

Teaching Students How to Research the Past: Historians and Librarians in the Digital Age

Dominique Daniel
Oakland University

IN 2003, A TEAM OF HISTORIANS invited their peers to reflect on the long-term effects of new information and communication technologies: “Computers and their digital environments continue to enter the history profession although their benefits are not clear.... After almost a decade of web browsing and more than thirty years of computing, historians need to address what we are doing in this medium and what we ought to be doing.”¹ The reflection was based on a recently completed survey that identified historians’ main concerns. Respondents wondered whether the new computer technologies would “transform the nature and practice of history” or simply facilitate access to resources while research and teaching practices remained fundamentally the same. Opinions were equally divided on this point. Respondents also expressed ambivalent views on the effects of the new technologies on their teaching. While they praised the democratizing effect of the web and digital media, they were rather pessimistic about their students’ ability to use them responsibly, and worried about the decline in their library and research skills.²

Such ambivalence undoubtedly persists among historians today. They have yet to understand the full potential of the new information technologies and to assess their benefits and drawbacks. The myriad ways in which these technologies are used in research, teaching, learning, and everyday life make this a daunting task. In this article, I would like to examine some issues linked to their impact on teaching.³ In the 2003 survey, respondents

stressed that the priority was to understand “how new media are changing student learning.”⁴ There are by now numerous studies that attempt to assess how students conduct research and learn in the digital age, but they do not provide a consistent picture of the new generations of students. Teachers and education experts are still exploring and debating how to best address students’ needs. A key aspect of this effort is the role played by libraries and librarians. As the universe of information is expanding and changing at an unprecedented pace, both in the library and beyond, librarians have been developing services in support of teaching, arguing that instructors would benefit from their own expertise in helping students become better at using and creating information. Yet surveys suggest that history faculty may not value this role as much as librarians do.⁵ I would argue that the communication gap between them leads both historians and librarians to underestimate the contributions that each can make to the enterprise of shaping teaching and learning practices in the digital age.

Historians and Librarians in the Digital Age

The changes brought about by new information and communication technologies have stirred up debates among historians around the world. On the one hand, some have expressed concern about the possible disappearance of print culture, or at least point out the limitations of the digital format compared to print. In a column published in a 2007 issue of *Perspectives*, James Cortada warned against the consequences of book digitization in a plea to “Save the book!” His piece illustrates the historian’s fear that digital technology would somehow lead to neglect of the print format and therefore loss of knowledge and deterioration of students’ work. A few months later, Gary Ann Patzwald concurred, noting that “electronic resources should be viewed as complements and supplements that expand the resources of the library, not as replacements.”⁶ On the other hand, historians have hailed the ability of digital and web technologies to put the world’s libraries within everyone’s reach. Marveling at the array of worldwide resources available online, Mark Tebeau praised the ways they allowed him to engage students.⁷ In fact, as Dan Cohen and Roy Rosenzweig note in *Digital History*, it is important for historians to be neither “cyber-enthusiasts” nor “techno-skeptics,” but to find a middle ground in order to make optimal use of the new technologies for historical scholarship and teaching.⁸ These two scholars have been pioneers in the effort to explore the potential of digital history.⁹ Overall, historians have almost universally embraced basic computer technologies like word processors and library databases, but many remain wary of more sophisticated tools and have yet to delve into digital history.¹⁰

With the advent of the web and the multiplication of electronic resources in the 1980s, librarians were also divided between fears of the library's demise and enthusiasm about the future electronic library.¹¹ Some warned that if people could access the information they needed on their own online through search engines, the librarian's role as an intermediary would no longer be valued. Yet such early fears gave way in the 1990s to a commitment to redefine the library in the digital age.¹² Librarians now deal with an ever-growing variety of electronic formats and content, which are essential to keeping libraries up-to-date. At the same time, they do their best to meet users' rising expectation of an easy, seamless, immediate access to library resources. Above all, reacting to the decline of their role as intermediaries between patrons and their collections, librarians have increasingly emphasized personal services such as instruction and research consultations. They have realized that "person-to-person services could not be replicated, much less replaced by machine interfaces."¹³ They have perceived and studied a need on the part of both students and faculty to learn how to better use the powerful tools and resources the new technologies provide. For historians, as for other scholars, the challenge has shifted from discovering rare sources to filtering out unwanted information while identifying all relevant sources.¹⁴ Librarians have come to the conclusion that expert use of electronic tools and resources requires specific skills and knowledge. Concerning instruction, they consider that helping students find, evaluate, and use quality information is one of their most important roles and that "[i]n order to do this well, they need to work closely with faculty."¹⁵

However, this view is not as widespread among the teaching faculty. As Nancy Emmick, a reference librarian, noted in 1989, "The communication between the two disciplines has become strained and at times has totally failed."¹⁶ In a review of the literature on faculty culture, Hardesty described an autonomous, isolated faculty culture focused on research at the expense of teaching, and therefore, "a culture characterized by a resistance to change, particularly a change promoted by those (such as librarians) who are not perceived as sharing fully in the culture and are not promoting values (bibliographic instruction) compatible with it."¹⁷ A recent Ithaka survey of faculty showed "mixed valuation of the teaching and research support roles" offered by libraries. Although historians expressed more interest than other faculty in the statement provided by the survey that "the library supports and facilitates my teaching activities," it is not clear how they interpreted this statement—whether the library supports their teaching because of the books and other resources it provides, or because of the instructional services offered by librarians.¹⁸ Even as history teachers recognize the importance of research skills for

their students and have tried to integrate new technologies and electronic resources in their teaching, it seems safe to assume that they have not made full use of their natural allies—librarians.

How Faculty, Students, and Librarians View Historical Research

To better evaluate how historical research training could be improved in the digital age, it may be useful to examine how historians and students use electronic resources and conduct research, based on existing studies about their information-seeking behavior and research habits. Studies of historians' research behavior in the 1980s and 1990s pointed to what Jane Rosenberg called "informed serendipity."¹⁹ In other words, historians prefer to follow footnotes in articles and books, to read book reviews or to consult their colleagues, or if their favorite sources fail, to browse the library shelves.²⁰ There is a strong culture of self-reliance among historians, who have developed their research skills by years of practice on their own. The need to interact "directly and intimately" with primary and secondary sources makes browsing a crucial component of research.²¹ Other studies suggest that the advent of the digital age has probably not significantly affected historians' preference for familiar sources and trusted methods.²²

