

Trends in Image Use by Historians and the Implications for Librarians and Archivists

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Abstract

For years libraries have offered reproduction services to users, with historians being the core audience. More recently, archives and special collections have developed digitization programs to make primary sources widely available through the Internet. The authors tracked image use from 2000-2009 in journals from the discipline of history to discover whether use of images has increased with the growing availability of digital images through libraries, or from social media sites such as Flickr. The study discusses the results, which show no increase in the inclusion of images in the literature, and the implications for librarians and archivists.

Introduction

The number of searchable collections of digital images has exploded in recent years, and library special collections have been the source of many of these images. Historians are an important user group of special collections but, before the digital era, made limited use of images in their work. Because images have become abundantly available online and some historians have called for greater use of these largely unexplored primary sources in historical research, this study asks how such collections, particularly those of images digitized from libraries' archival holdings, were used by historians in the decade from 2000-2009. The study seeks to determine whether the increase in images available online through institutional sources, such as library-curated and collected databases, as well as non-institutional World Wide Web resources, such as Flickr and Google Images, led to an increase in the inclusion of illustration in scholarly historical literature. The study charts over time the presence of images in articles appearing in selected high-impact and open access journals and the sources of the images reflected in the credit lines or citations. The study also presents issues related to the

understanding of images as historical documents and makes some recommendations about how obstacles to access and use might be ameliorated with librarians' and archivists' help.

Growth in Availability of Digital Images

The presence and availability of images on the World Wide Web has greatly increased in the last two decades. The term *digital library* appeared, perhaps for the first time in print, in a 1988 report to the Corporation for National Research Initiatives. In 1990 the Library of Congress launched the pilot of the American Memory project, which debuted on the World Wide Web in 1994. The following year saw the launch of the Library of Congress National Digital Library Program. In 1997 the Art Museum Image Consortium (AMICO) was formed, and in 1998 the Online Archive of California was formally integrated with the renowned California Digital Library project. Many states eventually followed California's impressive lead and supported the consortial digitization and display of primary sources, particularly photographs of local interest; for example, in 2006 Illinois established a repository for digital content created by member libraries of the Consortium of Academic and Research Libraries in Illinois (CARLI). By 2000, the American Memory project reached its goal of 5,000,000 items; and the National Digital Information Infrastructure and Preservation Program, led by the Library of Congress to preserve digital content, was mandated by Congress. Moreover, image collections are not only available from institutions. Online personal photo sharing sites Fotolog, ImageShack, Photobucket, Flickr and Picasa, and DeviantArt (an online community of user-made artwork) all launched between 2000 and 2004, and by October 2009, Flickr alone had surpassed 4,000,000,000 uploads. In the past two decades, colleges and universities, federal and state governments, for-profit businesses and individuals have put tremendous effort and resources into building online repositories of image collections.

The popularity of online photo sharing sites such as Flickr is undisputed. Moreover, page hits and image views statistics for online collections of historical photographs created by the authors' library, the University of Illinois at Chicago (UIC) Library (Table 1), has outstripped on-site requests for access of the source physical collections at UIC Library. It is, however, not known whether the increased accessibility of visual resources is having an impact on the scholarship of historians who comprise the primary users of historical and cultural heritage collections at most academic special collections and archives.

[Insert Table 1]

Review of the Literature

A search in Academic Search Premier, Google Scholar, and Library Literature and Information Science Full Text for the topic of image use in the scholarly literature of history recovered no studies about the extent of use of digital images over time. Instead, the searches retrieved studies of information-seeking behavior in the humanities, works by historians about accessing and using images in research, and contributions by librarians and archivists about the creation of image collections for their use in teaching.

Since the 1980s, there have been several noteworthy studies of how researchers in the humanities, including historians, find and use secondary and primary sources. Helen R. Tibbo's "Primarily History in America: How U.S. Historians Search for Primary Materials at the Dawn of the Digital Age"¹ discusses the results of a survey of historians teaching American history regarding how they find sources in the online environment. Despite access to many electronic research tools (bibliographic and article databases, digital collections of primary and secondary sources), Tibbo found

that historians used mostly traditional methods for locating primary sources, such as following leads and citations in printed sources, using printed bibliographies—even the long out-of-print National Union Catalog of Manuscript Collections (NUCMC)—for gathering citations, and relying on printed documentary editions as sources.²

In a 2004 article, Margaret Stieg Dalton and Laurie Charnigo examined “which materials historians consider to be most important and how they discover them,”³ with special attention given to the role of electronic resources. Using citation analysis and survey methodology, the authors found results similar to Graham,⁴ Stone,⁵ Blazek and Aversa,⁶ and Wiberley and Jones⁷ about the characteristics of humanists: humanists tend to work alone, they need to browse, they borrow research methods from other disciplines, and they use a range of primary sources but depend most on books and journals.⁸ The Dalton and Charnigo article ranks the most important sources for primary information from a survey of historians: 1) archives, manuscripts, and special collections; 2) books; 3) newspapers; 4) government documents; 5) journal articles; 6) oral interviews; 7) photographs or images; 8) artifacts or museum pieces; 9) published primary documents; 10) statistical sources; and 11) audio visual materials.⁹ These findings vary slightly from Tibbo’s, which rank the most important sources, in descending order, as 1) newspapers; 2) unpublished correspondence; 3) unpublished diaries or journals; 4) government papers and reports; 5) published pamphlets; 6) government correspondence; 7) handwritten manuscripts; 8) typed manuscripts; 9) scholarly periodicals; and 10) photographs.¹⁰ That the two sets of findings vary at all may be attributable to the way in which the survey questions were devised and how document types were labeled. After all, “archives, manuscripts and special collections” is a much more inclusive category than “unpublished correspondence” and “unpublished diaries or journals.” Glaringly, books do not appear on Tibbo’s list of important documents at all.

