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Digital Libraries: The Catalyst to Transform Teacher Education

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Digital libraries are changing the way academic disciplines within universities are conceptualized. The nation's scholars are investing their careers and millions of dollars to use technology to rethink the nature of their disciplines. These advances are affecting academic research and instruction as academic disciplines restructure in response to technologies.

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This article presents a framework for how digital libraries should be used in teacher education.

Digital libraries are changing the way academic disciplines within universities are conceptualized. The nation's scholars are investing their careers and millions of dollars to use technology to rethink the nature of their disciplines. These advances are affecting academic research and instruction as academic disciplines restructure in response to technologies.

At the same time that a transformation in university scholarship and teaching is occurring, the public schools are also investing substantial amounts in technology—more than $7 billion each year in technology infrastructure alone. During the next decade two million teachers will enter the workforce while new and unfamiliar technologies are simultaneously being installed in the nation's classrooms.

Digital libraries are providing a bridge between academic disciplines in arts and sciences, teacher education, and K-12 education. Methods and resources that are transforming college instruction can also be used to elevate K-12 teaching and learning. Effective use of these instructional methods requires a dual knowledge of content related to a specific discipline and an understanding of the pedagogy required to make use of new instructional tools and resources. Transforming K-12 teaching and learning requires adaptation of innovations and resources developed in academic disciplines for use in teacher education pedagogy courses. Teachers must be explicitly prepared to use these methods and resources. This article will report specifically on efforts to use digital libraries in social studies teacher education programs to enable students to learn the historian's habits of mind and the meta-cognitive strategies.

TECHNOLOGY AND TEACHER EDUCATION

The message is clear—teachers are not adequately integrating technology into their teaching (President's Committee of Advisors on Science and Technology [PCAST], 1997). With the nearly ubiquitous access to the Internet in today's classrooms, the promise of technology to enhance learning is greater than ever; however, even though the majority of students use the Internet for school, this use occurs primarily outside of their classrooms and is outside

the direction of their teachers (Pew Internet Project, 2002). This existing gap, between how we expect teachers to use technology and how they are actually using it, has largely been blamed on teacher preparation programs (American Council on Education, 1999; International Society for Technology in Education [ISTE], 1999; National Council for the Accreditation of Teacher Education [NCATE], 1997; U.S. Congress, 1995).

In reaction to these criticisms, teacher preparation programs are making efforts to integrate technology throughout the entire preservice teacher experience. Most programs now offer an introductory educational technology course that requires students to consider how technology can be integrated into their teaching. This is a marked improvement from the approach of offering tools-only technology courses, once criticized by the now defunct Office of Technology Assessment (U.S. Congress, 1995). However, more steps can and should be taken. Two core components to integrating technology throughout the preservice teacher experience are recommended:

1. Provide faculty models for effective technology integration (ISTE, 1999; NCATE, 1997; PCAST, 1997; U. S. Congress, 1995; Willis & Mehlinger, 1996).

2. Provide field experiences with technology using clinical instructors (PCAST, 1997; U. S. Congress, 1995).

In 1999, the U.S. Department of Education, in partnership with nonfederal commitments, awarded nearly $260 million of grant money to teacher preparation programs in support of developing and researching best practices of integrating technology (Preparing Tomorrow's Teachers to Use Technology [PT3], 1999). Funds were again distributed in 2000 and 2001. In all, more than 400 grants were issued. From these monies, hundreds of teacher preparation programs have initiated projects aimed at meeting the recommendations listed.

The current status of technology in teacher preparation programs is still relatively unknown. The efforts initiated by PT3 funding over the past three years are now being evaluated and shared. Although it is likely that many of the funded activities will not be sustainable as PT3 funding ends, the collective knowledge gained from the 400 plus projects should paint a clear picture of what does and does not work as we prepare teachers to effectively integrate technology into their teaching. Infusing technology throughout the entire preservice teacher experience will likely take most teacher education

programs a considerable amount of time (Cooper & Bull, 1997). Hopefully, these programs will not feel like they are forging an uphill campaign to restructure their programs. Instead, since a continuum exists, some programs just starting in these efforts and others well along in theirs, the shared experiences will allow teacher preparation programs to quickly produce effective technology using teachers.

