preconceived notions; rather, they are meant to uncover the participants' beliefs on a given subject in order to derive understanding. Participants' opinions may shift during the course of a discussion (Krueger, 1994).

We believed the focus group interviews would enable us to get at issues that might not be revealed in a survey or even a one-on-one interview. The primary concern of this study was the usage (whether actual or potential) of digital images in universities. The interview questions were framed around the topics of university infrastructure and accessibility of digital images to faculty and students (see Appendix A for the focus group questions). The university infrastructure is an integrated system of essential elements that support the foundation and framework of the end-user system. These elements include equipment in classrooms and labs for access by students and faculty (projection units, computers, network wiring); tools for storing and viewing images; and other technical aspects such as the image delivery method and the delivery speed.

To ensure a discussion with adequate depth, we planned to conduct two separate focus groups: one group of participants with several years' experience using digital images to teach, and another group which included both users and non-users of digital images in order to cull a wide range of responses and concerns. We invited faculty members to share their ideas and opinions on teaching with digital image technology. We were interested in the experiences, whether good or bad, of those who had used digital images to teach. For those who had not yet used digital technology for teaching, we sought to determine the barriers to, or concerns about, teaching with digital images. The issues we wished to discuss are listed in Table 1 below.

TABLE 1-Fundamental Issues for Discussion

- What were the advantages/disadvantages to using digital images?
- Why did or didn't you teach with them?
- What would need to happen for you to teach with them?
- What were the inherent problems (actual and perceived) of using the digital images?
- Would you use them again? Why or why not?
- What were the inhibitors to using digital images (particularly for non-users)?

This initial set of issues was refined and developed into the focus group questions. (See Table 2.) These primary questions were expanded with probes and some scenarios to produce the full set of questions (listed in Appendix A). The same questions were used for both sessions although the exact wording varied slightly from session to session.

TABLE 2-Primary Focus Group Questions

1. a. Who has used digital images in the classroom?
- b. Who would like to use digital images?
2. Would you briefly describe your experiences with using digital images to teach.
3. What were the advantages and disadvantages of using digital images in the classroom?
4. What differences do you perceive between using digital images and other visual resources such as slides, videos, books, and prints?

5. What are the critical factors in deciding to use digital images to teach? (Are there barriers or impediments to using digital images?)
6. How can other faculty members be encouraged to use digital images?
7. Would you use digital images again to teach?

We conducted focus group interviews at the College Art Association (CAA) conference in Toronto on February 27, 1998. The CAA Conference is the largest gathering of art and art history faculty in North America. This gave us the opportunity to conveniently gather together participants from diverse locations. Naturally, faculty were immersed in thinking about teaching and their own roles as art historians while attending this conference. This reflective state of mind was conducive to the goals of the focus groups. We organized two focus group sessions, both scheduled at low-conflict times. Prior to the conference we recruited participants through electronic mailing lists likely to be of interest to instructors involved with digital images; we also contacted specific faculty known to be teaching with digital images. During the conference we made announcements and handed out leaflets at sessions oriented towards digital information, and personally approached people who indicated they taught with digital images. Only 16% of our resulting participants (two out of 12) were from MESL campuses.

Two focus groups were held with a total of 12 participants. (See Appendix C for a list of participants). Each 90-minute session was tape-recorded and later transcribed. The

groups corresponded to our expectations regarding the user experience of the participants; however, we did not anticipate that nearly half the participants would be studio art teachers. While we specifically targeted art history teachers when recruiting for the focus groups, we discovered that many of the teachers using digital images who were most interested in participating were studio art teachers. The first group (the mixed group) was divided evenly between art history and studio art instructors with many different levels of experience with digital images, including a couple of participants who had not used digital images to teach. One participant was a librarian who had previously taught art history. The second group (the experienced group) consisted of early adopters of digital image technology and demonstrated considerable experience teaching with digital images. Both studio art and art history instructors were represented in the second group which, with three participants, was considerably smaller than the first group. As a result, the discussion in the second group was more in-depth. Participants had more time to speak and many issues were raised before questions could be asked. The contrast between the first, larger, group and the second, smaller, group revealed many common concerns despite the relative disparity of experience between them.

The focus group participants in both sessions agreed on the key issues. For example, although copyright and fair use were deemed outside the scope of these focus groups, they were raised throughout the discussions as issues to be concerned about. Studio art teachers specifically mentioned appropriation, and the issue was raised more than once. Appropriation is literally “to make one’s own”. In art, appropriation is taking an existing

image and using it to create a new one or as an inspiration for a new work of art. If “fair use” becomes more restricted in the digital realm, there is fear that artistic freedom may also become restricted.

The report explores some of the themes that arose in the focus groups. Due to the unstructured nature of such discussion groups, participant responses cannot be quantified. However, the overall themes and conclusions are presented in depth.

Focus Groups Methodology

A questionnaire (See Appendix B) was administered at the beginning of the focus group interviews for the purpose of collecting demographic data, determining the participants’ level of expertise, and determining preconceived views on barriers and facilitators to using digital images. We collected sufficient data to ascertain a general range of responses. This data was summarized in order to put the responses in a context (see Appendix C). Although critics might consider focus group data anecdotal, this study does reflect the impact of digital image technology on the teaching of art. Many issues discussed in these focus groups were raised in earlier tape-recorded discussions conducted with a different set of university faculty and staff during the MESL project follow-up at Charlottesville on May 20, 1997.

Participants' Background

The seven women and five men who participated in the focus groups varied in their level of experience with teaching with digital images. The number of terms they taught with digital images ranged from none to 32. Participants taught art or art history for up to 40 years. The number of digital images used in a course ranged from none to 1400. (See Appendix C for further background data.)

Timeline

The study proceeded in a phased manner as follows:

- 1) Developed an understanding of the focus group process (January, February 1998).
- 2) Composed interview questions for the focus groups (January, February 1998).
- 3) Held the focus groups (February 27, 1998).
- 4) Analyzed the focus group data (March, April 1998).
- 5) Drafted the report and revised it numerous times after consultation with expert advisors on the project (May - September 1998).
- 6) Presented findings of the focus groups for inclusion in the final report to the Mellon Foundation (September 1998).
- 7) Submitted an article about the focus groups for publication in *Visual Resources* journal (September 1998).