Tibbo further asserts that historians apply “traditional methodologies”¹¹ to locate primary materials with “citation chasing” being the most common, unsurprising given that 68 percent of

historians consider citation to previous scholarship essential in establishing the research value of a source.¹² Rounding out the most frequent ways of discovering primary information are printed bibliographies, finding aids, and library catalogs and archival repository guides.¹³

Following from Roberto Delgadillo and Beverly Lynch's 1999 article in which the authors examined history graduate student information-seeking behavior and library use,¹⁴ Andy Barrett took a slightly different tack in his 2005 study examining the information-seeking behaviors of humanities graduate students and comparing them with those of humanities faculty and undergraduates.¹⁵ Though he affirmed findings by Case, Wiberley and Jones, Lehman and Renfro, and Dalton and Charnigo that professional historians and humanities faculty tend to be conservative in their use and trust of digital resources,¹⁶ Barrett found a greater trust in and comfort with the use of digital resources among undergraduate and graduate students. However, Barrett's interviews with humanities graduate students revealed that their information-seeking behaviors differed from both faculty and undergraduates, with participants citing a "generation gap" between faculty and graduate students when it comes to using information technology as a research tool. But unlike undergraduates, who are perceived by graduate students to rely too heavily and invest too much trust in Internet resources, graduate students are confident in their abilities to access and interpret a wider variety of resources.¹⁷ Like faculty and undergraduates, they "do not rely heavily on librarians, although many pointed out the value of librarians and archivists in helping to locate hard-to-find materials."¹⁸

Tibbo, Dalton and Charnigo, and Barrett tell us that while historians report that they use images in their research and graduate students use Internet sources critically, digital image sources are seemingly not widely used. Joshua Brown and Peter Burke, in their writing, have concluded that images deserve greater attention from historians. In a 2004 article that Brown describes as "a self-critical, historically informed progress report to assess ways that different forms of visual media admit and frustrate public expression and education," he focuses on the successes and weaknesses of past digital

projects such as “Who Built America” and “The Lost Museum,” and how future digital projects might work better with pedagogical theories applied. He writes, “our consciousness of the past is inextricably bound by pictures.”¹⁹ Brown was confounded that in spite of the “exponential increase in pictorial archival resources” available on the World Wide Web, U.S. historical scholarship remained so resolutely textual, pointing out the remaining “gulf between producers and users.”²⁰ He challenged historians to take advantage of this wealth of new source material in their scholarship and teaching. Peter Burke, in his book *Eyewitnessing: The Uses Of Images As Historical Evidence*,²¹ shares Brown’s frustration at the lack of creativity on the part of historians for not harnessing the full potential of visual resources as vibrant sources to be studied, analyzed and written about, again noting that most historical analysis uses texts as the primary source of study. Images are used as illustrations, as a way, perhaps, to capture the interest of the reader, but are most often presented without commentary or as a means to “give new answers or to ask new questions.”²²

One can note that historians have near at hand in art history a wealth of scholarship where images are the most important evidence, and historians can learn from that scholarship. After all, students of art history learn to “read” pictures from their first survey course. Likewise, historians may begin to view images as more than mere illustration and instead look to images with the same critical eye as they do textual sources.

Methodology

The authors hypothesized that the proliferation of online images in the time since Burke and Brown urged historians to make better use of them as a resource has resulted in increased use of images during the past ten years in the scholarly literature of history and increased reliance on social-

networked, non-traditional sources of illustrations. Counts of the number of images published in articles and analysis of their source citations was used to determine the validity of the hypothesis.

For this study only journals were used for the source data. The 1,366 articles ultimately examined provided a large set of data that could be analyzed through a consistent approach. The authors gathered two sets: 1) core history journals (those that were rated as having the highest impact on the field) and, 2) peer reviewed born-digital, open access journals. The open access journals were used as a comparison set against the traditionally print journals because the authors hypothesized that historians publishing in online journals would be more likely to take advantage of the online environment to include not only images, but other kinds of multi-media sources as well.

The core journals set consisted of five titles - *American Historical Review*, *Comparative Studies in Society and History*, *Ethnohistory*, *European History Quarterly*, *History Workshop Journal* - that met the following criteria:

- identified in Ulrich's as peer-reviewed,
- had electronic holdings for 10+ years accessible to the researchers,
- ranked in the top 20 in the Journal Citation Reports, Social Sciences edition, History subject category, and
- had no editorial policy limiting the inclusion of illustrations.

The second set consisted of seven titles - *49th Parallel*, *Electronic Journal of Vedic Studies*, *Heroic Age*, *ERAS*, *E-Journal of Portuguese History*, *Digital Medievalist*, *Journal of Historical Biography* - that

- were identified in Ulrich's identified as both peer-reviewed and open access,
- had electronic holdings for 10+ years accessible to the researchers, and

- had no editorial policy limiting the inclusion of illustrations.