Historians' research habits clearly differ from the librarians' systematic approach to information-finding through the use of complex indexing and abstracting tools, whether print or electronic. In her 1989 article on the relationship between librarians and historians, Emmick recognized the usefulness of the historian's idiosyncratic methods, but pointed out that "in today's world they are incomplete and inefficient for research" and warned that they could adversely affect the quality of research and teaching.²³ Her criticism points to an obvious chasm between academic librarians and historians, which is confirmed by a recent survey of history faculty at the University of North Carolina at Chapel Hill. The survey showed that in 22 percent of their classes, professors thought that students had no need for any knowledge of library databases. For only 30 percent of classes did professors believe that students should be somewhat or fully familiar with databases, while the rest thought that mere awareness of these resources was sufficient. By contrast, professors felt more strongly that their students should know about history journals.²⁴ These history professors clearly did not place as much confidence in electronic databases as librarians do. Similarly, a 2002 investigation of historians' discovery and use of primary sources found that their favorite method was following leads and citations in printed sources, although a majority also used catalogs and other discovery tools provided by libraries. Online and electronic tools were used less than

traditional printed ones.²⁵ The spring 2010 American Historical Association survey of research and teaching confirms that use of online primary sources, while widespread, is still far from universal among historians.²⁶

History students have a different view of historical research and the quest for sources. Although there are no recent studies that target history students alone, we can learn from more general studies. In general, studies of information seeking among young adults point to the predominance of search engines and the open web, whether for personal life or academic uses.²⁷ These young adults are confident in their search skills.²⁸ However, studies show diverging, even contradictory results when it comes to the range of tools and the level of skills used by respondents, and many dispel common assumptions about the so-called “Google generation.”²⁹ Particularly revealing are the recent studies conducted by Project Information Literacy, a project of the University of Washington’s Information School. According to their findings, students are aware of the differences between the types of skills and resources required for academic and everyday research. Contrary to common assumptions, students surveyed in this project typically did not turn to search engines to start their research. They preferred course material and the library’s website.³⁰ Yet they had great difficulty in the first phases of research. Overall, students were frustrated by the lack of guidance on the part of instructors or other academics. Their reaction indicates that instruction does not seem to cover their research training needs adequately. Specifically, they had trouble acquiring sufficient contextual information to narrow down a topic, identifying relevant and quality resources, and processing them in order to conduct their own research and produce original work.³¹

The students’ main problem, then, is not so much learning how to use the new technologies or to find information, but integrating their information seeking practices into the broader research process and acquiring the critical reading and thinking skills that build good researchers. As one of the investigators reminds us, “Conducting secondary research remains a formidable task, one that must be learned through instruction and honed with practice.”³² The debate on e-technologies and instruction often revolves around the practical, mechanical aspects of the technology, obscuring the underlying cognitive, or intellectual, issues involved.

I would argue that both librarians and history faculty may be underestimating the challenges facing students. As Rosenberg noted, it is difficult to codify a research inquiry:

The process of discovery varies according to topic, period, country, subject, method, and, most important, the researcher’s personal predilections and agenda. Like the best history, good research depends on understanding where one needs to go next in a continuing search to capture some concept,

sequence of events, or analytical angle. Fitting bits and pieces together, paying attention to suspicions, and intuiting relationships all inform the researcher's agenda...³³

Because it is a highly individualistic process, it is easy to assume that it is best learned on one's own. Furthermore, scholars may well forget that students do not have the same understanding and acceptance of the complexity and fuzziness of research. In a 1996 study, Gloria Lecke found that faculty in the humanities and social sciences disciplines tend to use an "expert researcher" model. The model is characterized by "a long process of acculturation, an in-depth knowledge of the discipline, awareness of important scholars working in particular areas, participation in a system of informal scholarly communication, and a view of research as a non-sequential, non-linear process with a large degree of ambiguity and serendipity."³⁴ By contrast, undergraduates are untrained in any expert model of research, employing a "coping strategy" instead, especially when conducting assignment-related research. Students are not familiar with the context of scholarly research, and see uncertainty and ambiguity as a threat rather than part of the normal process of research.³⁵ Librarians, too, misunderstand students. Commenting on the results of Project Information Literacy, one librarian realized that, while her profession took pride in offering a large array of resources to students and faculty, students were baffled by it and "actively strategize[d] how to reduce the noise."³⁶

The gap between students and their teachers or librarians stands in the way of effective teaching. Such a challenge may have always existed in history instruction, as teachers have long struggled with how to best help students develop critical reading and thinking skills. But the spread of e-resources and e-tools undoubtedly made it worse by encouraging the illusion of the competence of the digital natives and overwhelming students with information without providing them with the ability to evaluate and use it effectively. In the age of abundance, filtering out irrelevant and unwanted resources requires not only technical search skills, but critical thinking skills. In addition, these new technologies change at a faster rate than ever before, thus making the ability to learn how to learn even more important to sound research. It is therefore critical that students simultaneously build their search and critical thinking skills so that they can be introduced progressively to the range of sources and activities that make up the research process.

From Bibliographic Instruction to Metaliteracy

Librarians have attempted to teach the skills required for bibliographic research since the late 19th century.³⁷ Starting in the 1960s, there was

renewed interest in defining and teaching such skills, and the concept of “bibliographic instruction” became widespread in library literature.³⁸ Over the past decades, however, librarians have preferred the term “information literacy” over that of “bibliographic instruction” (Figure 1). This shift was a reaction to the development of the Internet and the multiplication of digital formats beyond the library. Whereas bibliographic instruction was limited to how to use the library’s traditional tools and resources, “information literacy” includes the world of information beyond the library and is not bound to specific media.³⁹ As information literacy instruction became the norm in American academic libraries in the 1990s, librarians developed best practices and standards. As defined by the Association of College and Research Libraries (ACRL), information literacy includes the skills needed to locate and access information, but it extends to the ability to evaluate and use it adequately. An information literate individual is able to:

- Determine the extent of information needed
- Access the needed information effectively and efficiently
- Evaluate information and its sources critically
- Incorporate selected information into one’s knowledge base
- Use information effectively to accomplish a specific purpose
- Understand the economic, legal, and social issues surrounding the use of information, and access and use information ethically and legally.⁴⁰

Thus defined, information literacy includes “technical” skills related to the use of search technologies, but more importantly requires critical reading and thinking skills that position it firmly as a key component of research proficiency, or even, as Jeremy Shapiro and Shelley Hughes famously argued, as a liberal art.⁴¹

Experts in library science, communication studies, and other disciplines have used various concepts to describe the skills needed in the digital age, such as information fluency, digital literacy, media literacy, and computer or IT literacy. These concepts address a range of technical, academic, and social skills, but their definitions have remained elusive. Today, experts are focusing less on the definition of distinct skills and more on the connections that exist between them, as well as on their implementation in specific social or academic contexts. While the drive to define and analyze these skills has led to studying them separately, there is growing recognition that in real life, those skills overlap and depend on each other. They operate in combination, not isolation.