- 8) Presented findings at the Museum Computer Network Conference in Santa Monica, California (September 25, 1998).
- 9) Submitted the final report and final work product to the SJSU research project committee (October 1998).

Budget

This project was funded by the generous support from the Andrew W. Mellon Foundation. As a member of the Project Team of researchers, I was reimbursed for my expenses which included airfare to travel to the CAA conference to hold focus groups. The original Mellon grant was in the amount of \$243,842. The larger study, undertaken at the University of California Berkeley under the direction of Principal Investigator Howard Besser, was a 22-month study (September 1996 through June 1998). I participated in the project from January 1988 through September 1998. The original Grant proposal includes a budget breakdown and is available online at <http://www.sims.berkeley.edu/research/mellon/archives/orig-proposal.html>.

Conference Presentation

The findings of this study were presented at the Museum Computer Network Conference in Santa Monica, California on September 25, 1998. The presentation was made using PowerPoint slides. See Appendix D for a printout of PowerPoint slides.

Final Work Product

The final work product presented to the committee is an article submitted for publication to *Visual Resources, An International Journal of Documentation*. The article summarizes the findings of a set of focus group sessions conducted with visual arts faculty from many different universities at the College Art Association (CAA) Conference in Toronto on February 27, 1998 and examines the perspective of visual arts faculty as end users of digital image technology. The final work product suggests important considerations for visual resource professionals, administrators, arts faculty, and others who may be confronting the issue of converting to digital media.

To begin to identify these issues, we designed a study of faculty who teach classes in the visual arts using digital images. We wanted early adopters of this technology to tell us what problems they had faced and to speculate about which impediments needed to be overcome in order for their colleagues to begin using digital images. The focus group participants included both studio art and art history faculty. Although critics might consider focus group data anecdotal, this study does reflect the impact of digital image technology on the teaching of art.

The issues that dominated the focus group discussions were: technical support and training, acquisition and development of digital tools (software and hardware), time

commitment to learn and develop the new technology, and some form of academic (if not recompensed) recognition for their efforts from the universities. (Participants were asked not to elaborate on copyright issues due to their complexity and the limited amount of time of the sessions.) We discovered that, from the perspective of the faculty interviewed, current university infrastructures were woefully inadequate for using digital images in the classroom. One participant characterized the dilemma of starting to use digital images as a “vortex of need”. The complexity of the aggregate components (equipment, training, support, and more) was the overwhelming barrier for many faculty. Yet despite many concerns, participants perceived digital image technology as a significant means of reaching a broader audience and overall, there was a general feeling that new technologies stimulate and encourage new ways of thinking.

IV. CONCLUSION

Digital image technology is challenging traditional approaches to teaching art history. This study examines the various points of view from visual arts faculty as end-users of digital image technology and ventures information technology solutions to the attendant problems of the medium. It also raises important points to consider for visual resource professionals and others who may be confronting the issue of converting to digital technology in visual resource environments.

From the faculty's perspective, getting the release time to learn and develop courses and projects in a digital environment, and getting credit towards tenure for their efforts, are key incentives. Colleagues do not have enough time to help each other and there is often a serious lack of resources. Forging alliances with other departments is one solution for stretching resources and gaining support from administration. To facilitate the conversion to digital images and gain widespread support among faculty members for using digital images, focus group participants offered the following suggestions.

A hybrid database that tracks both slides and digital images by indicating the location of each (physical or virtual). The presumption is that both technologies will coexist for an indefinite period of time. The challenge is to integrate the existing slide library records with the new records for digital images. The digital images themselves do

not need to be stored along with the text records; however, the records must point to the location of the image files.

Academic credit for faculty who use new technologies to “publish”. Faculty viewed the use of new technologies in scholarly applications, such as online study guides and multimedia projects, as a form of publishing. In order not to jeopardize their academic careers, faculty members need to receive credit towards tenure for their efforts. Recognition from professional organizations such as the College Art Association for the value of this work was also deemed important.

Release time for faculty to learn software and develop curriculum and projects. One of the fundamental issues raised in the focus groups was the amount of time required to adapt to a new medium. Even with a technological infrastructure in place, it's clear the move to digital images would require a substantial time investment for faculty and support staff. This in turn poses many questions such as: Who will pay for this? Will faculty accustomed to one method of teaching be willing to adapt to another and what is their incentive?

A colleague training program that gives release time credit to faculty members who train others. Faculty members who are seasoned users of digital image technology have a keen understanding of both the pitfalls and potential of the technology and are therefore good candidates for training their colleagues. Although colleagues within

the same department often share an understanding of the subject matter, they may feel uncomfortable training each other as it puts one person in a “superior” role to the others.

Demonstrations for colleagues of the uses of digital image technology and tools. Art faculty have exceptional visual acuity. Visual demonstrations of digital image technology are naturally suited to this audience. The biggest challenge may be getting started. One solution is to have staff members (or outside presenters) give initial technology demonstrations. Even the threat that digital images will supplant slides is not enough to scare faculty into jumping on the bandwagon. It is essential to prove the value of the technology. What can one do with digital images that can't be done with other media and how will it further one's career?

Study Images for Students. Participants with all levels of experience with digital images appreciated the value of using digital images for students to study. Although the focus groups were centered on faculty, it is important to note that from the perspective of students, remote access to study images is likely to be a tremendous advantage. Students do not have the same access to resources and privileges as faculty. Students lack extensive private collections of books and the extended library loan privileges that are afforded faculty. Students may not even have access to the slide library. Faculty have years of experience researching art and have extensive personal knowledge of art. In the best-case scenario, a student is able to visit a work of art in person. In the vast majority of cases, students study works of art from reproductions posted in one location (such as the

library), or they buy expensive art books, or they compete with other students for the few copies of texts and art books held in the library. Insufficient access to source materials is a primary reason both students and faculty are limited in their choice of subjects to research. Digital distribution of images from a network offers remote access to images for asynchronous use (provided students have the proper equipment and authorization). In theory, there are neither time restrictions nor geographic limitations to access. But the important implication of digital image distribution schemes is that more images may eventually be available than any one university can provide.