Once the journals had been selected, the researchers downloaded copies of each research article (excluding editorial notes, personal essays, book reviews, and forums) from issues dated 2000-2009. Information from each article was recorded in a spreadsheet according to the following procedures:

- Open the electronic file for each article and scan carefully for images, enumerating all in a spreadsheet and documenting where articles included no images. (Appendix 1)
- Locate the citation for each image in an article. Copy the citation into the spreadsheet (or note the absence of a citation) and record the citation as one of the following types:
 - Institutional Print (printed material associated with an institution such as a library, a museum, an organization, association, or school);
 - Non-Institutional Print (printed material from personal collections, for example);
 - Institutional Electronic (digital material from an online collection of a library, museum, organization, association, or school, for example);
 - Non-Institutional Electronic (personal Flickr accounts, blogs, other personal Websites);
 - Photographer credit only; or
 - No source, i.e. no citation.
- Count the number of images/citations in each category for each article, then aggregate these numbers for each volume and then for each year (if not the same) of the journal.
- Note the total numbers within each category for the entire journal for the period under examination.

The authors discussed exceptional cases before accepting or revising tentative categorizations. For instance, it was difficult to be fully confident in the data recorded because of the inconsistencies in the citations and credit lines to images. It may well be that any given historian initially discovered it online, but chose to cite the location of the original instead of referencing the digital surrogate. Citation styles can vary by journal as well. The authors took these possibilities into consideration throughout the study but were unable to correct for it in their methodology.

Results

Results do not support the authors' hypothesis that born-digital, open access journals would be more likely to include more images than core journals. In fact, as Table 2 illustrates, over the ten-year period, articles from the core journals were substantially more likely than open access journals to include images, 42.77% of the time versus 15.75%. The data also shows that use of images has remained at a relatively consistent level year to year among the core journals, ranging from a low of 36.19% of articles (2008) up to a high of 48.48% (2000). By comparison, articles in the open access journals have ranged more widely, between 4.17% (2009) and 26.32% (2002) in their use of images.

[Insert Table 2]

In neither the set of core journals nor of open access journals is there a discernible trend of growth - or decrease - in the inclusion of images in publication. Figure 1 depicts the combined data from both sets, showing that the year-to-year tracking neither rises nor falls, nor is there a trend towards greater inclusion of images overall. This was surprising given the previously-identified explosion of institutional and personal image collections online. Inclusion of images in publications appears not to

correlate with growth in the number and availability of online image collections after all, thereby disproving the authors' hypothesis.

[Insert Figure 1]

More granular analysis (Table 3) shows that the two sets of journals share two characteristics. In both sets of journals, there are relatively few citations to non-institutional sources, especially electronic ones.²³ This scarcity works against the supposition that the increased abundance of non-institutional image collections online would be used by researchers as a source. It may be that the images represented in those online collections are too new, or not of sufficient historical value, but that is speculation. Interestingly, the data from articles in the set of core journals suggest that historians continue to rely on primary source image collections at institutions. These institutional citations to print sources occur twice as often (65.67% versus 29.99%) as the next most important, images without a credit or that credit the photographer only. Citations often indicated that these were photographs taken by the article's author. The reverse is true for open access journals, however; images derived from institutional sources are a useful source for historians (29.25%), but the category of "no source" was doubly so (65.07%). In this case, perhaps, the medium of delivery, i.e. the Internet and computer applications, did positively impact the use of images from the authors' own collections at least, with the easy access and upload abilities of the online environment.

[Insert Table 3]

Implications for Libraries and Archives

The study found that there is no increase in the use of images in articles in journals in the discipline of history over the past decade. While the availability of images online has grown steeply, the number of images in history journals has remained more or less level during the decade between 2000 and 2009. In discussing implications for libraries and archives, then, it is worthwhile to consider some of the possible reasons for historians' apparent reticence to use digital images, introduce strategies that librarians and archivists can employ to improve access to images, and acknowledge that the librarians' and archivists' influence is ultimately quite limited. In the end, it is historians who either will or will not raise the status of images in their writing and research.

To start with, there is the matter of relative importance of documents to historians' research. As the Tibbo and Dalton and Charnigo articles suggest, librarians need to more fully understand the ways in which users value different formats of documents. If photographs and other visual resources hold little interest to historians, and historians are a primary audience for collections of digitized primary sources, it is perhaps unwise to devote resources to a digitization project that will not gain widespread use by this primary audience. Given this data, librarians and archivists might reassess digitization priorities and consider shifting priorities to creating digital surrogates of textual documents. On the other hand, libraries might first promote image use by historians before abandoning efforts to digitize visual resources.

Based on the findings, the authors speculate that historians are not finding images suitable to their research. This then suggests that if libraries and archives can better promote available resources, obstacles to access may be mitigated. Certainly there is a longstanding tradition of the use of such images from archives, libraries, and other cultural institutions by historians, but whether scholars are turning to the abundance of images now available online and using them as a starting point or even as an end point for research is still in question. For institutions, however, understanding where scholars search for images and what images they seek matters because it will inform whether they put online

images (on institutional servers, Web sites like Flickr, or both), how they market/promote the use of the online images, and what steps might need to be taken to make images searchable/findable.