A number of theoretical models and programs reflect growing interest in this approach. For example, librarians have been paying increasing attention to transliteracy, a concept that is based on the interaction between various literacies:

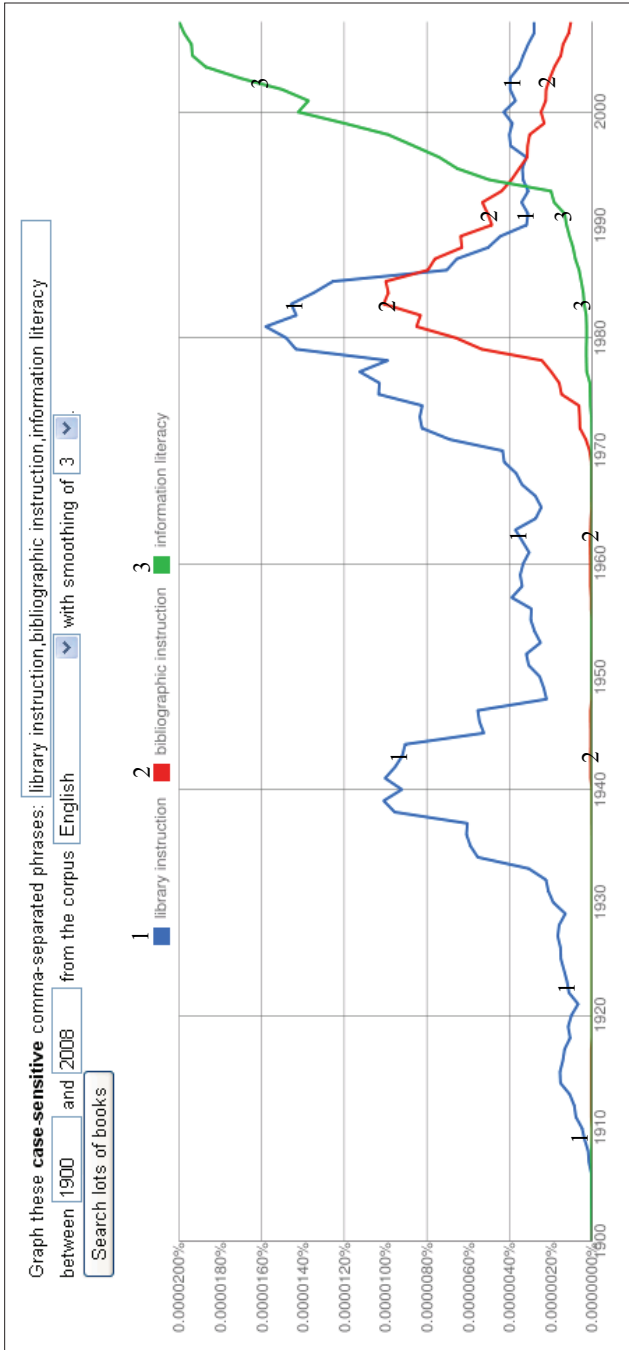


Figure 1: Frequency of terms “library instruction,” “bibliographic instruction,” and “information literacy” in Google’s Ngram Viewer.⁴²

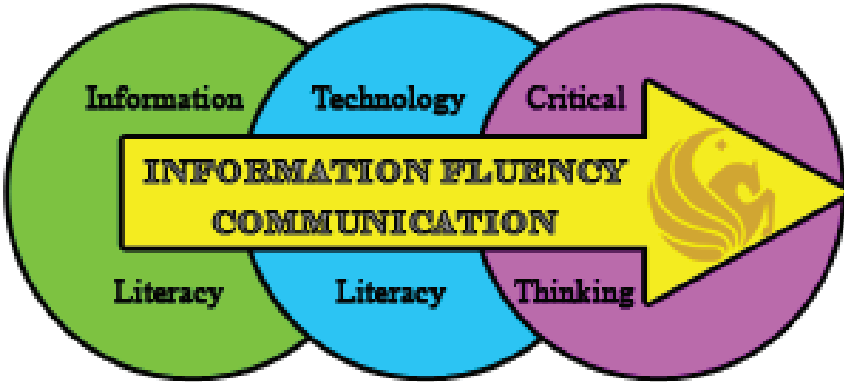


Figure 2: The concept of information fluency at the University of Central Florida. Copyright: Dr. Robert Armacost and Dr. Martha Marinara, Office of Information Fluency, University of Central Florida.⁴³

Transliteracy is concerned with mapping meaning across different media and not with developing particular literacies about various media. It is not about learning text literacy and visual literacy and digital literacy in isolation from one another but about the *interaction* among all these literacies... It focuses more on the social uses of technology, whatever that technology may be.⁴⁴

This approach is attractive to librarians because of its ability to move them away from the purely technological or tool perspective, which focuses on skills conceived merely as the capacity to use specific information technologies. Yet another way of conceptualizing the combination of information skills in real life is Cristobal Cobo’s model of “e-competence,” sometimes also referred to as e-literacy. Cobo’s contribution is his emphasis on the integration of practical (or technical) skills with cognitive abilities. Cobo defines an e-literate person as one “who is able to complement the use of some specific technologies with other proficiencies and knowledge” such as critical thinking.⁴⁵ More recently, Mackey and Jacobson have identified the need for the concept of metaliteracy as an overarching framework that includes emerging technologies and multiple literacies.⁴⁶ Some college libraries, such as those of the University of Central Florida, have been implementing variations on these models in their information literacy programs, as illustrated in Figure 2.

These theories have the merit of reminding librarians that there is a strong need for instruction that goes beyond describing library reference tools and other resources and beyond technology training, but that emphasizes

all issues related to the production, organization, and use of information and knowledge in the computer age. It is essential for all young adults to develop not only practical computer skills and information retrieval skills, but also the ability to think critically about digital information, anchored in their academic and social environment. Although the ACRL definition of information literacy was designed to promote such a vision, in practice, much remains to be done to develop instruction based on a critical approach to information literacy.⁴⁷ James Elmborg denounces the librarians' traditional view of their work as one of neutral mediation between collections that embody knowledge and library users. In the critical perspective favored by Elmborg, "Information can...be redefined as the raw material students use to solve these problems and to create their own understandings and identities, rather than as something "out there" to be accessed efficiently, either in the library or in the world."⁴⁸ Clearly, therefore, separating instruction about practical skills and intellectual ones is counterproductive, because those skills are never used separately in real life. Instruction that combines them is best achieved through collaboration so that such skills are not taught in abstraction, but applied to a specific subject.

Collaboration Between History Faculty and Librarians: Challenges and Opportunities

There is ample literature in library science on the merits of collaboration with the teaching faculty.⁴⁹ Joel Kitchens provides a useful review of publications on collaboration between librarians and historians,⁵⁰ starting with Charles D'Aniello's groundbreaking *Teaching Bibliographic Skills in History*.⁵¹ In practice, however, collaboration faces many challenges. An examination of history manuals and library guides for history students shows that history professors have devoted limited attention to the traditional "library" part of the historian's training—searching for sources—while library instructors have not fully addressed the specific needs of historians' research training.