The New Role of the Visual Resource Professional

Visual resource professionals can deal with many of the barriers discussed by the focus group participants to place themselves into a better position in the digital environment. Following are four key areas in which visual resource professionals could make a greater impact:

Technical support “educator”. As a resource provider, it is critical to understand the needs of your clientele. Given the limitations of technical support discussed earlier, it would be advantageous for visual resource professionals to learn the new systems and educate users. Demonstrations for faculty of the uses of digital image technology and tools were mentioned by several participants as a facilitator to encourage their colleagues to use digital images. Offer workshops or provide one-on-one training. Become a valuable resource for faculty.

Subject expert. Use your subject expertise to develop and enhance image databases, and the components of image databases such as the user interface. What choices do you provide users for viewing images? Do they need detailed images for close study? Do they study one image at a time or many at once? How do you organize and store image and text data? As a resource provider with subject expertise, you should be an important part of the decision-making process.

Information specialist. Collaborate and interface with faculty to repurpose tools and data. The time required to learn and develop projects was a major issue for faculty. How can the pioneering work of early adopters of digital image technology benefit other teachers? How can you recycle existing data and tools for future endeavors to save faculty valuable time? How can resources be shared? How can you collaborate with other departments?

Knowledgebase of faculty scholarship. Gather and organize the descriptive data contributed by faculty into a knowledgebase. (This topic was raised in the “Metadata” section of the final work product.) How can this data be used by faculty to gain recognition from universities and others who benefit from their scholarship? How can students access this knowledge for distance learning? Can this data be shared with others (museums, professional organizations, and the public)?

The Potential of Digital Media

Slides and digital images are not mutually exclusive. They will undoubtedly coexist for quite some time, regardless of whether one or both eventually become obsolete. The model offered by MESL for acquiring digital images was site licensing, but digital image technology exists outside of site licensing. It will continue to exist whether or not site licensing is successful as a business model. The site-licensing model has been emphasized due to its recent emergence as a viable means of distribution. There is a wider perspective and that is the potential of digital image technology to transform the way art history is taught: from a *lecture* mode to a *participatory* mode. Our focus group participants endeavored to articulate the potential of digital image technology, but I believe they have already proven its tremendous potential with their success in creating distance-learning environments, multimedia projects, animated reconstructions, study guides, online course materials. As with the appearance of the personal computer and the CD-ROM, there is always some resistance to the advent of a new technology despite the tangible evidence of its accessibility and its successes in other disciplines. Time will tell whether digital image technology stands up to this kind of resistance.

A number of communities are interested in the viability of digital libraries. The Mellon Foundation Grant study was initiated in order to understand the issues likely to affect the economic feasibility of maintaining one type of library: a collection of digital image surrogates of cultural heritage objects and their accompanying descriptive metadata, for distribution throughout university communities. Because such distribution would inevitably fail without the willingness of university instructors to implement this new

technology into their teaching practices, there was an imperative to create a study which would explore the factors influencing that willingness to “buy in” to digital distribution and digital images as a tool for teaching.

This study is timely in view of current plans by two museum consortia to distribute digital images to the museum community. Both the Art Museum Directors Association's Art Museum Image Consortium project (AMICO) and the American Association of Museums' Museum Digital Library Collection (MDLC) are designing distribution and delivery schemes which could benefit from a better understanding of the economics and work involved in making digital images and metadata available to the educational community. This study is part of a larger Mellon Foundation Grant study. Information about the Mellon Foundation Grant study can be accessed at <http://sunsite.Berkeley.edu/Imaging/Databases/1998mellon>.

Bibliography

Albrecht, Kathe Hicks. (1998). *Networked museum images on campus: Applications and impact of the Museum Educational Site Licensing Project*. [Available online: Internet]. <http://vrl3.arts-ohio-state.edu/vrab/251/albrecht.htm>. Visual Resources Association.

Bakewell, Elizabeth, Beeman, William O., Reese, Carol McMichael. (1988). *Object, image, inquiry: The art historian at work*. Marilyn Schmitt (Ed.). Santa Monica, CA: Getty Art History Information Program.

Besser, Howard. (1996a). Image databases: The first decade, the present, and the future. In P.B. Heidorn and Beth Sandore (Eds.), *Digital Image Access & Retrieval* (p. 11-28). Papers presented at the 1996 Clinic on Library Applications of Data Processing, March 24-26, 1996. Urbana-Champaign, Ill. : Graduate School of Library and Information Science, Univ. of Illinois at Urbana-Champaign.

Besser, Howard. (1996b). Issues and challenges for the distance-independent environment. *Journal of the American Society for Information Science*, 47 (11), 817-821.

Besser, Howard. (1995). Getting the picture on image databases: The basics. *Database*, 8 (2), p. 12-19.

Besser, Howard. (1992). Adding an image database to an existing library and computer environment: Design and technical considerations. In Susan Stone and Michael Buckland (Eds.), *Studies in Multimedia: Proceedings of the 1991 Mid- Year Meeting of the American Society for Information Science* (p. 31-45). Medford, NJ: Learned Information.

Besser, Howard. (1991). Imaging: fine arts (Getty Art History Information Program). *Journal of the American Society for Information Science*, 42, 589-96.

Besser, Howard, & Bonn, Maria. (1997). Interactive distance-independent education: Challenges to traditional academic roles. *Journal of Education for Library and Information Science*, 38 (1), 35-42.

Besser, Howard, & Bonn, Maria. (1996). Impact of distance-independent education. *Journal of the American Society for Information Science*, 47 (11), p. 880.

Besser, Howard, & Stephenson, Christie. (1996). The Museum Educational Site Licensing Project: Technical issues in the distribution of museum images and textual data to universities. *Electronic Imaging and the Visual Arts (EVA)* (pp. 5-1 - 5-15).