DIGITAL LIBRARIES AND TEACHER EDUCATION

The same technologies that are allowing the nation's scholars to rethink their respective academic disciplines can be used to electronically link teacher education programs throughout the nation to exemplary programs in Arts and Sciences in which technology-based innovation is occurring. For this to occur, teacher educators must follow three crucial steps.

1. **Identify exemplary digital libraries** and sources of innovative teaching in Arts and Sciences.

2. **Restructure teacher education pedagogy** through adaptation of digital library resources.

3. **Extend innovations to K-12 teaching practice** through continued support of the graduates of teacher education programs and through collaborations with practicing teachers.

Identification of Digital Libraries

We have identified digital libraries that correspond to the K-12 curriculum areas of science, mathematics, language arts, and social studies. The best libraries of this kind are more prevalent at Research I universities, where faculty have a mandate to reinvent scholarship, and are supported with resources and discretionary time.

Not every digital library is a good candidate for use by K-12 educators. Some university research centers address topics so esoteric that they have only limited relevance to the K-12 curriculum. In other cases, university

faculty members lack time and resources to consider how their work may be adapted for K-12 use. However, a number of university faculty members associated with digital libraries are committed to excellence in K-12 education as well as within higher education. Based on characteristics of exemplary digital resource centers developed by Bull, Bull, Dawson, and Mason (2001), we have developed the following criteria to identify exemplary digital libraries for use in teacher education:

1. The digital library reflects use of technology to transform and reconceptualize university teaching and research.

2. The work of the center must withstand the test of peer review by scholars at other universities.

3. The products and resources of the center must have relevance to the K-12 curriculum.

Examples of digital libraries that meet this criteria are listed in Table 1.

Table 1
Examples of Digital Libraries

Exemplary Digital Libraries for Teacher Education
Documenting the American South (University of North Carolina at Chapel Hill) http://metalab.unc.edu/docsouth/ The Perseus Digital Library (Tufts) http://perseus.csad.ox.ac.uk/ Schoenberg Center for Electronic Text and Image (University of Pennsylvania) http://www.library.upenn.edu/etext/ Center for Electronic Texts in the Humanities (Rutgers) http://www.ceth.rutgers.edu/ Electronic Text Center (University of Virginia) http://etext.lib.virginia.edu/

Restructuring Teacher Education

Many of the efforts aimed at restructuring teacher education have been focused at the heart of the preservice teacher experience—in teaching methods courses and with teaching methods faculty. According to Halpin (1999), "it [is] important to integrate the use of computer applications into the preservice methods course…to give teachers the opportunity to experi-

ence exactly how technology can be an integral part of the daily operations of the classroom" (p. 135). Digital libraries are a tremendous source of innovation to prompt the revision of teaching methods courses. Table 2 (Mason, 2000) provides exemplars of how digital library projects from The Virginia Center for Digital History (www.vcdh.virginia.edu) can be adapted to help teach traditional teacher education pedagogy. For example, cooperative learning, case studies, and mapping skills are topics covered in a traditional social studies pedagogy course. Teacher education faculty who integrate digital libraries into their traditional pedagogy lessons, enhance not only the preservice teachers' technology skills, but provide them with more authentic learning experiences.

