Web-Based History Learning Environments:

Helping All Students Learn and Like History

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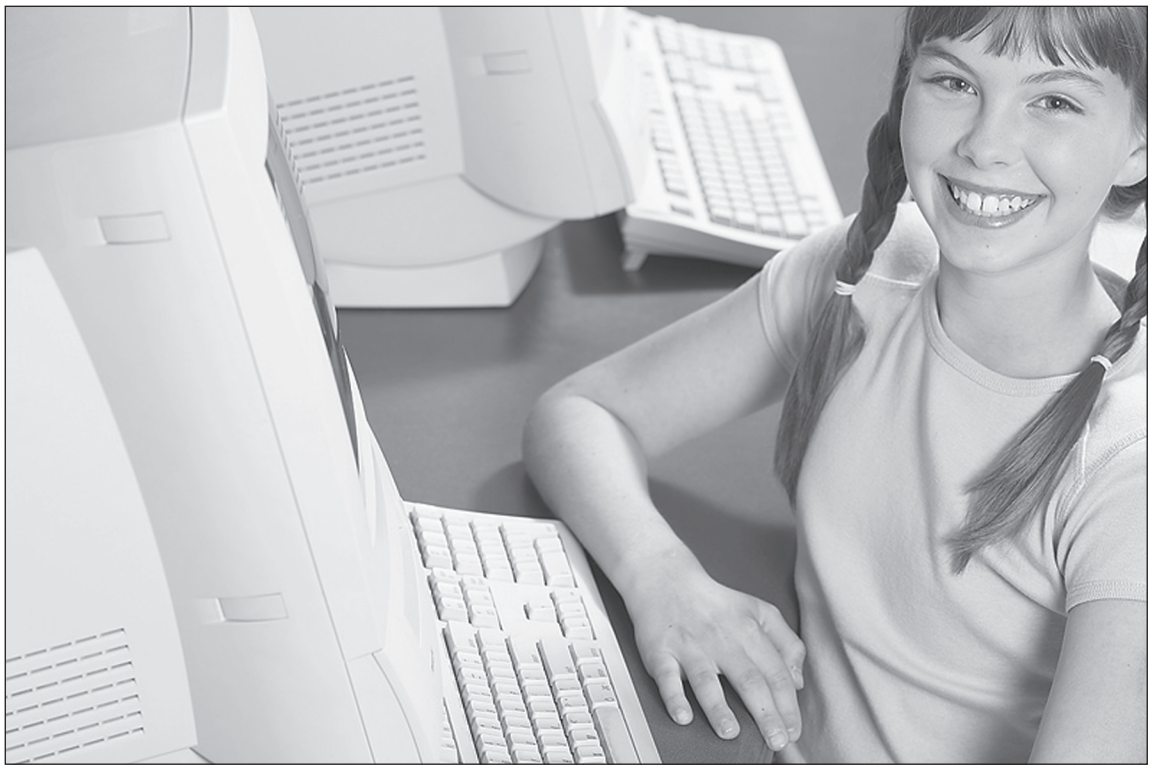

This article explores the benefits of the Internet to enhance history instruction for all learners. The authors describe a Web-based learning environment, the Virtual History Museum (VHM), that helps teachers create motivating, inquiry-based history units. VHM also allows teachers to build supports for learners with disabilities or other learning challenges. A pilot study that demonstrated the impact of the VHM on history learning and participation of eighth-grade students with mild disabilities is discussed.

The Individuals with Disabilities Education Improvement Act of 2004 (IDEIA), the reauthorization of the Individuals with Disabilities Education Act of 1990 (IDEA), is unprecedented in its requirements for the participation of students with disabilities in the general education curriculum. Previously, the Individualized Education Program (IEP) was used as the primary gauge to measure student progress; however, the IDEIA mandates that the progress of students with disabilities be measured by the same standards and accountability systems used for students without disabilities. These and other requirements of the IDEIA place additional burdens on educators to ensure that all students can experience success in the general education curriculum.