Besser, Howard, & Trant, Jennifer. (1995). *An introduction to imaging: Issues in constructing an image database*. Santa Monica, CA: Getty Art History Information Program. [Available online: Internet] [http:// www.gii.getty.edu/intro_imaging/0-Cover.html](http://www.gii.getty.edu/intro_imaging/0-Cover.html).

Conway, Paul. (1994). Digitizing preservation. *Library Journal*, February 1, 1994, 42-45.

Corbetta-Noyes, Lorna. (1998). *Using Digital Images in the Classroom: User Survey Report*. A summary of the results of the Digital Images Survey conducted in May and June 1998. [Available online: Internet]. <http://www.rlg.org/disummary.html>.

Durran, Jennifer. (1994). Developments in electronic image databases for Art History. *Visual Resources Association Bulletin*, 21 (4), 15-24.

Graham, Peter S. (1995) . Requirements for the digital research library. *College and Research Libraries*, 56 (4), 331-339.

Irvine, Betty Jo. (1979). *Slide Libraries: A guide for academic institutions, museums, and special collections*. Littleton, CO: Libraries Unlimited.

Jones-Garmil, Katherine (Ed.). (1997). *The wired museum: Emerging technology and changing paradigms*. Washington, DC: American Association of Museums.

Krueger, Richard A. (1994). *Focus groups: A practical guide for applied research* (2nd ed.). Thousand Oaks, CA: Sage Publications.

Lyman, Peter, & Besser, Howard. (in press). *Defining the problem of our vanishing memory: Background, current status, models for resolution* (Santa Monica, CA: Getty Publication).

Lynch, Clifford A. (1991). The technologies of electronic imaging. *Journal of the American Society for Information Science*, 42, 578-585.

Morgan, David L. (1997). *Focus groups as qualitative research* (2nd ed.). Thousand Oaks, CA: Sage Publications.

Promey, Sally. (1998). Digital images in the art history classroom: Personal reflections. In Christie Stephenson and Patricia McClung (Eds.), *Images online: Perspectives on the Museum Educational Site Licensing Project* (pp. 13 - 22). Santa Monica, CA: Getty Information Institute.

Reibel, Joshua, Balsam, Rachel, Meyer, Raoul, Hogan, Jennifer, Hasher, Karen. (1996, October). *The Multimedia Classrooms Initiative: First year evaluation report*. Institute for Learning Technologies, Columbia University. Version 1.0.

Roberts, Helene. (1994). Second hand images: The role of surrogates in artistic and cultural exchange. (Keynote address from the 1992 VRA Satellite meetings of the 28th CIHA conference in Berlin) James Bower, (Ed.). *Visual Resources, An International Journal of Documentation*, IX (4), 335-346.

Rhyne, Charles S. (1998). *Images as evidence in art history and related disciplines*. [Available online: Internet]. <http://vrl3.arts-ohio-state.edu/vrab/251/rhyne.htm>. Visual Resources Association.

Sandore, Beth and Shaik, Najmuddin. (1997). *The use of an art image database in the classroom: Instructor and student evaluation report*. Manuscript submitted to the Getty Information Institute.

Star, Susan Leigh, & Ruhleder, Karen. (1996). Steps toward an ecology of infrastructure: design and access for large information spaces. *Information Systems Research* 7 (1).

Thomas, Selma, & Mintz, Ann (Eds.). (1998). *The virtual and the real: Media in the museum*. Washington, DC: American Association of Museums.

Waters, Donald J. (1992). *Electronic technologies and preservation*. Based on a Presentation to the Annual Meeting of the Research Libraries Group, June 25, 1992. Washington, D.C.: The Commission on Preservation and Access.

APPENDIX A—FOCUS GROUP QUESTIONS

QUESTIONING ROUTE:

1. a. Who has used digital images in the classroom? (show of hands)
b. Who would like to use digital images? (show of hands)

2. Would you briefly describe your experiences with using digital images to teach.
___ How did you use them?

- ___ Project images on a large screen in the classroom to accompany lectures.
- ___ Assign viewing of images outside of class in conjunction with lectures, reading, or projects.
- ___ Display images on-screen at individual workstations in a lab or classroom setting.

- ___ What were some of your concerns?
- ___ What were some of the surprises?
- ___ What prompted you to use the images to teach?
- ___ What did you find most challenging?
- ___ What did you find to be the least challenging?

3. What were the advantages and disadvantages of using digital images in the classroom?

(specify the circumstances and how you used the images)

- ___ Equipment
- ___ Image quality
- ___ Delivery speed
 - ___ How long did you wait for an image to be delivered:
 on-screen at your workstation?
 on a large classroom display screen?
 - ___ What do you think is an acceptable length of time (in seconds) to wait for an image to be delivered?

For those who would like to use digital images, how would you like to use them?

- ___ Classroom
- ___ Research
- ___ Assignments

- ___ What are your concerns?
- ___ What do you perceive as some of the advantages?
- ___ What would need to happen to enable you to use them?

4. What differences do you perceive between using digital images and other visual resources such as slides, videos, books, and prints?

- ___ How might these factors impact the way you teach?
- ___ What are your concerns?
- ___ What are some of the advantages of slides (or other visual resources)?
- ___ What are some of the disadvantages of slides?
- ___ What can you accomplish with digital images that you cannot accomplish with slides (or other visual resources)?
- ___ What can you accomplish with slides that you cannot accomplish with digital images?
- ___ In a course you taught where you used slides, how often would you say you have changed the slides that you used as examples?
- ___ How many slides do you normally use for a course?
- ___ If you had to make a decision between ordering a slide set and having the digital images of that slide set available to you and your classes, what would your decision be?
- ___ Can you envision circumstances that would lead you to the opposite decision?
- ___ If your slide library were to subscribe to a repository of digital images, as well as supplying access to slides, which would you prefer to use?
- ___ Can you envision circumstances that would lead you to the opposite decision?
- ___ *Slides are always accessible. Once your institution purchases a slide set, it has the right to use the slide set for as long as the slides hold up. Since museums have only just begun to license digital images the continuing availability of the images for teaching and research is not yet worked out.* How long (in years) would digital images need to be available to you in order for you to incorporate them as core examples in a course?