One outcome to consider, then, is collaboration between librarians and archivists on the one hand, and users such as historians on the other. The gulf between producers of digital content and users referred to by Brown becomes clear when evaluating the literature of primary source digital collection development and digital image use and reference service. Shan Sutton argues for a documented digitization strategy that would include a plan for revamped organizational structure to make digitizing special collections routine and a guiding example for all library digitization. He states that no longer should digitization be grant-driven, but simply part of the workflow, and that “collaboration between special collections and digital library units” is necessary for success.²⁴ Sutton does not, however, discuss the possibility of special collections librarians and archivists collaborating with their users, or even the necessity of understanding user needs as a step in the organizational strategy. The authors suggest that, based on the literature that shows that historians value texts over visual resources, it would enhance the value and relevance of digitization efforts to include users, in this case historians, in decision-making and perhaps even workflows such as metadata creation or descriptive tagging.

Discussion of digital collections in libraries cannot omit mention of authority and standards. Libraries and archives, in their stewardship of images and other materials, have engendered credibility and trust over the years, and that trustworthiness is reflected in the data showing that historians rely heavily on institutional or published sources for images. As an example, metadata attached to images is expected to adhere to standards with required fields and controlled vocabularies. This leads to improved reliability of the collections. Metadata occasionally exists for images found online through social networked image collections (Flickr, for example), but it is often in the form of natural language tagging, not terms from thesauri such as the Library of Congress Subject Headings or in schema such as Dublin Core. Nonetheless, users are accessing social networking sites (Flickr, etc.) more frequently than

institutional sites, and social networking sites can provide broader exposure to even institutional collections. As an example, UIC Library has posted images both to Flickr and on the CARLI Digital Collections website. Usage data from each shows that the Flickr images each averaged 5.29 views per month between June 2010 and June 2011, while the CARLI Digital Collections site averaged only 0.74 views per month over the same period (Table 4). These findings suggest that the public is not necessarily seeking historical, authenticated images by going directly to library websites and accessing digital collections, although the public may value the authenticity and authority that historical images associated with and described by libraries help ensure.

[Insert Table 4]

Authenticity and authority of the images aside, there is, as Martha Sandweiss notes, the question of the stability of images as historical records, particularly in the case of online databases where the archival collection context is easily lost.²⁵ This is an important consideration for librarians and archivists, who need to devise ways to link digital surrogates to their original sources. Mass digitization of entire archival collections might be a way to do this, instead of selective digitization, which asserts subjective superiority of some documents over others.

Teaching users to understand and use new technologies should be part of the library's instructional goals. Technology anxiety and limited competency might also contribute to the slow growth in the use of digital collections in research and publication. Maureen Burns and Rina Vechiola found that teaching faculty at the University of California were reluctant to adopt new technologies to deliver the same information that they were otherwise comfortable delivering in traditional ways, and in general preferred creating their own personal collections rather than navigating big, complex databases of images.²⁶ Faculty also had general access and copyright concerns. Burns and Vechiola identified the

need for many partners in outreach to educate instructors on what resources are available and how to use the technology to access, download, and manipulate collections of digital images (including how to manage rights). They urged librarians to take a more active role in assessing faculty use of images in their research and enlist faculty in identification of areas for content growth, and work with instructional technology staff to ensure classroom access and usability of digital collections and with programmers and vendors to create usable, easily understood presentation products. The authors also thought that tools should be developed to integrate library resources with faculty personal collections. While librarians and archivists cannot control the rapid changes in the technology landscape, they can conduct user studies to aid in the design of more effective user interfaces and discovery tools in the library. They can also test tools, products and databases with an eye to accessibility and usability, and offer feedback for improvements to vendors and developers.

For most of the considerations discussed above, librarians and archivists can contribute decisively to change. However, archivists cannot necessarily influence the pedagogy or research methods used by historians. Michael Lesy, for example, suggests that historians wishing to attain visual fluency become photographers themselves.²⁷ He claims that visual literacy is akin to learning how to speak and read any other language. Photography must be learned and practiced with the guidance of an expert teacher, and the photography student should undergo peer critiques in order to fully comprehend not only how images are composed and the mechanics and processes of light and shadow on film (or the digital version of that), but also to begin to see the importance of how others perceive a work. Lesy says that to “understand a photograph fully is to see it whole, to respond to it empathically *and* analytically, to experience it in order to decipher it.”²⁸ Librarians and archivists *might* help historians achieve a higher degree of what Thomas P. Mackey and Trudi E. Jacobsen have termed metaliteracy.²⁹ The traditional framework of information literacy is by now familiar to most reference librarians and teaching faculty, but this framework makes up just one component of the metaliteracy framework,

which includes visual literacy, media literacy, digital literacy, and cyberliteracy. While information literacy competency standards now recognize media beyond print³⁰ it is unclear what information literacy competencies students of history are being held to, particularly at the college-level.³¹

In terms of visual literacy there is Lesy's assertion that for logocentric historians, becoming visually fluent is essential to "enable historians to explore archival photo collections located in libraries, museums, and state historical societies," because "[those] archives, hidden in plain sight, are treasure troves of experiential information--dense, sensuous, variegated, almost endless in their depth, breadth, and extent ... Can any sentence, no matter how lucid, no matter how eloquent, enable a historian to look into the eyes of our common dead?"³² Today, with literally instant access to so many of these photographic archives placed in digital collections on the Web, a historians' opportunities for incorporating these dense visual texts into their work are greater than ever before.