In the quest to help students with disabilities meet the expectations of general education classrooms, social studies instruction has not received the attention afforded to mathematics, language arts, and science. Educators interested in meeting the needs of diverse learners have developed a number of curricula and instructional models that have been successful in the language arts (e.g., Englert, Manalo, & Zhao, 2004; Graham, Harris, & Mason, 2005; Hindin, Morocco, & Aguilar, 2001; Mathes, Torgesen, & Clancy-Menchetti, 2003), science (e.g., Dalton, Morocco, & Tivnan, 1997; Mastropieri, Scruggs, & Magnusen, 1999; Palincsar, Magnusson, & Collins, 2001), and mathematics (e.g., Baker, Gersten, & Dimino, 2004; Fuchs, Fuchs, & Finelli, 2004; Montague, 2003; Woodward & Montague, 2002). Key features of these efforts include authentic problems, inquiry-based learning, peer collaboration, cognitive strategy instruction, and multiple materials and media.

Only a handful of educators have developed activities or curricula that can meet the learning challenges that students with disabilities might encounter in social studies classes (e.g., De La Paz, 2005; Deshler, 2005; Ferretti, MacArthur, & Okolo, 2001; Gersten, 2005). Although a few comprehensive curricular approaches that use a variety of activities and materials are available (e.g., Dockterman, n.d.; History Alive, n.d.), they have not been developed specifically for diverse learners, nor do we know much about their effectiveness with these learners. For most learners, social studies remains a textbook-based curriculum, and special educators are all too familiar with the challenges that content-area texts pose for students with disabilities: They are often ill-structured and inconsiderate of readers. For example, most are written at high readability levels and are rarely constructed in ways that help readers make sense of the information they contain (Armbruster & Anderson, 1984; Bean, Zigmond, & Hartman, 1994; Beck & McKeown, 1991; Brophy, 1990; Paxton, 1999). Textbook-based instruction is particularly problematic in history instruction—the focus of this article.

History is more than a collection of dates, people, and events; it is a rich field of inquiry in which a full and verifiable set of facts is rarely available. The historical record on which we base our conclusions is usually incomplete. History could be written from a variety of different perspectives, depending on the sources on which the author relies. Thus, history is a problem-solving, interpretative activity. Should President Bill Clinton have been impeached? Should the United States have gone to war with Iraq? These are but two examples of the many ill-structured problems that students encounter when studying history, because there is no right or wrong answer. Rather, historians must consider multiple perspectives and sources in their inquiries, or an account of history will be incomplete and the conclusions drawn from it misleading. And because a full set of data on which to base conclusions about history is rarely available, historical inquiry ultimately requires interpretation (Paxton, 1999; VanSledright, 2002). These interpretations stand up to professional scrutiny only to the extent that a historian follows a tight chain of logic and can justify his or her conclusions based on the available evidence.

History is a fascinating subject for many people—witness the large number of well-written history books that make it to the top of best-seller lists. But the constraints of school textbooks typically reduce history to a static and uninteresting subject that challenges the literacy skills and the motivation of students, particularly those with learning difficulties. Textbook-based instruction makes the whole process of historical inquiry invisible to the student (Paxton, 1999; Stearns, Seixas, & Wineburg, 2000). Furthermore, educators miss out on opportunities to engage students in rich literacy and problem-solving activities that have important implications for their future roles as informed citizens in a participatory democracy (Ferretti & Okolo, 1996).

The Potential of Digital Technology for History Instruction

Because of vast resources on the Internet, technology offers the means to supplement, and perhaps supplant, traditional history instruction. The Internet contains a voluminous collection of sources and materials that can inform and contribute to students' active engagement in and understanding of history. Lee (2002) estimated that the Internet contains tens of millions of historical documents. Undoubtedly, that number has increased. Just about every major historical museum, national park, and large university offers Web sites that contain rich primary- and secondary-source documents about historical characters and events. Commercial ventures such as PBS and the History Channel also offer instructionally relevant materials in support of their televised programs and videos. Many of these sites contain lesson plans that assist teachers in using source materials to develop students' historical understanding. The Library of Congress (http://www.loc.gov) has a rich archive of historical

materials, including lesson plans and other activities to engage students in history. History Matters (http://www.historymatters.org) is a portal to a large number of annotated, high-quality Web sites. The Center for History and New Media (http://chnm.gmu.edu), a collaborator in the production of History Matters, also contains a variety of lessons, digital archives, and lesson plans that support instruction in U.S. and world history.