Table 2

The Virginia Center for Digital History

Adaptation of Innovative Learning Resources from An Academic Discipline Content Area (History) for Use in a Teacher Education Pedagogy Course (Social Studies)		
Digital History Center Resource	*Social Studies Pedagogy*	*Adapation of Digital Resource in Arts & Sciences For Use in Teacher Education Pedagogy Course*
Two American Communities in the American Civil War	Jigsaw Cooperative Learning	Students are divided into primary source expert teams to research the significance of the Gettysburg Address. Using the online databases, students collect information with their expert team members from either photographs, newspapers, letters and diaries, or maps and share them with their original group members.
Secret Tapes from Kennedy, Johnson, and Nixon Administrations	Case Studies	Students listen to digital recordings of Kennedy's advisors prior to the Cuban Missile Crisis. The recording is stopped before Kennedy's advisors make recommendations to the President. Students discuss the situation and develop a presidential advising strategy.
Race and Place: African American Community History	Photographic Interpretation	Students interpret a collection of online photographs to uncover historical meaning. Answering a series of questions, students engage in historical inquiry to reconstruct life during the Jim Crow Era.
The Dolley Madison Project	Graphic Organizers	Students gather information and classify it into concept maps and charts to understand the domestic, political, and social worlds of Dolley Madison. This information is then placed in context of the nation during the late 18th and early 19th centuries.

Extend Innovations to K-12 Schools

The intended outcome of identifying exemplary digital libraries and adapting them for teacher education is to create effective teachers for today's students. We hope that by restructuring teacher education, the teachers we work with will do the same in their own teaching. We believe that by providing K-12 students with opportunities to engage in learning activities with resources from digital libraries, students will learn learn the historian's habits of mind and the meta-cognitive strategies.

DIGITAL LIBRARIES IN SOCIAL STUDIES TEACHER EDUCATION

Over the past three decades, research reexamining the processes of learning to teach, generally, and the teaching and learning of history, specifically, have made powerful inroads into unpacking the traditional assumptions that have guided history and social studies education (e.g., Berliner, 1994, 1995; Brophy, 1991; Downey & Levstik, 1991; Husbands, 1996; Pendry, Husbands, Arthur, & Davison, 1998). These traditional assumptions include a naïve transmission model of teaching and learning, and the belief that becoming an expert teacher is the product of simply having good content knowledge. However, a new historical zeitgeist has emerged that posits new assumptions that include a constructive model of teaching and learning, and the belief that becoming an expert teacher is *not* predicated on content expertise, but rather on a fluid combination of content, pedagogical, and learner knowledge.

Traditional history and social studies education. Ravitch and Finn (1987) have captured the traditional assumptions of history and social studies education in their description of a typical history classroom.

> The typical history classroom is one in which [history students] listen to the teacher explain the day's lesson, use the textbook, and take tests. Occasionally they watch a movie. Sometimes they memorize information or read stories about events and people. They seldom work with other students, use original documents, write term papers, or discuss the significance of what they are studying. (p. 194.)

This description of the traditional history classroom, where history is neatly

packaged into easily consumable and often fragmented textbook-based bodies of knowledge, represents a 1960s genre of teaching informed primarily by stage and readiness theories of learning (see Hallam, 1967, 1972; Piaget, 1962). Further, the pedagogy employed in such history classrooms tends to be "yoked to the textbook, captive to chalk and talk" (Hope, 1996, p. 150), yielding student learning based on memorization and recitation.

A transition for history and social studies education. Beginning in England in the 1970s, with the development of the Schools Council History Project (SCHP), the 1960s intellectual skepticism associated with students' abilities to learn history has been keenly problematized. (Booth, 1987, 1993, 1994). The SCHP's philosophy—"only by understanding history's prepositional character (its 'know that'), its procedural character (its 'know how'), and its conceptual character (bond of the two) can a student begin to claim an understanding of the past"—led to a reconceptualization of what it meant to teach and learn school history (Booth, 1994, p. 63). In contrast to the traditional teaching of history that emphasized the cumulative memorizing of a body of facts, the SCHP advocated that the teaching of history should involve the development of historical skills, the analysis and evaluation of historical sources, and the teaching of second order historical concepts such as evidence, causation, and empathy "that were deemed to be more closely derivative of the practice of the academic discipline itself" (Counsell, 2000, p. 54).