Conclusion

The *American Historical Review*, the preeminent journal in the field, first accepted illustrations for submitted articles in vol. 76, no. 1 (February 1971). The editorial that introduced this acceptance stated that they did so because new printing technology enabled the inclusion of illustrations and that the hope was to "offer both wider interest and greater possibilities to its authors, its readers, and the profession at large."³³ Decades later, online-only open-access journals encourage the use of images and multi-media in articles, but few authors have taken immediate advantage of the opportunity. Given that the technology to include images in journals has been in place for many years, that current tools enable faster and easier research in image archives, and that historians themselves urge expanding "the text" to include visual resources, one might expect that the presence of images in the literature of history would have increased. Instead, as the results of the present study show, there is still relatively minimal

inclusion of images in scholarly publications in history. As a result, the potential gains from the use of images have not been realized. Visual analysis in the historical literature remains stunted so long as most images are used merely as illustration. The authors take this as an implicit sign that use of online digital collections, whether originating with libraries and archives or not, is lower than might be hoped or expected.

Archivists and librarians can draw a few lessons from the study:

- Marketing and promotion may matter. The data show that traditional, hard-copy versions of visual materials are most heavily used, at least in the core journals, despite efforts by archives and other cultural institutions to digitize these materials. Historians should be made aware that these materials are available online, accessible from any place that has an Internet connection. Libraries and archives should market and promote these collections not just to their most regular users, but broadly, to new audiences of scholars. These goals may be accomplished by wide dissemination of digital collections of library, archive or museum created projects through social networking sites, profiling digital collections on institutional websites, and utilizing other means of promotion such as exhibits, email blasts and blog posts, postcards, and posters.
- Collaboration among librarians, archivists, and historians should shape digitization efforts. This goes beyond promotion of the materials. It means engaging scholars in developing online collections. Collections enhanced by scholarly input should find greater use by the scholarly community since digital collections would reflect the needs and expertise of the users. Librarians and archivists should educate themselves and further investigate how historians conduct research and develop tools to aid them. This will lead to more successful attempts at connecting scholars with library resources, including image collections.

- Cost of image reproductions and rights fees might negatively impact the use of images in publication. For example, an image of the Tiananmen Square protests in 1989 ordered from Corbis³⁴ for use in a small print run (<2,500) textbook costs a minimum of \$290 for a ¼ page spread. Of course, most academic institutions also charge for photographic reproductions, but more often on a cost-recovery basis. Even at \$20 per image, the cost may quickly become prohibitive for a historian publishing in a scholarly journal. Libraries should reduce costs to remove economic barriers to the use of collections material.
- Other practical obstacles to using images in publications exist, such as journals requiring clear evidence of copyright permission. Copyright law may be beyond control of libraries, but libraries may themselves seek creative commons licenses that are standardized and widely accepted and understood.
- Librarians and archivists should incorporate visual literacy training in instruction to help create well-rounded students and future scholars.

The authors further recommend that librarians, archivists, *and* historians examine other fields of scholarship - art history and media studies, for example - wherein visual materials have been of especial use as primary source information to develop strategies for effectively incorporating the use of visual resources in instruction, research and publication. A comparison of various disciplines in the humanities and the social sciences may yield data on image usage elsewhere. For libraries to be truly responsive to users, for libraries to demonstrate the wealth and worth of their archival collections, prioritization for making collections accessible online will be necessary. Finally, libraries and archives should not look at non-institutional collections online as competitors. In so far as images are used for research in history, at least, the authoritativeness and the breadth and depth of collections originating in libraries far outweighs the usefulness of personal and other collections, but access is more limited when those

images are not made available through multiple avenues. Libraries and archives should exploit the ubiquity and ease-of-use of social networking sites to broadcast their holdings.

COLLEGE & RESEARCH LIBRARIES PRE-PRINT

Notes

1. Helen R. Tibbo, "Primarily History in America: How U.S. Historians Search for Primary Materials at the Dawn of the Digital Age," *The American Archivist* 66 no. 1 (Spring/Summer 2003): 9-50.
2. Ibid., 19-20.
3. Margaret Stieg Dalton and Laurie Charnigo, "Historians and Their Information Sources," *College & Research Libraries* 65 (September 2004): 400-425.
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7. Stephen Wiberley and William Goodrich Jones, "Patterns of Information Seeking in the Humanities," *College & Research Libraries* 50 (1989): 638-45; _____, "Humanists Revisited: A Longitudinal Look at the Adoption of Information Technology," *College & Research Libraries* 55 (1994): 499-509; _____, "Time and Technology: A Decade-long Look at Humanists' Use of Electronic Information Technology," *College & Research Libraries* 61 (2000): 421-31.