5a. What are the critical factors in deciding to use digital images to teach?

___ image selection	___ student labs
___ image quality	___ technical support
___ text data	___ training
___ cost of using or acquiring images	___ help with setting up the digital environment (TA's, support staff)
___ delivery speed	___ time required
___ equipment (projection systems, computers)	___ acceptance by other faculty members
___ tools and templates to manage images	___ copyright issues
___ expertise with technology	
___ accessibility for students	

5b. Are there barriers/impediments to using digital images?

- ☐ image selection
- ☐ image quality
- ☐ text data
- ☐ cost of using or acquiring images
- ☐ delivery speed
- ☐ equipment (projection systems, computers)
- ☐ tools and templates to manage images
- ☐ expertise with technology
- ☐ accessibility for students
- ☐ technical support
- ☐ training
- ☐ help with setting up the digital environment (TA's, support staff)
- ☐ time required
- ☐ acceptance by other faculty members
- ☐ copyright issues

- ☐ What is the single most important thing that needs to happen in your perspective to make the use of digital images in the classroom a commonplace decision?

6. How can other faculty members be encouraged to use digital images?

- ☐ What was good about using them?
- ☐ What would have made it easier for you?
- ☐ What was most problematic?
- ☐ What type of changes need to be made to the classroom setup?
- ☐ What type of additional training would be needed?
- ☐ What type of incentives are needed?

7. Would you use digital images again to teach?

- ☐ How would you feel about using digital images again?
- ☐ How did your experience with the MESL images compare with other digital images?
- ☐ What might you do differently?
- ☐ Would you use digital images to accompany class lectures again?
- ☐ Would you use digital images to do research again?
- ☐ How would you like your students to use digital images?
- ☐ How do you think students will use digital images?
- ☐ In what types of classes do you think you or your colleagues would be most likely to incorporate digital images?

APPENDIX B—
QUESTIONNAIRE AND INFORMED CONSENT FORM

Pre-Focus Group Questionnaire

Friday, February 27, 1998 PM

☐ Male

☐ Female

Age:

☐ 20 - 35

☐ 36 - 50

☐ 51 - 65

1. What subject(s) do you teach?	
2. What department are you in?	
3. Which school or organization are you affiliated with?	
4. How long have you been teaching?	
5. What is your academic rank? ☐ lecturer ☐ adjunct ☐ assistant ☐ associate ☐ full professor	

6. How many terms (semesters, quarters, etc.) have you taught using any type of images ?	
7. How many terms have you taught using digital images ?	
8. How many terms have you taught using MESL digital images ?	
9. How many digital images did you generally use in a course?	

10. If you have used digital images, what did you use them for?

11. What is the highest percent of the total amount of images that were digital in any term you taught with digital images? (i.e., if you used only digital images, your answer would be 100%) _____%

12. You have **20 points** to divide up and allocate to the barriers to using digital images listed below. Please use your points by assigning more points to barriers you feel are greater. Feel free to add other barriers if necessary.

_____ image selection

_____ image quality

_____ text data

_____ technical support and training

_____ equipped classrooms and labs

_____ accessibility for students

_____ software tools and templates to manage images

_____ delivery speed to display images

_____ copyright issues

_____ cost of acquiring or using images

_____ acceptance by other faculty members

_____ time required

Other(s):

We may have a few follow-up questions for you after today's discussion. If you're willing to have us contact you with some questions via email, please print your name and email address below.

Name _____ email _____

UNIVERSITY OF CALIFORNIA, BERKELEY

BERKELEY • DAVIS • IRVINE • LOS ANGELES • RIVERSIDE • SAN DIEGO • SAN FRANCISCO

SANTA BARBARA • SANTA CRUZ

SCHOOL OF INFORMATION MANAGEMENT AND SYSTEMS (SIMS)

102 SOUTH HALL # 4600
 BERKELEY, CALIFORNIA 94720-4600
 TELEPHONE: (510) 642-1464
 FAX (510) 642-5814

February 27, 1998

STATEMENT OF INFORMED CONSENT

I volunteer to participate in a focus group on the use of digital images in the classroom. The groups are part of a Mellon Foundation funded study of the costs and benefits of digital images.

I understand that:

- My participation in this study is absolutely voluntary and that my participation is not required.
- Any information gathered in the course of the focus group will not be revealed to anyone other than the researchers involved in the study. My name and identifying features will not be on any research records that might be seen by any persons other than the core research staff.
- The focus group and any follow-up survey will remain strictly confidential and every precaution will be taken to insure the participant's anonymity.
- I reserve the right to participate or withdraw at any time, and that if this occurs, my decision will be respected.

If I have any questions, I understand that I can call Howard Besser, Project Director at 510/643-7365 and he will be glad to answer my questions.

Signed _____ Date _____

Print Name _____

Address _____

Phone _____ Email _____

**APPENDIX C—FOCUS GROUP PARTICIPANTS:
QUESTIONNAIRE RESPONSES
AND BRIEF SUMMARY OF OVERALL CONCERNS**

PARTICIPANT A, GROUP 1

Profile: Male, 51-65 years old. Art History, taught 21 years, Full Professor.

Image use:

50 terms using images

2 terms with digital images

0 terms with MESL images

200 digital images per course

Highest % of digital images used in any one term: 100%

Types of digital image use: He has used digital images in place of slides.

Barriers and their scores:

- Image selection
- Image quality
- Copyright issues
- Time required

Other barriers written in:

- Some concern with continuing availability of my digital collection in years to come (tech changes).

Overall concerns: He would like a software tool that students could use to better understand the composition of a work of art by manipulating the composition. He mentioned that he manipulates images now, but he would like his students to take advantage of such a tool.

PARTICIPANT B, GROUP 1

Profile: Male, 36-50 years old. Art History, taught 24 years, Full Professor.