Library support to history instruction has long consisted of guides that simply listed and described print or electronic sources.⁵² Even a recent training manual for reference librarians consists mostly of a list of bibliographic history resources that any good reference librarian should know about.⁵³ At the same time, the push for information literacy instruction has led to an emphasis on the "teaching of generic skills related to the general process of retrieving and evaluating information, as opposed to the skills required for acquiring knowledge or doing research in a specific subject area."⁵⁴ The librarians' approach,

therefore, runs the risk of being either too descriptive—a mere list of resources separated from instruction on how to best use them—or too abstract—the identification of generic information skills separated from any disciplinary content. Some librarians argue that their profession’s emphasis on information literacy standards, while praiseworthy, is in part responsible for such an abstract view of research skills, which results in faculty and students underestimating their value.⁵⁵

Some librarians have created instruction or instructional support that aims to give library skills their rightful place in historical research and to adapt guidance to the specific needs of the discipline. Such is the case of *The Information-Literate Historian*, the excellent manual by Jenny Presnell, a practicing librarian.⁵⁶ Yet I would argue that the book’s organization remains “library-centric.” Although it addresses the steps involved in the research process in the first chapter, it is still mostly organized according to the types and formats of sources and focuses on how to access them. For example, the book devotes separate chapters to the Internet and to primary sources, although primary sources are often found on the Internet. Having a specific chapter for the Internet runs counter to the fact that the Internet is part and parcel of the search for all types of sources and is linked to most aspects of the research process. Although there is no one perfect method to introduce scholarly research to history students, breaking down the research process into its component activities and showing how resources can be found and used for each of them is more likely to appeal to history faculty and students alike.

If librarians find communicating with historians challenging, historians are equally mystified. A quick review of history professional literature reveals a surprising lack of attention to the concept of information literacy, which is so prevalent among librarians. A search for the term in *America: History and Life*, *History Cooperative*, and JSTOR’s history journals yielded respectively 11, 3, and 20 results in January 2011. A similar search for “bibliographic instruction” returned 6, 0, and 35 results. Of course, this does not mean that historians are not interested in improving their students’ research skills, or that they do not teach those skills. It does, however, illustrate the lexical and conceptual distance that separates historians and librarians. Similarly, a rapid examination of a few popular history manuals devoted to the research process shows that pages devoted to library skills—skills related to the identification, retrieval, evaluation, and referencing of sources—rarely represent more than ten percent of the book (Figure 3).

Interestingly, such manuals address issues related to electronic resources and technological changes in uneven fashion. Some barely

Book Titles⁵⁷	Total Pages	Pages on Search Skills	Percentage Library Skills
<i>Writing History: A Guide for Students</i> (2008)	109	13	11.90%
<i>Doing History: Research and Writing in the Digital Age</i> (2007)	197	15	7.60%
<i>A Student's Guide to History</i> (2007)	270	35	12.90%
<i>A Manual for Writers</i> (2007)	409	12	2.90%
<i>The Craft of Research</i> (2008)	336	34	10.10%

Figure 3: Importance of library skills in history research manuals.

mention the existence of digital technology, as evidenced by the rare occurrence of words related to it (Figure 4). They stand in contrast with *Digital History*, which deals directly with information technologies and addresses their impact on historical information gathering and overall research.⁵⁸ It seems that historians have been slower than librarians in integrating considerations about digital technologies in their teaching. It is unclear how these manuals, which show so little interest for the technologies that now affect all tools and resources used in history, can provide adequate advice to history students.

Most historians undoubtedly recognize the need to make students proficient users of digital resources, but few address the issue directly, or consider potential help from librarians whose mission it is to keep informed about such e-resources and e-tools. For example, in his exploration of digital history, Burton recognizes the need for more student training: “The web has moved so quickly from having a few sites to being saturated, that guides are needed on how to evaluate sites on the web and where to find history projects and archives.” Surprisingly, however, he stops short of mentioning the role librarians might play in such training.⁵⁹ This may be because historians still see library instruction as limited to the manipulation of search tools, which for them are “an important, but ultimately mechanical, means to a much more compelling end,”⁶⁰ namely, the creation of new knowledge.

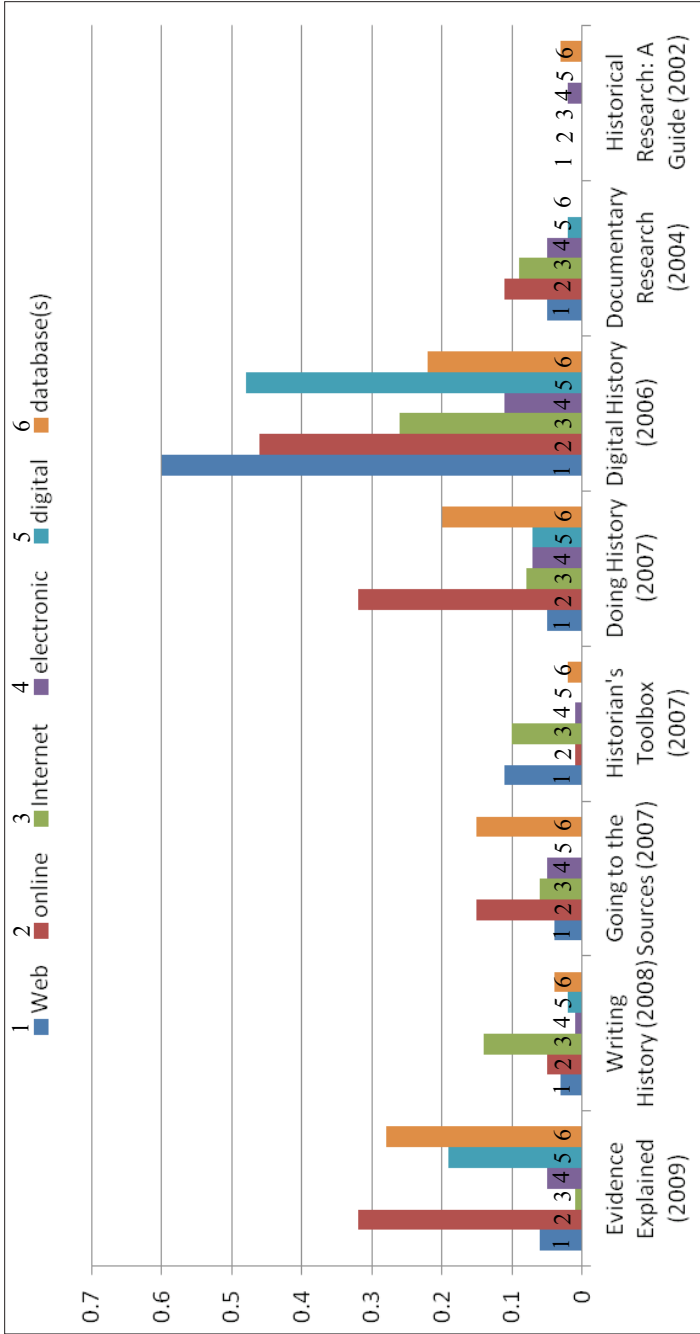


Figure 4: Ratio of selected words per page in popular history research manuals.⁶¹