8. Dalton and Charnigo, "Historians and Their Information Sources," 404.
9. Ibid., 405.
10. Tibbo, "Primarily History in America," 19.
11. Ibid.
12. Helen R. Tibbo, *Abstracting, Information Retrieval and the Humanities: Providing Access to Historical Literature* (Chicago: American Library Association, 1993).
13. Tibbo, "Primary History in America," 20; Dalton and Charnigo, "Historians and Their Information Sources," 407.
14. Roberto Delgadillo and Beverly P. Lynch, "Future Historians: Their Quest for Information," *College & Research Libraries* 60 (May 1999): 245-259.
15. Andy Barrett, "The Information-Seeking Habits of Graduate Student Researchers in the Humanities," *Journal of Academic Librarianship* 31 (July 2005): 234-331.
16. Donald Owen Case, "The Collection and Use of Information by Some American Historians: A Study of Motives and Methods," *Library Quarterly* 61 (January 1991): 61-82; Wiberley and Jones, "Time and Technology," 421-431; Stephen Lehmann and Patricia E. Renfro. "Humanists and electronic

information services: acceptance and resistance." *College & Research Libraries* 52 (1991): 409-13;
Dalton and Charnigo, "Historians and Their Information Sources," 400-425.

17. Barrett, "The Information-Seeking Habits of Graduate Student Researchers in the Humanities," 328.

18. Ibid., 329.

19. Joshua Brown, "From the Illustrated Newspaper to Cyberspace: Visual Technologies and Interaction in the Nineteenth and Twenty-first Centuries" *Rethinking History* 8, no. 2 (June 2004): 253-275.

20. Ibid., 254.

21. Peter Burke, *Eyewitnessing: The Uses Of Images As Historical Evidence* (Ithaca, N.Y. : Cornell University Press, 2001).

22. Ibid., 10.

23. Following are examples of these categories of citation types:

Institutional Print

Cited in "Agency and Diaspora in Atlantic History: Reassessing the African Contribution to Rice Cultivation in the Americas" by David Eltis, Philip Morgan, and David Richardson, *American Historical Review* December 2007: From the log of the slave ship Sandown, p. 55, September 24, 1793.

Reprinted by permission of the National Maritime Museum, London

Non-Institutional Print

Cited in "Property in Writing, Property on the Ground: Pigs, Horses, Land, and Citizenship in the Aftermath of Slavery, Cuba, 1880-1909" by Rebecca J. Scott and Michael Zeuske, *Comparative studies in society and history* April 2002: Photo courtesy of Olga Perez Ribeiro

Institutional Electronic

Cited in "Documentary as Social Justice Activism: The Textual and Political Strategies of Robert Greenwald and Brave New Films" by John Haynes *49th Parallel* Autumn 2007: Reproduction of newsletter, source: <http://www.friendsofqueensmarket.org.uk/>

Non-Institutional Electronic

Cited in "Forced and Forest Labor Regimes in Colonial Madagascar, 1926–1936" by Genese Sodikof, *Ethnohistory*, vol 2 (2002): Map made by Karl Longstreth of the University of Michigan Map Library using Arc GIS software and data from Esri Inc. as well as public data sources,

Non-Institutional Print

Cited in Francine Hirsch, *The Soviets at Nuremberg: International Law, Propaganda, and the Making of the Postwar Order: Hermann Goering as drawn by Boris Efimov*. This caricature was part of the artist's series "Fascist Menagerie." It was published in the Soviet newspaper *Izvestiia* on December 5, 1945. Efimov's political cartoons appeared in the Soviet press alongside articles on the course of the trials. Reproduced courtesy of Boris Efimov.

Photographer Credit Only

Cited in "Property in Writing, Property on the Ground: Pigs, Horses, Land, and Citizenship in the

Aftermath of Slavery, Cuba, 1880-1909" by Rebecca J. Scott and Michael Zeuske, *Comparative studies in society and history* April 2002: Photo courtesy of Olga Perez Ribeiro

24. Shan Sutton, "Navigating the Point of No Return: Organizational Implications of Digitization in Special Collections," *Portal* 4.2 (2004): 241.
25. Martha A. Sandweiss, "Image and Artifact: The Photograph as Evidence in the Digital Age," *Journal of American History* 94 (June 2007): 193-202.
26. Maureen Burns and Rina Vecchiola, "What We Want (and Don't Want) to Know about Faculty Using Digital Images: Lessons Learned at the University of California," *Art Documentation* 24 no. 2 (Fall 2005): 7-15.
27. Michael Lesy, "Visual Literacy," *Journal of American History* 94 (June 2007): 143-153.
28. *Ibid.*, 143.
29. Thomas R. Mackey and Trudi E. Jacobson, "Reframing Information Literacy as a Metaliteracy," *College & Research Libraries* 72.1 (2011): 62-78.
30. See, for example, the Association of College and Research Libraries "Information Literacy Competency Standards for Higher Education." Available online at <http://www.ala.org/ala/mgrps/divs/acrl/standards/informationliteracycompetency.cfm> [Accessed 16 November 2011].