Image use:

All terms using images

1 term with digital images

1 term with MESL images

15 digital images per course

Highest % of digital images used in any one term: 1%

Types of digital image use: He has used digital images for study photos to supplement text, and as images for a "take home" quiz.

Barriers and their scores:

- Image selection (3) wrote in "really 10"
- Image quality (3) wrote in "really 10"
- Software tools and templates to manage images (3) wrote in "really 10"
- Delivery speed to display images (3) wrote in "really 10"
- Technical support and training (3)
- Equipped classrooms and labs (3)
- Copyright issues (1)
- Time required (1)

Overall concerns: He was one of two participants who taught with MESL images. He discussed several barriers he listed on the questionnaire: image quality, technical support and training, equipped classrooms and labs, and time required. He stated image quality is a serious issue for his colleagues. He mentioned that classrooms at his institution were not yet equipped for projection of digital images since the equipment was being refurbished. He was concerned with basing funds on specially funded programs, which can leave projects unfinished when the funds run out.

PARTICIPANT C, GROUP 1

Profile: Female, age not given, Fine Art-Printmaking (Studio Art), taught 30 years, Full Professor.

Types of digital image use: She generated digital images and her students used them to create Web sites.

Barriers and their scores:

She did not allocate points to any barriers.

Overall attitude: She raised the issue of the importance of metadata in the context of having descriptive information on the actual artwork (e.g., the medium is acrylic on canvas). She also discussed the barriers of tools and equipment.

PARTICIPANT D, GROUP 1

Profile: Female, 51-60, History of Art, taught 26 years, Full Professor.

Image use:

All terms using images

6-7 terms with digital images

4 terms with MESL images

DI per course varies

Highest % of digital images used in any one term: 15%

Types of digital image use: She has used digital images for individual projects, lectures, and discussion in sections.

Barriers and their scores::

- Image selection (5)
- Software tools and templates to manage images (5)
- Copyright issues (5)
- Cost of acquiring or using images (5)

Overall concerns: She discussed all the barriers listed on her questionnaire except the cost of acquiring or using images (this topic was not discussed specifically). She asserted the need for tools: to make your own collection, push images around, and make comparisons. She raised the issue of the university not valuing this work and the dilemma that you must be tenured to do it. This launched an intense discussion.

PARTICIPANT E, GROUP 1

Profile: Female, 51-65, Art History, taught 100 (sic) years, Full Professor.

Image use:

400 (sic) terms using images

4 terms with digital images

0 terms with MESL images

1000 digital images per course

Highest % of digital images used in any one term: 100%

Types of digital image use: She did not state what she has used digital images for.

Barriers and their scores:

- Copyright issues (5)
- Cost of acquiring or using images (5)
- Acceptance by other faculty members (5)
- Time required (5)

Overall concerns: She discussed equipment, cost, technical support, time required, tools, image selection, and image quality as barriers. She suggested hiring students with BAs or MAs in the field who have good technical skills to work with researchers instead of hiring technical support staff with no sympathy or understanding of the subject. She stated that some students are not up to doing doctoral work, but they have a real interest in the field.

PARTICIPANT F, GROUP 1

Profile: Male, 36-50 years old. Doesn't teach any longer, taught (Art History) for 20 years. Associate Librarian.

Image use:

18+ terms using images

0 terms with digital images

0 terms with MESL images

0 digital images per course

Highest % of digital images used in any one term: 0%

Types of digital image use: He has not used digital images to teach. He did not allocate any points to barriers.

Overall concerns: He discussed the barriers of accessibility for students, equipped classrooms and labs, metadata, and the need for communication throughout the institution to insure the library will be able to provide the resources needed by faculty.

PARTICIPANT G, GROUP 1

Profile: Female, 36-50, Computer Art, taught 20 years, Assistant Professor.

Image use:

40 terms using images

20 terms with digital images

0 terms with MESL images

DI per course not given

highest % of digital images used in any one term: not given

Types of digital image use: She has used digital images in place of slides, as examples of how the Web works, as source material for studio work.

She allocated points to the following barriers:

- Image selection (5)
- Image quality (5)
- Software tools and templates to manage images (4)
- Copyright issues (3)
- Delivery speed to display images (2)
- Cost of acquiring or using images (1)

Other barriers written in:

- "Appropriation is essential issue—Studio. "People will appropriate, need to be able to do this."

Overall concerns: She didn't discuss the barriers she listed on her questionnaire in depth, but added to the group's discussion of barriers such as equipment, equipped classrooms, accessibility for students, technical support and training. She was concerned with the relationship between technical support staff and faculty. She perceived a separation between academic computing professionals and the technical support staff members who report to them, and faculty who are dependent on them for assistance.

PARTICIPANT H, GROUP 1

Profile: Female, age not given, Computer Animation, taught 16 years, Associate Professor.

Image use:

All terms using images

All terms with digital images

0 terms with MESL images

DI per course: many

Highest % of digital images used in any one term: 75%

Types of digital image use: She has used digital images for demonstrations, critiques, and lectures.

Barriers and their scores:

- Software tools and templates to manage images (5)
- Delivery speed to display images (5)
- Copyright issues (5)
- Time required (5)

Overall concerns: The major barriers for her were speed, storage space, and rights. She is on the computer committee for her college in charge of purchasing computer equipment and had an understanding of how computers were used at her school (different rules for different labs). She discussed two barriers from her questionnaire in particular: delivery speed to display images and time required. She participated in the discussion of accessibility for students, equipment, image selection, and recognition from the university. She raised the issue of release time.

PARTICIPANT I, GROUP 1

Profile: Male, 36-50 years old. Computer Art (Studio), taught many years, Adjunct Professor.

Image use:

10 terms using images

10 terms with digital images

0 terms with MESL images

100's digital images per course

highest % of digital images used in any one term: 100%

Types of digital image use: He has used digital images for starting and ending points for student work, demonstrations, and history.