Evaluation studies of the SCHP (Shemilt, 1980) and subsequent research on both sides of the Atlantic into young children's and adolescents' historical thinking, in terms of their understanding of historical significance (Ashby, Lee, & Dickenson, 1997; Barton, 1997; Sexias,1997; Levstik, 2000), time (Barton, 1998a; Levstik & Barton, 1996; Barton & Levstik, 1996), empathy (Foster & Yeager, 1998; Foster, 1999), and abilities to work with varying accounts, sources, and texts (Levstik, 1986; Pappas, 1993; Ashby & Lee, 1987; Lee, 1998; Pappas, Keifer, & Levstik 1999), has impacted our understanding about what constitutes progression in terms of learning the subject of history (Barton, 1997, 2001; Counsell, 2000: Lee & Ashby, 2000; Levstik & Barton, 2001). What has become clear is that while age related patterns of progress in student historical thinking can be discerned (Lee & Ashby, 2000), mapping out children's historical skills and understandings is a complex process that defies simplistic notions based upon stages of development (Barton, 1998a, 1998b; Lee 1997, 1998; Lee & Ashby, 2000).

Indeed, children of a wide range of ages and abilities can actively engage in the inductive processes required for the "doing of history" (Levstik &

Barton, 2001). As Cunnah (2000) noted, current research has shifted discussions away from "can we teach history" to "how can we *best* teach history." Further, Harnett (2000) contended that the developing literature has contributed to a "growing recognition of a distinctive pedagogy for history, where key skills and concepts [are] identified and particular ways of teaching and learning encouraged" (p. 29). It is a distinctive pedagogy that stresses fostering students' understanding of the nature of history and the constructing of "their own versions and understandings of past events and ways of life" (Harnett, 2000, p. 32).

An emerging history and social studies education. Levstick and Barton (2001) have captured the assumptions of a new emergent history and social studies education in their description of the responsibilities of the modern history and social studies student citizenry.

> Students have to learn what it is to ask and answer historical questions—how to find information, how to evaluate sources, how to reconcile conflicting accounts, how to create an interpretive account. And students certainly must learn what the authentic application of historical knowledge looks like. They must see how history can explain the present and they must see this in the most authentic of ways—through the comparison of conflicting ideas about the nature and significance of the past. (p. 14)

Such an active process of teaching and learning history, emphasizing the analysis and interpretation of a range of primary and secondary sources, requires a shift from a genre of teaching that is lecture and fact centered to one that "systematically employs processes of historical inquiry to reconstruct and reinterpret the past" (National Council for the Social Studies [NCSS], 1994, p. 113). Unfortunately, traditional practices in the history and social studies classroom, as observed by generations of students and researchers (Baxter, Ferrell, & Wiltz, 1964; Goodlad, 1984; McNeil, 1986; Newmann, 1991; Ravitch & Finn, 1987; Shaver, Davis & Helburn, 1979; Wiley & Race, 1977), suggests that history and social studies teachers' preparation for facilitating such historical inquiry has been inadequate.

Given this historical lack of preparation for implementing an inquiry-based history and social studies education, how do teacher education professionals prepare a new generation of history and social studies teachers that *are* prepared to engage in and promote historical inquiry? Several factors have emerged that inform this endeavor.

1. Learning history is an active and constructive meaning-making process where students must be provided the opportunity to continually explore significant and relevant questions as a way to make personal connections between the past and present (Levstik & Baron, 2001; Hunt, 2000; Shemilt, 2000).

2. The teacher's role in this meaning-making process is that of expert guide, while the student's role is that of cognitive apprentice (Rogoff, 1990).

3. As apprentices, students must be provided with the conceptual frames of reference necessary to engage in the processes of identifying and analyzing accessible and appropriate sources in the doing of history (Levstik & Barton, 2001; Mason & Hicks, 2002).

4. As expert guides, teachers must recognize students' efforts and products in the form of historical narratives as developmental approximations of more sophisticated understandings (Lee, 1998; Pappas, 1993;Pappas, Keifer & Levstik, 1999).