To train students in history research—to show them how to access and select e-resources, to evaluate them and use them, and to develop those critical reading and thinking skills that will allow them to become proficient at processing and producing knowledge—we need history faculty and librarians to collaborate. While the faculty are the experts in the historical subject matter and are best equipped to teach students the intricacies of crafting a research question and interpreting sources, librarians have their own expertise in finding, evaluating, and using sources and are better prepared to keep up with fast-changing information technologies. In fact, historians and librarians already have common goals. Both aim to create courses that are “structured in such a way that inquiry is the norm,”⁶² that train students to evaluate critically and use the sources they find in order to solve problems, and that turn students into lifelong learners.

I see at least three areas in which collaboration between history faculty and librarians can help achieve these goals. It can serve to sharpen research skills, develop critical thinking, and engage students in digital history scholarship. Collaborative projects designed to sharpen research skills should be based on local conditions and needs. Currently, most such projects take the form of course-related library instruction, where a librarian briefly intervenes in support of an assignment in a history course. In fully integrated library instruction, the librarian could be actively involved during the entire course, so as to meet students at the point of need and help them learn skills in the context of the historical research process, at all its different stages. This requires that faculty adopt information literacy as a goal when developing their courses and be willing to share some of their control over their courses, and that librarians and faculty negotiate their respective roles. Librarians disagree on the exact responsibilities the librarian and faculty should have in course-integrated instruction. Grafstein thinks librarians should teach generic information literacy skills, including search skills and generic critical thinking skills, while faculty should be responsible for discipline-specific skills.⁶³ Smith and Mundt argue that librarians should simply teach the faculty to train students.⁶⁴ For Lampert, collaboration is most useful when it is designed to teach students how to find and use primary sources, therefore considering libraries as the “laboratories of historians.”⁶⁵

What they all agree on, however, is that librarians need to be better associated with the design and implementation of course activities and assignments. Accordingly, initiatives are needed to help library and history faculty as well as administrators develop collaborative programs to integrate information literacy into the curriculum.⁶⁶ A step forward is the development of specific information literacy standards for history by the American library community. At the national level, the ACRL is currently

preparing history information literacy standards.⁶⁷ Some institutions have already implemented research skills standards for history students, from the freshman to the doctoral level.⁶⁸ There is also a growing movement to promote primary source or archival literacy, based on the “library as lab” paradigm that assumes all history students should acquire familiarity with primary source research.⁶⁹ While some are attempting to define archival literacy within the broader context of historical scholarship, others are implementing instructional initiatives in which special collections librarians and archivists are getting involved in history courses.⁷⁰

Yet a lot more could be done not only to introduce students to the wealth of electronic resources available at libraries and on the web, but also to design courses and assignments that get students to practice, strengthen, and broaden their digital research skills as part of the historical research cycle. In a recent paper, Joshua Sternfeld argued that knowledge of search processes and metadata techniques—part of the librarian’s and archivist’s field of expertise—are becoming essential to historians in the digital world: “How a user queries a [digital] representation, even one that is non-textual, governs the quality of historical knowledge at the user’s disposal, whereas a representation’s content metadata governs the conclusions the user may draw with that knowledge.”⁷¹ New types of research training are needed that would incorporate such skills. Innovative research tools are available that make such training easier. For example, students could explore the collection-building capacities of the Hathi Trust Digital Library to create thematic collections and conduct searches in them, thus practicing research concretely and learning about the opportunities and challenges of e-book searching.⁷² Or, students could be encouraged to use or even create digital archives, and to manipulate and reflect on the digital records that will make up the bulk of future primary sources. Future historians will have to know how to find, organize, and use such digital records as well as become familiar with the practical and theoretical issues linked to the use of digital sources. In short, they will have to be trained in what some have called “digital historiography,” namely, “the interdisciplinary assessment of digital historical representations across diverse formats.”⁷³ No matter what form they take, such initiatives should develop skills progressively so as to help students come to grips with the fuzziness and complexity of research.

Inquiry-based activities that encourage critical thinking through active learning also lend themselves well to collaborative projects between historians and librarians. Librarians could become more involved in initiatives like the Investigating U.S. History project, created by the City University of New York history faculty, which consists of a website offering interactive multimedia “lab” modules for use in the introductory college

U.S. history survey.⁷⁴ Students are guided through a research question, using selected primary and secondary sources. As Doug Seefeldt and William Thomas see it, this is typical of digital history—that is to say, an investigation that is based on a “discrete collection of sources and materials” arranged “around a historiographical question” and that takes full advantage of technology to “open the question up for readers to investigate and form interpretive associations of their own.” Seefeldt and Thomas contend that the digital historian’s focus “is different from that of the librarian,” whose main preoccupation is merely providing access to digital sources.⁷⁵

I would argue, however, that they misinterpret the librarian’s motivations and underestimate their abilities. Teaching and learning are central to the librarian’s mission, and librarians could do much to help guide students through the kind of historical investigation Seefeldt and Thomas advocate. While digital history projects can support student learning of historical reasoning, they can also provide stimulating contexts to practice selecting as well as evaluating and organizing sources. This could help demystify the research process. An example of what can be achieved when critical thinking and library skills are combined is *Dow Day*, a mobile phone-based game that uses augmented reality technology to recreate the 1967 student protest at Madison, Wisconsin, against Dow Chemical Company. Students walk to historical landmarks on campus, using their cell phones to superimpose past events, people, or scenes on today’s landscape. They play the role of news reporters who investigate the student protest, and an important part of the game consists in finding and using primary documents that help interpret the events.⁷⁶ In the classroom itself, one can imagine many other learning activities that would make use of information technologies. The free website Historypin.com offers interactive maps where people can upload photos and text so as to create a global archive⁷⁷ Students could search for, select, and analyze historical and current photographs to upload on the map. Through these activities, they could study the construction of space and sense of place in American history; explore issues of authenticity, authority, and contextualization of digital copies of primary sources; and much more.