Barriers and their scores:

- Image selection (6)
- Equipped classrooms and labs (6)
- Delivery speed to display images (6)

Other barriers written in:

- Lack of images originally created for cyber
- Web browser constraints: differences in performance, differences in resolutions, spatial, color.

Overall concerns: His background was in computers before he began teaching computer art. In addition to the barriers listed on his questionnaire, he participated in the discussion of barriers including equipment, image quality, metadata, recognition from the university, technical support, tools, and training. He spoke about recognizing the intellectual value of faculty's ideas, effort, and research during the discussion on metadata.

PARTICIPANT J, GROUP 2

Profile: Female, age 51-65, Art History and Multimedia, taught 30 years, Full Professor.

Image use:

60 terms using images

10 terms with digital images

0 terms with MESL images

100-1400 digital images per course

highest % of digital images used in any one term: 100%.

Types of digital image use: She has used digital images to teach a survey course in Art History and has used them with Director and other multimedia programs.

Barriers and their scores:

- Cost of acquiring or using images (5)
- Time required (3)
- Copyright issues (3)
- Delivery speed to display images (3)
- Technical support and training (2)
- Equipped classrooms and labs (2)

Other barriers written in:

- critical mass of images

Overall concerns: She discussed all the barriers she allocated points to in the questionnaire. She described a model for a colleague-training program at her institution that she is taking part in next year. She is one of four faculty members at her university who will train their colleagues in exchange for working half time.

PARTICIPANT K, GROUP 2

Profile: Male, more than 65 years old. Studio Art, taught 40 years, Full Professor.

Image use:

40 terms using images

8 terms with digital images

0 terms with MESL images

200 digital images per course

highest % of digital images used in any one term: 100-10%

Types of digital image use: He has used digital images of maps, student work, and other art resources both as images for teaching and on Web sites as imagemaps.

Barriers and their scores:

- image quality (5)
- delivery speed to display images (5)
- technical support and training (3)
- equipped classrooms and labs (2)
- image selection (2)
- copyright issues (2)
- accessibility for students (1)

Overall concerns: He discussed two of the barriers he listed on his questionnaire at length. These were image quality and technical support. He was a seasoned user with an interest in technical issues.

PARTICIPANT L, GROUP 2

Profile: Female, age not given, Art History and Multimedia, taught 20+ years, Associate Professor.

Image use:

40+ terms using images

12 terms with digital images

0 terms with MESL images

DI per course not given

highest % of digital images used in any one term: 50%

Types of digital image use: She has used digital images to create Art History education software.

Barriers and their scores:

- Image selection (4)
- Equipped classrooms and labs (3) wrote in: including software
- Cost of acquiring or using images (2)
- Time required (2)
- Image quality (1)
- Copyright issues (1)
- Acceptance by other faculty members (1)

Other barriers written in:

- Recognition for expertise & pioneering work from university (6)
- Working with many different people to accomplish teaching goal.

Overall concerns: Concerned with recognition by universities and the value they place on her work. She viewed digital technology as enabling new ways of thinking and reaching a broader audience. She discussed all the barriers listed on her questionnaire. She was particularly concerned with the two barriers she wrote in which dealt with recognition from the university and collaboration between departments. As an early adopter, she had experience with products becoming obsolete.

APPENDIX D—POWERPOINT SLIDES FROM CONFERENCE PRESENTATION

Faculty Perspective on Teaching with Digital Images

Lena Stebley

Why is the End-User's Perspective Important?

- To really understand the framework of implementing a new technological tool, one must gain at least a rudimentary knowledge of what it will take to get users to employ it
- We need to understand the various obstacles to teaching with digital images before such image use is widely adopted within the instructional process.

End-User Perspective, Lena Stebley

2

Research Sources

- Focus group interviews at the CAA conference in Toronto on February 27, 1998
- Beth Sandore's MESL-supported pre-and-post classroom survey of faculty and students using MESL images (Sandore, 1997)
- Recent survey of faculty and slide curators on using digital images in the classroom (Corbetta-Noyes, 1998)
- Eileen Fry's survey of art history slide librarians and faculty (Fry, 1998)
- Transcripts from a discussion on MESL impact among MESL project coordinators at the final participants' meeting held on May 20, 1997 in Charlottesville.

End-User Perspective, Lena Stebley

3

Methods

- The focus groups were intended to raise underlying issues and concerns that might otherwise be missed using other research methods.
- The goal was to probe further into issues raised in the MESL project and to gain a fuller understanding of some of the barriers and facilitators to using digital images in the classroom.
- The primary concern of this study was the usage (whether actual or perceived) of digital images in universities.
- The interview questions were framed around the topics of university infrastructure and accessibility of digital images to faculty and students.

End-User Perspective, Lena Stebley

4

Fundamental Issues for Discussion

- What were the advantages/disadvantages to using digital images?
- Why did or didn't you teach with them?
- What would need to happen for you to teach with them?
- What were the inherent problems (actual and perceived) of using the digital images?
- Would you use them again? Why or why not?
- What were the inhibitors to using digital images (particularly for non-users)?

End-User Perspective, Lena Stebley

5

Primary Focus Group Questions

1. Who has used digital images in the classroom? Who would like to use digital images?
2. Would you briefly describe your experiences with using digital images to teach?
3. What were the advantages and disadvantages of using digital images in the classroom?
4. What differences do you perceive between using digital images and other visual resources such as slides, videos, books, and prints?
5. What are the critical factors in deciding to use digital images to teach? (Are there barriers or impediments to using digital images?)
6. How can other faculty members be encouraged to use digital images?
7. Would you use digital images again to teach?

End-User Perspective, Lena Stebley

6

Participants

- 7 women and 5 men
- Number of terms teaching with digital images ranged from none to 32
- Participants taught studio art or art history for up to 40 years
- Number of digital images used in a course ranged from none to 1400.

End-User Perspective, Lena Stebbins

7

How did Faculty use Digital Images?