5. This apprenticeship model is based on the supposition that students' abilities to comprehend history and think historically are based upon "a set of skills educators can nurture, not an ability whose development they must wait for or whose absence they must lament" (Barton, 1998a, p. 80).

6. One traditional skill that has been demonstrated to be essential in effective and meaningful history and social studies teaching and learning is "systematic and sophisticated literacy work" (Riley, 1999, p. 12).

7. One emerging skill that is also being demonstrated to be essential in the modern pursuit of effective and meaningful history and social studies teaching and learning is the acquisition, interpretation, and application of Internet based resources, such as digital libraries and archives (Bohan & Davis, 1998; Hayden, 2000; Mason & Hicks, 2002).

This active inquiry and apprenticeship perspective on the teaching and learning of history and social studies requires that teacher education professionals develop teachers-as-guides and not teachers-as-oracles.

Expertise in history and social studies education. While an exceptional content knowledge of history, including a sound understanding of historiography in terms of the way history is constructed, is essential for the history and social studies classroom teacher, the work done by the Knowledge Growth in Teaching Program reveals there is more to teaching than just knowing the content of a discipline (Grossman, Wilson, & Shulman, 1989; Shulman, 1986, 1987, 1991; Wilson, Shulman, & Richert, 1987). Shulman posited that teaching must involve a flexible integration of content, context, and pedagogy. This integration is evident in Shulman's concept of *pedagogical content knowledge*. Pedagogical content knowledge (PCK) represents a "blending of content and pedagogy into an understanding of how particular topics, problems, or issues are organized, represented, and adapted to the diverse interests and abilities of learners, and presented for instruction (Shulman, 1987, p. 9). For Shulman (1986, 1987, 1991), PCK relates to the practical aspects of teaching in specific contexts and is comprised of (a) knowledge of the structure of domain to be taught, (b) knowledge of the common conceptions/misconceptions inherent in students' thinking; and (c) knowledge of specific teaching strategies to address specific content or learners.

Shulman's concept of PCK has been extended and applied by a variety of researchers (see Berliner, 1994, 1995; Brophy, 1991; Wineburg & Wilson, 1988; Wilson, 1991). For example, Cochran, DeRuiter, and King (1993), in an effort to stress the developmental nature of teacher knowledge growth and the importance of preservice teacher preparation programs, developed the related concept of Pedagogical Content Knowing (PCKg). Cochran et al., conceptualized PCKg as a teacher's integrated understanding of four key components, (a) general teaching methodology, (b) subject matter content, (c) student characteristics, and (d) environmental context. Cochran et al., were specifically interested in teachers' practices as they moved through their presevice experiences and into their own classrooms.

The integration of PCK and PCKg is represented in Figure 1. This model emphasizes that expertise in history and social studies education requires the fluid integration of the following concepts.

- History and social studies teacher educators must work with preservice teachers to facilitate the learning of the skills required to marshal evidence and to critically analyze historical accounts and narratives in order to develop a full conceptual knowledge of history. (Domain-Specific Content Knowledge)

- History and social studies teacher educators must develop images of the possible and model content specific lesson that encourage inquiry and the doing of history. (Domain-General Pedagogical Knowledge and Domain-Specific Pedagogical Knowledge)

- Preservice teachers must be supported in the development of specific instructional goals, materials, and resources—based on their knowledge of their students' abilities in history and technology, and respective school curriculum's and standards—that are designed to support increased content knowledge through historical inquiry. (Learner-Specific Background Knowledge, Level-Specific Curricular Knowledge)