Instructors and librarians can also collaborate to offer students opportunities to take part in real digital research projects where they will be able to observe firsthand innovative historical research and to practice various component skills in context. For example, students at the University of Virginia participated in the Lewis and Clark Bicentennial Project, which brought together the scholarly expertise and resources of the university. Students in one course produced online exhibits that were included in the broader Roots of Lewis and Clark project and required

extensive research to find, evaluate, and contextualize relevant primary sources.⁷⁸ Other projects, like The Spatial History Project at Stanford University, or the numerous projects of the Institute for Advanced Technology in the Humanities, are based on collaboration between faculty and libraries and include undergraduate and graduate students at all levels of experience.⁷⁹ Such initiatives are occasions to show concretely to students the best achievements of historical scholarship, and to motivate them to practice and improve the various research skills that make such scholarship possible.

Conclusion

In a 2005 article, Roy Rosenzweig noted that the electronic revolution has helped us provide better access to resources, but that this is only a beginning: “Thus far we have done much better at democratizing access to resources than at providing the kind of instruction that would give meaning to those resources.”⁸⁰ It will take collaboration between historians and librarians to provide the kind of instruction Rosenzweig had in mind. It will require looking at all the skills involved in “doing history” as complementary rather than independent of each other. It will involve teaching technical and intellectual skills in combination rather than separately. While historians and librarians are understandably attached to their professional autonomy, they should keep in mind that professional silos are detrimental to student learning.

There are hopeful signs for improved collaboration in coming years. On the one hand, libraries are moving from a book-centered to a learning-centered paradigm.⁸¹ On the other hand, there are more and more interdisciplinary undertakings and collaborative projects in history, largely because such collaboration is in the very nature of information technologies.⁸² As Seefeldt and Thomas noted, “Digital history, perhaps more than analog, invites students and the public into the digital process. It is fundamentally concerned with the integration of teaching, research, and outreach.”⁸³ Computer technology has not only made resources available in unprecedented ways to facilitate teaching and research, it is transforming teaching and research themselves. I would predict that libraries and historical scholarship will expand and change dramatically in coming decades. Furthermore, technology will continue to evolve. The 2011 *Horizon Report*, which every year identifies six emerging technologies that will have an impact on teaching and learning, predicted that e-books and mobile technologies would become mainstream within a year, and that in two or three years, it would be the turn of augmented reality and game-based learning. In the longer term, they point to gesture-based computing

and learning analytics.⁸⁴ We cannot predict what will come afterwards, but we can prepare for such changes. Although we now know more about the effects of information technologies on the new generation's information seeking behavior, we need to explore new teaching strategies and learning materials to make sure students are ready to tackle the challenges of digital historical research.

Notes

1. Orville V. Burton, Ian Binnington, David F. Herr, and Matthew Cheney, "Historians Face the E-Future: Findings from the Carnegie Scholar Survey on Computer Mediated Learning Environments," *Perspectives*, January 2003, <<http://www.historians.org/perspectives/issues/2003/0301/0301not3.cfm>>.

2. Ibid.

3. This article is a revised version of a paper presented at the American Historical Association 125th Annual Meeting, Boston, MA, January 8, 2011.

4. Burton, Binnington, Herr, and Cheney.

5. Roger Schonfeld, "Historians in Broader Context: Changing Faculty Attitudes and Practices from the Ithaca S+R Faculty Survey," (presented at the American Historical Association 125th Annual Meeting, Boston, MA, January 8, 2011), <<http://www.ithaka.org/ithaka-s-r/research/faculty-surveys-2000-2009/schonfeld-aha-1-8-2011.pdf>>. See also Nancy J. Emmick, "Historians and Librarians: A Productive Partnership," *The History Teacher* 22, no. 4 (August 1989): 375.

6. James Cortada, "Save the Books!" *Perspectives*, December 2007, <<http://www.historians.org/perspectives/issues/2007/0712/0712vie1.cfm>>; Gari-Ann Patzward, "Further Reflections on Saving Books," *Perspectives on History*, September 2008, <<http://www.historians.org/perspectives/issues/2008/0809/0809vie1.cfm>>.

7. Mark Tebeau, "Pursuing E-Opportunities in the History Classroom," *The Journal of American History* 89, no. 4 (March 2003): 1491.

8. Daniel J. Cohen and Roy Rosenzweig, *Digital History: A Guide to Gathering, Preserving, and Presenting the Past on the Web* (Philadelphia, PA: University of Pennsylvania Press, 2006), 3.

9. Dennis A. Trinkle, *Writing, Teaching, and Researching History in the Electronic Age: Historians and Computers* (Armonk, NY: M. E. Sharpe, 1998); Orville V. Burton, *Computing in the Social Sciences and Humanities* (Urbana, IL: University of Illinois Press, 2002); "Interchange: The Promise of Digital History," *The Journal of American History* 95, no. 2 (September 2008): 452-491; Douglas Seefeldt and William G. Thomas, "What is Digital History? A Look at Some Exemplar Projects," *Perspectives on History*, May 2009, <<http://www.historians.org/perspectives/issues/2009/0905/0905for8.cfm>>.

10. Peter Schmidt, "For Many Historians, Use of Technology Remains Stuck in the Past," *Chronicle of Higher Education*, January 9, 2011, sec. Faculty, <<http://chronicle.com/article/For-Many-Historians-Use-of/125903/>>; Robert B. Townsend, "How Is New Media Reshaping the Work of Historians?" *Perspectives on History*, November 2010, <<http://www.historians.org/Perspectives/issues/2010/1011/1011pro2.cfm>>.