31. Education standards exist at the State level for primary and secondary schools, but not for post-secondary education as discussed in the following articles. Theodore K. Rabb, "What Has Happened to Historical Literacy?" *Chronicle Of Higher Education* 50, no. 39 (June 4, 2004): B24. Available online from *Academic Search Premier*, EBSCOhost [accessed 14 November 2011].; Gary B. Nash, "Reflections on the National History Standards." *National Forum* 77, no. 3 (Summer97 1997): 14. Available online from *Academic Search Premier*, EBSCOhost [accessed 14 November 2011].
32. Lesy, "Visual Literacy," 149.
33. "Association Notes," *American Historical Review* 76, no. 1 (Feb. 1970): 316.
34. For example, see purchase options from Corbis Images <http://www.corbisimages.com/stock-photo/rights-managed/U90117110/protester-blocking-tanks-approaching-tiananmen-square/?tab=details&caller=search> [accessed May 23, 2011].

Appendix 1

For each of the journals examined in the study, a spreadsheet was created according to the template below:

Citations to images in discipline of history								
Journal Name:	<i>[journal name goes here]</i>		Citations to images					
<i>Yr/vol/issue #</i>	<i>Articles</i>	<i># articles w/images</i>	<i>Authoritative source (print)</i>	<i>Non-authoritative source (print)</i>	<i>Authoritative source (electronic)</i>	<i>Non-authoritative (electronic)</i>	<i>No source, e.g. photographer credit only</i>	<i>Researcher notes</i>
[articles numbered in sequence within issue: 2000.01.01, 2000.01.02, etc.]								

TOTAL 2000.01								
TOTAL 2000.02								
TOTAL 2000.03								
TOTAL 2000								

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Figure 1: Ten-year trend in use of images in articles

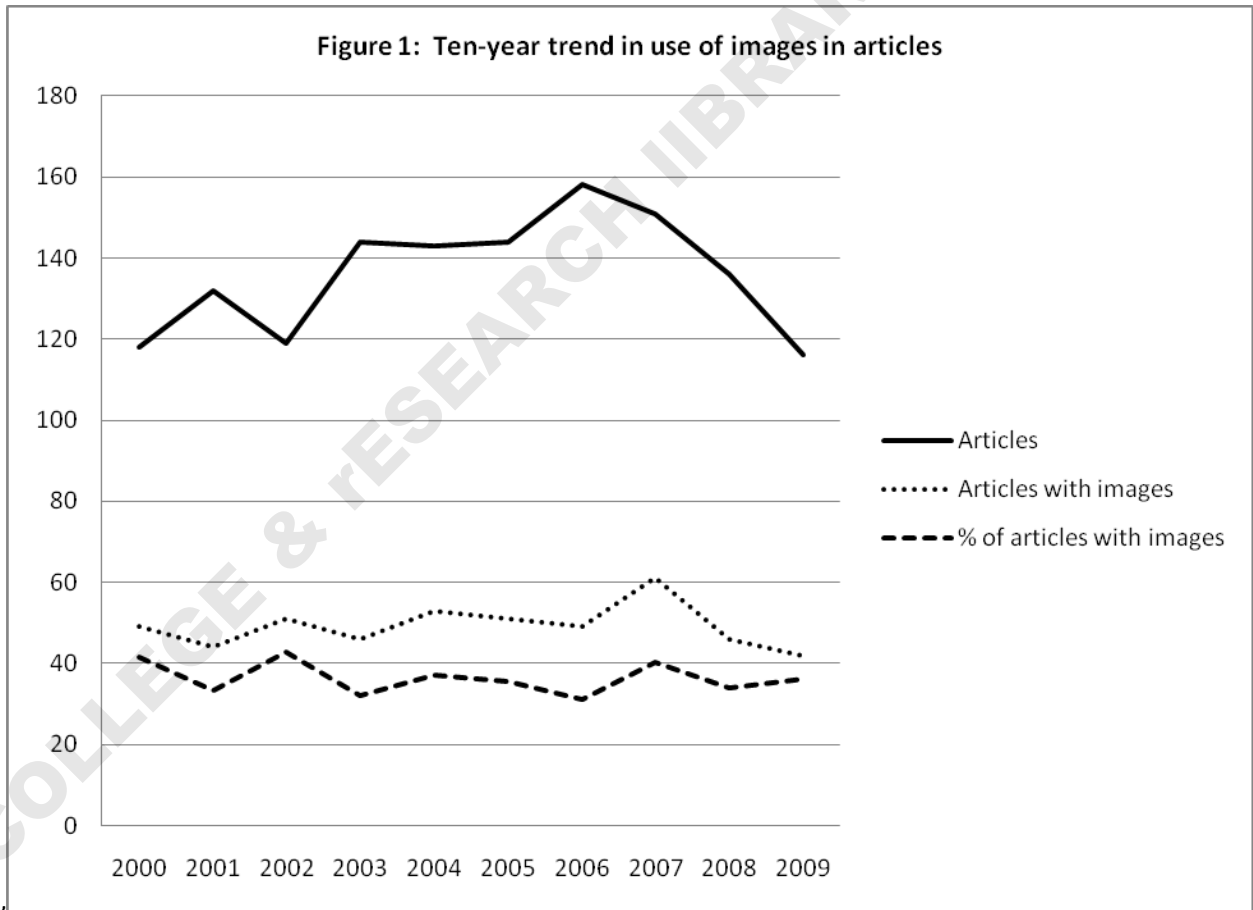


Table 1: Page view statistics from UIC Library Digital Collections available through the CARLI website