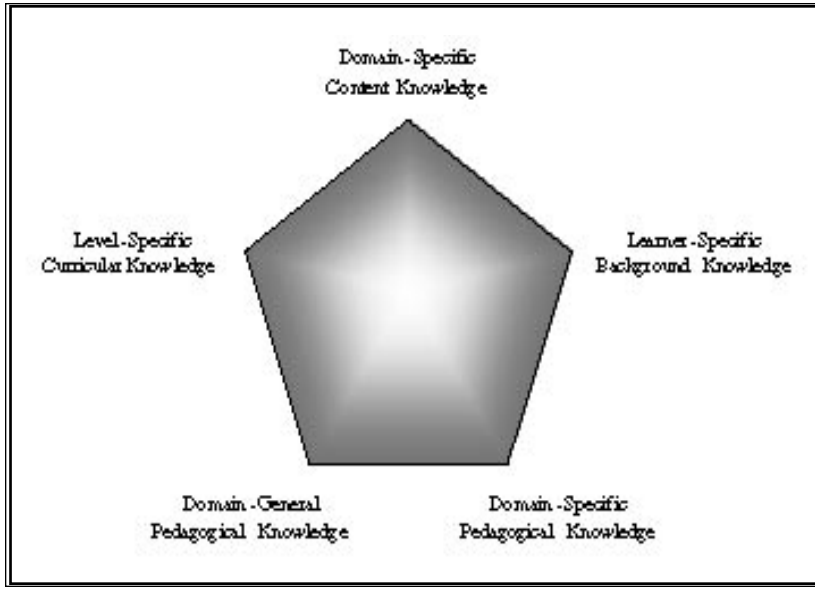

Figure 1. Pedagogical content knowledge

Thus, PCK and PCKg require that history and social studies teacher educators promote the "doing of history" and not simply the retelling of historical narrative. That is, the teaching of history and social studies must include, yet move beyond, content delivery to include (a) the teaching of general and specific historical knowledge and skills, (b) the development of student citizenship, and (c) the satisfying of state and agency standards. One exceptional resource to support this type of teaching and teacher education is through the use of digital libraries.

Digital libraries in history and social studies education. Current research that focuses on teaching and learning history and the learning to teach process, in conjunction with the availabilty of digital libraries, offers teacher educators the foundation from which to model and provide future teacher with the understandings and abilities to engage their own students in authentic, meaningful and relevant historical inquiry based lessons (Mason & Hicks, 2002). This involves providing preservice teachers the opportunity to rethink the nature of the discipline of history, practice the doing of history, and identify the potential of the Internet and digital libraries to provide access to a wide range of sources for the classroom. The consistent utilization of digital libraries as a resource in the design and development of practical examples of historical inquiry for the classroom, we believe will create a conceptual framework which will serve to influence and shape history teachers current and ongoing content and pedagogical decisions.

RECOMMENDATIONS

Librarians and teacher educators face a complex set of issues when designing and using digital libraries. The design process is particularly important for librarians as they make transitions from physical to digital libraries. Physical library design has evolved in such a way that simple library skills should enable most people to use most libraries they will encounter. On a visit to a typical physical library users will encounter familiar referencing systems and common infrastructure. Digital libraries are not imbued with the conventions that shape physical libraries. The flexibility of web-based design means that digital libraries can incorporate a wide range of classification systems and presentation schemata. Libraries and other repositories are struggling to find ways to classify resources in digital collections so users can find materials with the ease that one can find a book on a shelve. Organizations such as the National Digital Information Infrastructure and Preservation Program are actively working to develop such protocols for digital libraries.

Given that there are very few design protocols for digital libraries designers have tremendous flexibility. This flexibility might in fact be one of the most promising features of digital libraries. But, with this potentially come design pitfalls that can make collections within digital libraries almost unusable. If teachers and students know they will have to invest inordinate amounts of time to learn how to navigate digital library collections they may very well

avoid the collections all together. Because of these issues we recommend that digital library designers consider who will be using their collections in the design processes. Design architecture that includes simple spatial representations can empower student users and ease what can be a difficult transition as students are introduced to historical digital library research. Design conventions need not be static as they often are in physical libraries. Instead, designers should plan for a wide variety of user needs and develop multiple user interfaces.