- Classroom projection and assignments (principal use)
- Large-scale projects such as reconstructions and image databases
- Art history teachers:
 - create study guides for students
 - make comparisons in class
 - allow students to examine the images independently
 - to stimulate group discussion
 - manipulate images (outlining objects in images, creating overlays, adding or removing color, or showing part of an image in many levels of detail).
- Studio art teachers:
 - demonstration
 - lecture
 - critique
 - source material to create new art

End-User Perspective, Lena Stebbins

8

Potential Benefits of Digital Image Technology

- Broader audience (a means of reaching beyond conventional academia)
- Encourage new ways of thinking (new technologies stimulate innovation in teaching)
- Study images for students (study at your own pace remotely)
- Repurpose data (build something big then repurpose a bunch of ways)
- Viewing flexibility (view many thumbnails; bring up one larger image; project in class or access via network)
- Distance education (a good way to "market" digital projects to administrators to get funding).

End-User Perspective, Lena Stebbins

9

Potential Obstacles of Digital Image Technology

- "Vortex of need" to start up: equipment, training, support, etc. (the complexity of the aggregate components was the overwhelming barrier for many faculty)
- Schools without slide libraries may be "priced out" of this new form of image distribution. The schools that could benefit most from digital distribution (i.e., those without large slide libraries) might not be able to afford the licensing fees nor even have funds to buy the necessary equipment.

End-User Perspective, Lena Stebbins

10

Major Issues with Using Digital Images to Teach

Findings and Observations from the focus group interviews

Image Quality and Image Selection

- Level of quality depends on their purpose (connoisseurship vs. documentary support)
- Quality of digital images was no worse slides
- "Critical mass" of the right images is needed.

End-User Perspective, Lena Stebbins

17

Image Selection Considerations

- Distribution models that limit their selection of digital images to those images available from participating museums cannot by themselves supply the images faculty members require.
- A significant percentage of images used in teaching art history is not from museums.
- A critical precondition to faculty use of a digital distribution scheme will be mechanisms to easily integrate images from other sources in ways that make them look and function like a unified collection.

End-User Perspective, Lena Stebbins

13

Metadata

- Ability to customize interpretive data (commentary) and descriptive data (attribution, dates, provenance) that accompanies an image.
- Descriptive data about images should flow in both directions between the data providers (curators) and the universities (art historians)

End-User Perspective, Lena Stebbins

14

Other Major Issues

- Technical Support and Training
- Tools (software and hardware) to manage, manipulate, and display images and descriptive data
- Time and Recognition
- Resources and Collaboration

End-User Perspective, Lena Stebbins

15

Advantages of Digital Images

- Animation, reconstructions, and other innovative ways to visualize static materials (interactive applications encourage the viewer to take part in the learning process)
- Asynchronous use to study at one's own pace from a remote location
- Digital distribution schemes offer the possibility that more images may eventually be available than any one university can provide.
- Easy manipulation of images (create new images; customize existing images by adding titles, outlining structural elements, or resizing; juxtapose with other images)
- Motion, interactivity, and a mixture of media are effective in keeping the classroom focused and attentive.

End-User Perspective, Lena Stebbins

16

Advantages of Slides

- No complicated infrastructure. Viewed simply by holding to a light (while a digital image must be accessed electronically and viewed with the proper, albeit commonplace, software)
- You own them outright (vs. a licensing arrangement where one only has the right to use an image for the duration stated in the agreement)
- Slides are the prevalent technology in art history departments and teachers have built their courses in conjunction with slide collections
- Slide collections are built at the local (departmental) level and cater to the needs of individual faculty members
- Slide libraries contain all the relevant images which teachers require for their courses and can respond quickly to curricular changes.

End-User Perspective, Lena Stebbins

17

Recent Survey on Using Digital Images: Advantages & Disadvantages

- Positive aspects of using digital images:
 - ability to manipulate and compare images
 - improved availability to greater number of users
 - the ease of searching through multiple access points
 - text can accompany the images
 - students benefit greatly from the ease of reviewing, using for projects, and searching.
- Negative aspects of using digital images:
 - diminished resolution (compared with slides)
 - the need for high-end equipment
 - a high learning curve for faculty.

End-User Perspective, Lena Stebbins

18

Recent Survey on Using Digital Images: Features Desired in a Resource Tool

- ease of use
- flexibility
- ability to compare, zoom, manipulate images
- links to supplemental text (critical)
- a virtual workspace
- on-line exams
- study guides
- course assignments

End-User Perspective, Lena Stebbins

19

What do Faculty Need in Order to Teach with Digital Images?

- Faculty need incentives
- The conversion process must be quicker and easier to accomplish
- Classrooms and labs must be adequately equipped
- Faculty need tools
- Technical support and training must be ongoing
- Universities must value this work.

End-User Perspective, Lena Stebbins

20

What Features Must an Image Database Include?

- a critical mass of the right images
- integration with the local system
- ease of use and flexibility
- permit customization at the user's end
- faculty must be able to add text data
- text data should flow in both directions between museums and universities.

End-User Perspective, Lena Stebbins

21

Supplemental Slides

The Challenge of Using New Tools

- Most participants were eager to learn new software provided they were given the release time to do so by their departments
- Students with varying levels of experience with the software were equally receptive
- Demonstrations were suggested as a way to introduce colleagues to the use of digital images to teach
- Colleague training programs which give release-time credit to faculty members who train others to use new technologies
- Collaboration (interdepartmental and intradepartmental; outside organizations; students).

End-User Perspective, Lena Stebbins

23

Ideas to Help Faculty Go Digital

- A hybrid database that tracks both slides and digital images by indicating the location of each (physical or virtual)
- Academic credit for faculty who use new technologies to "publish"
- Release time for faculty to learn software and develop curriculum and projects
- A colleague training program that gives release time credit to faculty members who train others
- Demonstrations for colleagues of the uses of digital image technology and tools.

End-User Perspective, Lena Stebbins

24

IMAGE EVALUATION TEST TARGET (QA-3)

APPLIED IMAGE, Inc.
1653 East Main Street
Rochester, NY 14609 USA
Phone: 716/482-0300
Fax: 716/288-5989

© 1993, Applied Image, Inc., All Rights Reserved