11. Gregg Sapp and Ron Gilmour, "A Brief History of the Future of Academic Libraries: Predictions and Speculations from the Literature of the Profession, 1975 to 2000—Part One, 1975 to 1989," *Portal: Libraries and the Academy* 2, no. 4 (2002): 558-559.
12. Gregg Sapp and Ron Gilmour, "A Brief History of the Future of Academic Libraries: Predictions and Speculations from the Literature of the Profession, 1975 to 2000—Part Two, 1990 to 2000," *Portal: Libraries and the Academy* 3, no. 1 (2003): 13-34.
13. *Ibid.*, 27.
14. Roy Rosenzweig, "Scarcity or Abundance? Preserving the Past in a Digital Era," *American Historical Review* 108, no. 3 (June 2003): 735-762.
15. Tracy Mitrano, "The Future of the Academic Library," *Inside Higher Ed*, July 28, 2010, <http://www.insidehighered.com/blogs/law_policy_and_it/the_future_of_the_academic_library>.
16. Emmick, 377.
17. Larry Hardesty, "Faculty Culture and Bibliographic Instruction: An Exploratory Analysis," *Library Trends* 44, no. 2 (Fall 1995): 354.
18. Schonfeld.
19. Jane A. Rosenberg, "Finding and Using Historical Materials," in *Teaching Bibliographic Skills in History: A Sourcebook for Historians and Librarians*, ed. Charles A. D'Aniello (Westport, CT: Greenwood Press, 1993), 57. For a review of the literature on this topic, see Roberto Delgadillo and Beverly P. Lynch, "Future Historians: Their Quest for Information," *College & Research Libraries* 60, no. 3 (May 1999): 245-259. For older publications, see Emmick, 376.
20. Rosenberg, 57.
21. Delgadillo and Lynch, 247-248.
22. *Ibid.*, 248.
23. Emmick, 376.
24. Megan von Isenburg, "Information Literacy Beyond the Library: A Study of the Attitudes and Practices of History Faculty at UNC," (Master's Thesis, University of North Carolina, 2004), 29-30, <<http://ils.unc.edu/MSpapers/2972.pdf>>.
25. Helen R. Tibbo, "Primarily History: Historians and the Search for Primary Source Materials," in *Proceedings of the 2nd ACM/IEEE-CS Joint Conference on Digital Libraries* (Portland, OR: Association for Computing Machinery, 2002), 1-10.
26. Townsend.
27. Lynn S. Connaway and Timothy J. Dickey, *The Digital Information Seeker: Report of the Findings from Selected OCLC, RIN and JISC User Behaviour Project* (JISC, 2010), 28, <<http://www.jisc.ac.uk/media/documents/publications/reports/2010/digitalinformationseekerreport.pdf>>.
28. *Ibid.*, 36.
29. *Ibid.*, 40-42, 44.
30. Alison J. Head, "Information Literacy from the Trenches: How Do Humanities and Social Science Majors Conduct Academic Research?" *College & Research Libraries* 69, no. 5 (September 2008): 433. Alison J. Head and Michael J. Eisenberg, *Lessons Learned: How College Students Seek Information in the Digital Age* (Project Information Literacy, December 1, 2009), 15, <http://projectinfolit.org/pdfs/PIL_Fall2009_finalv_YR1_12_2009v2.pdf>.
31. Head, 436-437.
32. *Ibid.*, 437.
33. Rosenberg, 58-59.

34. Gloria J. Leckie, "Desperately Seeking Citations: Uncovering Faculty Assumptions About the Undergraduate Research Process," *Journal of Academic Librarianship* 22, no. 3 (May 1996): 202.
35. *Ibid.*, 202-203.
36. Barbara Fisher, "A Look at What We Can Take from Project Information Literacy," *Library Journal*, 4 November 2010, <http://www.libraryjournal.com/lj/communityacademiclibraries/887643-419/truth_or_dare_peer.html.csp>.
37. Sara Holder, "History and Evolution of Credit IL Courses in Higher Education," in *Best Practices for Credit-Bearing Information Literacy Courses*, ed. Christopher V. Hollister (Chicago, IL: Association of College and Research Libraries, 2010), 2. For an overview of the history of information literacy, see also Ann Grafstein, "A Discipline-based Approach to Information Literacy," *The Journal of Academic Librarianship* 28, no. 4 (July 2002): 197-204. Craig Gibson, "The History of Information Literacy," in *Information Literacy Instruction Handbook*, ed. Christopher N. Cox and Elizabeth Blakesley Lindsay (Chicago, IL: Association of College and Research Libraries, 2008).
38. Holder, 4.
39. Grafstein, 197-198.
40. Association of College and Research Libraries, "Information Literacy Competency Standards for Higher Education," *ACRL*, n.d., <<http://www.ala.org/ala/mgrps/divs/acrl/standards/informationliteracycompetency.cfm#ildef>>.
41. Jeremy J. Shapiro and Shelley K. Hughes, "Information Literacy as a Liberal Art," *Educom Review* 31, no. 2 (April 1996), <<http://net.educause.edu/apps/er/review/reviewArticles/31231.html>>.
42. For more information on the corpus of books used by Google Books Ngram Viewer, see Ngram Viewer, About, <<http://ngrams.googlelabs.com/info>>.
43. Reproduced with permission. The figure can be found on the website of the University of Central Florida, "University of Central Florida Information Fluency Initiative," February 8, 2011, <<http://if.ucf.edu/faqs/>>.
44. Tom Ipri, "Introducing Transliteracy," *College & Research Libraries News* 71, no. 10 (November 2010): 532.
45. Cristobal Romani Cobo, *Strategies to Promote the Development of E-competencies in the Next Generation of Professionals: European and International Trends* (Oxford, U.K.: Centre on Skills, Knowledge and Organisational Performance, 2009), 19, <<http://e-competencies.org/>>.
46. Thomas P. Mackey and Trudi E. Jacobson, "Reframing Information Literacy as a Metaliteracy," *College & Research Libraries* 72, no. 1 (January 2011): 62-78.
47. Holder; Grafstein.
48. James Elmborg, "Critical Information Literacy: Implications for Instructional Practice," *Journal of Academic Librarianship* 32, no. 2 (March 2006): 198. See also James Elmborg, "Literacies Large and Small: The Case of Information Literacy," *International Journal of Learning* 11 (2004): 1235-1239.
49. Richard Raspa and Dane Ward, *The Collaborative Imperative: Librarians and Faculty Working Together in the Information Universe* (Chicago, IL: Association of College and Research Libraries, 2000), 198.
50. Joel D. Kitchens, "Practical Help for History Instruction: Making the One-Shot Count," *Research Strategies* 18, no. 1 (2001): 65.
51. Charles A. D'Aniello, *Teaching Bibliographic Skills in History: A Sourcebook for Historians and Librarians* (Westport, CT: Greenwood Press, 1993).
52. See, for example, Philip Hepworth, *How to Find Out in History: A Guide to Sources of Information for All* (New York: Pergamon, 1966); Ron Blazek and Anna H. Perrault, *United States History: A Selective Guide to Information Sources* (Englewood,

CO: Libraries Unlimited, 1994).

53. Michael Levine-Clark, "Historical Research," in Peggy Keeran and Michael Levine-Clark, *Research Within the Disciplines: Foundations for Reference and Library Instruction* (Lanham, MD: Scarecrow Press, 2007), 61-82.

54. Grafstein, 197.

55. *Ibid.*, 200-201. For an overview of the debate on the merits of separate or discipline-based information literacy instruction, see Holder, "History and Evolution of Credit IL Courses in Higher Education," 5-7.

56. Jenny L. Presnell, *The Information-Literate Historian: A Guide to Research for History Students* (New York: Oxford University Press, 2007).

57. The following books were chosen randomly among the most recent historical methods manuals: William Kelleher Storey, *Writing History: A Guide for Students*, third ed. (New York: Oxford University Press, 2008); Michael J. Galgano, J. Chris Arndt, and Raymond M. Hyser, *Doing History: Research and Writing in the Digital Age*, first ed. (Boston, MD: Wadsworth Publishing, 2007); Jules R. Benjamin, *A Student's Guide to History*, eleventh ed. (Boston, MD: Bedford/St. Martin's, 2009); Kate L. Turabian, *A Manual for Writers of Research Papers, Theses, and Dissertations*, seventh ed. (Chicago, IL: University of Chicago Press, 2007); Wayne C. Booth, Gregory G. Colomb, and Joseph M. Williams, *The Craft of Research*, third ed. (Chicago, IL: University of Chicago Press, 2008).