In addition to these ergonomic issues, we recommend that librarians think pedagogically when designing digital collections. Thinking pedagogically would shift library design from an end product focused on making resources available, to a process that views access to digital library resources as part of a learning experience. Since most all library use is associated with formal or informal education, designers must build pedagogic intent into their design. This pedagogic intent should transcend the temporal characteristics of physical library. In a physical library, students have to navigate physical space and consult with a number of people in order to find resources. When working in digital libraries students do not face these barriers. They are much more suddenly confronted with opportunities to learn than in physical libraries. For this reason librarians and designers should pay close attention to how web interfaces are designed.

A visit to the Perseus Digital Library (http://www.perseus.tufts.edu) illustrates the importance of ergonomics and pedagogy in design. A world map and timeline that illustrates the places and dates of texts mentioned in this collection greets users. The map eases students' transition into the collection as well as providing students a powerful means by which to categorize the scope of the collection. The ease with which resources can be accessed is most remarkable. From the front page of Perseus students are two clicks away from Plato's Republic. When a student encounters this text they are provided with a number of pedagogical tools including extensive notes on content and multiple means to navigate the text.

As students encounter texts such as Plato's Republic issues relating to use take center stage. There are a number of complexities concerning the use of historical resources in digital libraries. Most importantly, the volume of resources available can be overwhelming. Where a student might be able to conceptually organize the all the holdings in their school library, it is very difficult to know how much is available in digital libraries (Rosenzweig, 2000). To complicate matters, each library will most likely have unique user interfaces, infrastructures, and document retrieval strategies. Given the

complications associated with using digital libraries, we recommend that teacher educators and librarians systematically develop tools for teachers and students to use when accessing historical resources in digital libraries. We also recommend that teacher educators and librarians consider developing digital history labs for using historical resources found within digital libraries.

Digital history toolkits will enable teachers and students to work with resources in digital libraries. These toolkits should include practical applications and manageable techniques. We believe that the most effective toolkits should include a combination of descriptive, analytical, and evaluative tools. While toolkits have some generalizable characteristics, they must reflect the idiosyncratic nature of the collection for which the toolkit has been developed. Toolkits should incorporate at minimum the following characteristics. First, they should include a complete description of the collection(s) within the library and a reasonable set of finding aids for locating resources within the library. Second, digital history toolkits should include analytical devices for interpreting specific resources. Third, toolkits should include heuristics for making evaluative claims resulting from the interpretation of specific resources.

Several digital libraries have incorporated toolkits for using historical resources within their collections. The toolkits available at the Library of Congress' American Memory (http://memory.loc.gov) project are particularly useful. The "Collection Connection" at American Memory provides summaries of individual collections and ideas for using the collections to develop critical thinking skills. A more robust set of tools is available in the "Getting Started" section of the "Learning Page." American Memory's "Pathfinders" allow users to drill through a subject oriented directory structure to find collections. Five themes, events, people, places, time, and topics comprise the top end of the directory structure. American Memory also provides an overview of browsing and searching finding aids, an online course titled "An introduction to searching American Memory," a list of search synonyms, and specific tips for searching the collections.

Digital history labs can be designed to make use of the tools developed by teacher educators and librarians. Providing teachers and students with opportunities to access materials for the purpose of historical inquiry will enrich history instruction in unique and powerful ways. We recommend that digital history labs enable authentic historical inquiry. This type of work is time intensive and requires commitment on the behalf of teachers and or

librarians in terms of developing the labs and in terms of implementation, but the payoff can be powerful. There are five principles that we recommend when developing digital history labs. First, these labs should focus on clearly defined meaningful and authentic historical issues and should make use of limited historical collections within digital libraries. Second, the process for completing student led historical inquiry using these collections should be obvious and reproducible. Third, students should have access to all the resources needed to complete the project. Fourth, students should be provided with adequate time to complete their inquiries and with continuous support from a teacher or librarian who has knowledge of the collection and of the historical techniques being used by the student. Fifth, students' work should be valued as a contribution to the general understanding of a particular historical issue and should be made available to others interested in their work.

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