	<i>Jan</i>	<i>Feb</i>	<i>Mar</i>	<i>Apr</i>	<i>May</i>	<i>Jun</i>	<i>Jul</i>	<i>Aug</i>	<i>Sep</i>	<i>Oct</i>	<i>Nov</i>	<i>Dec</i>	<i>Total</i>
2006	0	0	0	0	0	0	0	3	0	0	0	55	58
2007	5	0	5	0	2	0	0	1	0	14	207	76	310
2008	674	1621	967	1178	1763	1624	1620	1929	2896	2581	4255	3156	24264
2009	4147	3089	5229	4584	4300	4923	5115	6494	6735	10192	11141	10760	76709
2010	6474	3638	4220	3708	21016	3795	4844	3083	4789	6504	8315	11791	82177

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Table 2: Comparison of articles across the journal sets

	Articles		Articles with images		% Articles with images	
	<i>Top ranked peer-reviewed journals, online version</i>	<i>Online open access journals</i>	<i>Top ranked peer-reviewed journals, online version</i>	<i>Online open access journals</i>	<i>Top ranked peer-reviewed journals, online version</i>	<i>Online open access journals</i>
2000	99	19	48	1	48.48	5.26
2001	97	35	41	3	42.27	8.57
2002	100	19	46	5	46.00	26.32
2003	99	45	39	7	39.39	15.56
2004	105	38	50	3	47.62	7.89
2005	103	41	41	10	39.81	24.39
2006	107	51	42	7	39.25	13.73
2007	120	31	53	8	44.17	25.81
2008	105	31	38	8	36.19	25.81
2009	92	24	41	1	44.57	4.17
Total	1027	334	439	53	42.75	15.87

Mean	102.7	33.4	43.9	5.3	42.77	15.75
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Table 3: Comparison of citation types between the journal sets

Image source type												
<i>In top ranked peer-reviewed journals</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>	<i>2006</i>	<i>2007</i>	<i>2008</i>	<i>2009</i>	<i>Total</i>	<i>Mean</i>
# institutional source (print)	119	121	126	79	109	103	122	109	65	76	1029	102.9
% institutional source (print)	64.67	74.69	63	71.17	69.87	69.13	67.03	61.93	59.09	55.47	65.67	65.61
# non-institutional source (print)	17	3	7	4	8	3	0	1	7	0	50	5
% non-institutional source (print)	9.24	1.85	3.5	3.6	5.13	2.01	0	0.57	6.36		3.19	3.23
# institutional source (electronic)	0	2	0	2	2	1	1	2	5	2	17	1.7
% institutional source (electronic)		1.23		1.8	1.28	0.67	0.55	1.14	4.55	1.46	1.08	1.27
# non-institutional source (electronic)	0	0	0	0	0	1	0	0	0	0	1	0.1
% non-institutional source (electronic)						0.67					0.06	0.07
# no source, e.g. photographer credit only	48	36	67	26	37	41	59	64	33	59	470	47
% no source, e.g. photographer credit only	26.09	22.22	33.5	23.42	23.72	27.52	32.42	36.36	30	43.07	29.99	29.83
Total images	184	162	200	111	156	149	182	176	110	137	1567	
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<i>In online open access journals</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>	<i>2006</i>	<i>2007</i>	<i>2008</i>	<i>2009</i>	<i>Total</i>	<i>Mean</i>
# institutional source (print)	0	0	15	6	29	12	2	28	2	4	98	9.8
% institutional source (print)			53.57	15.38	82.86	14.81	8.33	40.58	4.76	100	29.25	32.03

# non-institutional source (print)	0	0	7	0	0	0	1	0	0	0	8	0.8
% non-institutional source (print)			25				4.17				2.39	2.92
# institutional source (electronic)	0	0	1	0	2	2	3	3	0	0	11	1.1
% institutional source (electronic)			3.57	0	5.71	2.47	12.5	4.35			3.28	2.86
# non-institutional source (electronic)	0	0	0	0	0	0	0	0	0	0	0	0
% non-institutional source (electronic)												
# no source, e.g. photographer credit only	2	11	5	33	4	67	18	38	40	0	218	21.8
% no source, e.g. photographer credit only	100	100	17.86	84.62	11.43	82.72	75	55.07	95.24		65.07	62.19
Total images	2	11	28	39	35	81	24	69	42	4	335	

	Images		Views		Views / image	
	<i>CONTENTdm</i>	<i>Flickr</i>	<i>CONTENTdm</i>	<i>Flickr</i>	<i>CONTENTdm</i>	<i>Flickr</i>
July	9078	785	3854	3770	0.42	4.8
August	9080	785	1966	2264	0.22	2.88
September	9185	885	3015	2145	0.33	2.42
October	9257	1024	3528	4871	0.38	4.76
November	9468	1024	6020	3279	0.64	3.20
December	9467	1024	9242	3990	0.98	3.90
January	10247	1024	5883	5045	0.57	4.93
February	10716	1476	13534	10061	1.26	6.82
March	12453	1476	27556	12818	2.21	8.68
April	12550	1500	12668	13537	1.01	9.02
May	16337	1600	8566	9826	0.52	6.14
June	16392	1603	5793	9587	0.35	5.98
Mean	n/a	n/a	8468.75	6766.08	0.74	5.29