58. Cohen and Rosenzweig.

59. Orville V. Burton, "American Digital History," *Social Science Computer Review* 23, no. 2 (Summer 2005): 209.

60. Stanley Wilder, "Information Literacy Makes All the Wrong Assumptions," *Chronicle of Higher Education*, January 7, 2005, sec. The Chronicle Review, <<http://chronicle.com/article/Information-Literacy-Makes-/21377/>>.

61. The electronic editions of the following books were searched for relevant words: Elizabeth S. Mills, *Evidence Explained: Citing History Sources from Artifacts to Cyberspace* (Baltimore, MD: Genealogical Pub. Co., 2007); Storey, *Writing History*; Anthony Brundage, *Going to the Sources: A Guide to Historical Research and Writing* (Wheeling, IL: Harlan Davidson, 2002); Robert C. Williams, *The Historian's Toolbox: A Student's Guide to the Theory and Craft of History* (Armonk, NY: M. E. Sharpe, 2003); Michael J. Galgano, J. Chris Arndt, and Raymond M. Hyser, *Doing History: Research and Writing in the Digital Age*, first ed. (Boston, MD: Wadsworth Publishing, 2007); Cohen and Rosenzweig, *Digital History*; Gary McCulloch, *Documentary Research in Education, History, and the Social Sciences* (London, U.K.: Routledge, 2004); W. H. McDowell, *Historical Research: A Guide* (London, U.K.: Longman, 2002).

62. Debbie Orr, Margaret Appleton, and Margie Wallin, "Information Literacy and Flexible Delivery: Creating a Conceptual Framework and Model," *Journal of Academic Librarianship* 27, no. 6 (November 2001): 457. Cited in Grafstein, 202.

63. Grafstein.

64. Risë L. Smith and Karl E. Mundt, *Philosophical Shift: Teach the Faculty to Teach Information Literacy* (ACRL, n.d.), <<http://www.ala.org/ala/mgrps/divs/acrl/publications/whitepapers/nashville/smith.cfm>>.

65. Lynn Lampert, "Where Will They Find History? The Challenges of Information Literacy Instruction," *Perspectives*, February 2006, <<http://www.historians.org/perspectives/issues/2006/0602/0602tea1.cfm>>.

66. Von Isenburg, 10. See, for example, Council of Independent Colleges, "Information Fluency in the Disciplines," n.d., <<http://www.cic.edu/meetings-and-events/Other-Events/Pages/Infofluency-Workshops.aspx>>; Orr, Appleton, and Wallin.

67. ACRL Instruction Section, "Information Literacy in the Disciplines," <<http://>>

wikis.ala.org/acrl/index.php/Information_literacy_in_the_disciplines>.

68. A good example is that of Smith College Libraries, “History Majors Research Skills,” May 15, 2007, <<http://www.smith.edu/libraries/services/faculty/infolit/ilprograms/historyskills.htm>>.

69. Lampert.

70. Elizabeth Yakel and Deborah Torres, “AI: Archival Intelligence and User Expertise,” *American Archivist* 66, no. 1 (Spring/Summer 2003): 51-78. Doris Malkmus, “Old Stuff for New Teaching Methods: Outreach to History Faculty Teaching with Primary Sources,” *Portal: Libraries and the Academy* 10, no. 4 (October 2010): 413-435. Magia G. Krause, “‘It Makes History Alive for Them’: The Role of Archivists and Special Collections Librarians in Instructing Undergraduates,” *Journal of Academic Librarianship* 36, no. 5 (September 2010): 401-411. Joanne Archer, Ann M. Hanlon, and Jennie A. Levine, “Investigating Primary Source Literacy,” *Journal of Academic Librarianship* 35, no. 5 (September 2009): 410-420.

71. Joshua Sternfeld, “Thinking Archivally: Selection, Search, and Reliability as a Framework for a New Digital Historiography,” *Digital Humanities 2010: Conference Abstracts*, London, U.K., 7-10 July 2010, <<http://dh2010.cch.kcl.ac.uk/academic-programme/abstracts/papers/html/ab-747.html#fnLink02>>.

72. For instructions on the use of collections, see Hathi Trust Digital Library, <http://www.hathitrust.org/help_digital_library#Build>; for examples of public collections that can be searched and analyzed, see Hathi Trust Digital Library, <<http://babel.hathitrust.org/cgi/mb>>.

73. See two recent papers by Joshua Sternfeld: “Thinking Archivally,” and “Reforming Digital Historical Peer Review: Guidelines for Applying Digital Historiography to the Evaluative Process,” *Digital Humanities 2011: Conference Abstracts*, Stanford, 19-22 June 2011, <<http://dh2011abstracts.stanford.edu/xtf/view?docId=tei/ab-339.xml;query=sternfeld;brand=default>>.

74. City University of New York, “Investigating US History,” n.d., <<http://www.ashp.cuny.edu/investigatinghistory/index.html>>. David Jaffee, “History and New Media: Investigating U.S. History at CUNY—Digitally,” *Perspectives on History*, May 2009, <<http://www.historians.org/perspectives/issues/2009/0905/0905for7.cfm>>.

75. Seefeldt and Thomas.

76. David J. Gagnon, “Mobile Learning Environments,” *Educause Quarterly* 33, no. 3 (2010), <<http://www.educause.edu/EDUCAUSE+Quarterly/EDUCAUSEQuarterlyMagazineVolum/MobileLearningEnvironments/213690>>.

77. “Historypin,” n.d., <<http://www.historypin.com/>>.

78. University of Virginia, “Lewis and Clark Bicentennial Project,” n.d., <<http://www2.vcdh.virginia.edu/lewisandclark/lcbp/>>.

79. “Spatial History Project,” n.d., <<http://www.stanford.edu/group/spatialhistory/cgi-bin/site/index.php>>; University of Virginia Institute for Advanced Technology in the Humanities, “Mission,” n.d., <<http://www.iath.virginia.edu/mission.html>>.

80. Roy Rosenzweig, “Digital Archives Are a Gift of Wisdom to Be Used Wisely,” *Chronicle of Higher Education*, June 24, 2005, <<http://www.chronicle.com/article/Digital-Archives-Are-a-Gift-of/27488>>.

81. Scott Bennett, “Libraries and Learning: A History of Paradigm Change,” *Portal: Libraries and the Academy* 9, no. 2 (April 2009): 181-197.

82. “Interchange,” 456, 458.

83. Seefeldt and Thomas.

84. L. Johnson et al., *The 2011 Horizon Report* (Austin, TX: The New Media Consortium, 2011), <<http://wp.nmc.org/horizon2011/>>.