Still, the Internet offers more than mere access to a volume of easily obtainable information. The multimedia nature of the Internet facilitates the display of information in a variety of media, ranging from text to movies to music to speeches. Screen readers, which continue to evolve in power and are widely available free of charge, can read text-based information to those who encounter problems reading print. The nonlinear manner in which students can view and organize information retrieved from Web sites may facilitate their understanding of multiple perspectives, a cornerstone of historical inquiry (Ayers, 1999). The search functions available on the Internet make information easier to locate and manipulate (Lee, 2002).

The Internet also contains a plethora of tools, including e-mail, blogs, and forums, that facilitate the development of social networks in which students and teachers can correspond and collaborate with one another and with individuals who have expertise with a particular aspect of history (Lee, 2002). These features enable students to become "the novice in the archive," engaging in active exploration, interpretation, and communication in ways that have previously been reserved for experts (Bass & Rosenzweig, 1991). Many educators are optimistic that the Internet can help students "break out of the instructor's proscribed linear progression into a vastly wider world of associations" (Pomerantz, 2001, p. 521).

However, merely making information and tools available to educators and students does not mean their power will be fully realized. The huge volume of information available is both an advantage and a curse. Few educators have the time needed to keep up with the rapidly evolving collections of resources that are available for use in the history classroom. Portal sites, such as the Library of Congress and History Matters, help alleviate these issues by cataloging and annotating information. Yet, the activities available for students on sites such as these are most appropriate for more advanced students of history in middle to high school and beyond. Copyright issues must also be considered when teachers or schools publish students' work on public Web spaces. Furthermore, many Web sites are written at levels far above the average reading level of students with disabilities. Primary source documents are notoriously difficult to interpret for students unfamiliar with the times in which they were written and the conventions of language used at those times (e.g., Okolo & Ferretti, 1996). And even though we often tout visual media, such as pictures and movies, as more accessible than print, students may lack the skills to make sense of visual media in history without instruction and guidance (e.g., Okolo, Ferretti, & MacArthur, 2002).

The Virtual History Museum

We created the Virtual History Museum (VHM) to help teachers take advantage of the many opportunities for history learning that are available on the Internet. VHM gathers for teachers a collection of historical objects, or *artifacts*, that include photographs, pictures, music, video, and copies of primary source documents. All publicly available historical materials on the VHM have been checked or cleared for use without copyright restrictions. Furthermore, all of these materials have been reviewed for historical accuracy. Teachers have access to a variety of activities—such as writing a persuasive essay or constructing a diary entry—that can be assigned to students as they use the VHM. In addition, teachers can easily differentiate instruction within the VHM by creating supported versions of these activities for individual students who need additional guidance or assistance.

The VHM applies a museum metaphor to historical inquiry in the classroom. *Curators* (e.g., research staff, teachers, experienced students) have access to tools that enable them to create *exhibits*, which will be explained further in a moment. *Members* (who, typically, are students) can view all public information in the museum and also can engage in activities to which a curator has given them access. *Guests* (or individuals who are not participating in VHM-sponsored projects) may view all public information in the museum. Anyone can become a guest of the VHM by visiting its Web site (http://www.vhm .msu.edu) and clicking on the *Register* button.

The basic instructional unit in the VHM is an exhibit, which is created by the curator and is a collection of artifacts and *learning activities*. Artifacts can be images, movies, music and other audio files, and text. Teachers can locate their own artifacts and upload them into the VHM, or they can choose from the large number of VHM public artifacts. The VHM currently contains artifacts that range from military posters to excerpts from slave narratives to Cherokee music. A search function enables teachers to locate artifacts by key word, data type (e.g., image, music), reference type (i.e., person, place, event, object, or document), user, or time period. Figure 1 shows a screen from the VHM that displays a partial list of available artifacts.

In the process of creating an exhibit, curators also create learning activities to help viewers explore, better understand, and communicate their reflections and conclusions about the exhibit they are investigating. Curators, or teachers, can create basic activities for students to complete using question–answer and multiple-choice formats, or they can create activities that engage students in extended writing about the exhibit they are investigat-

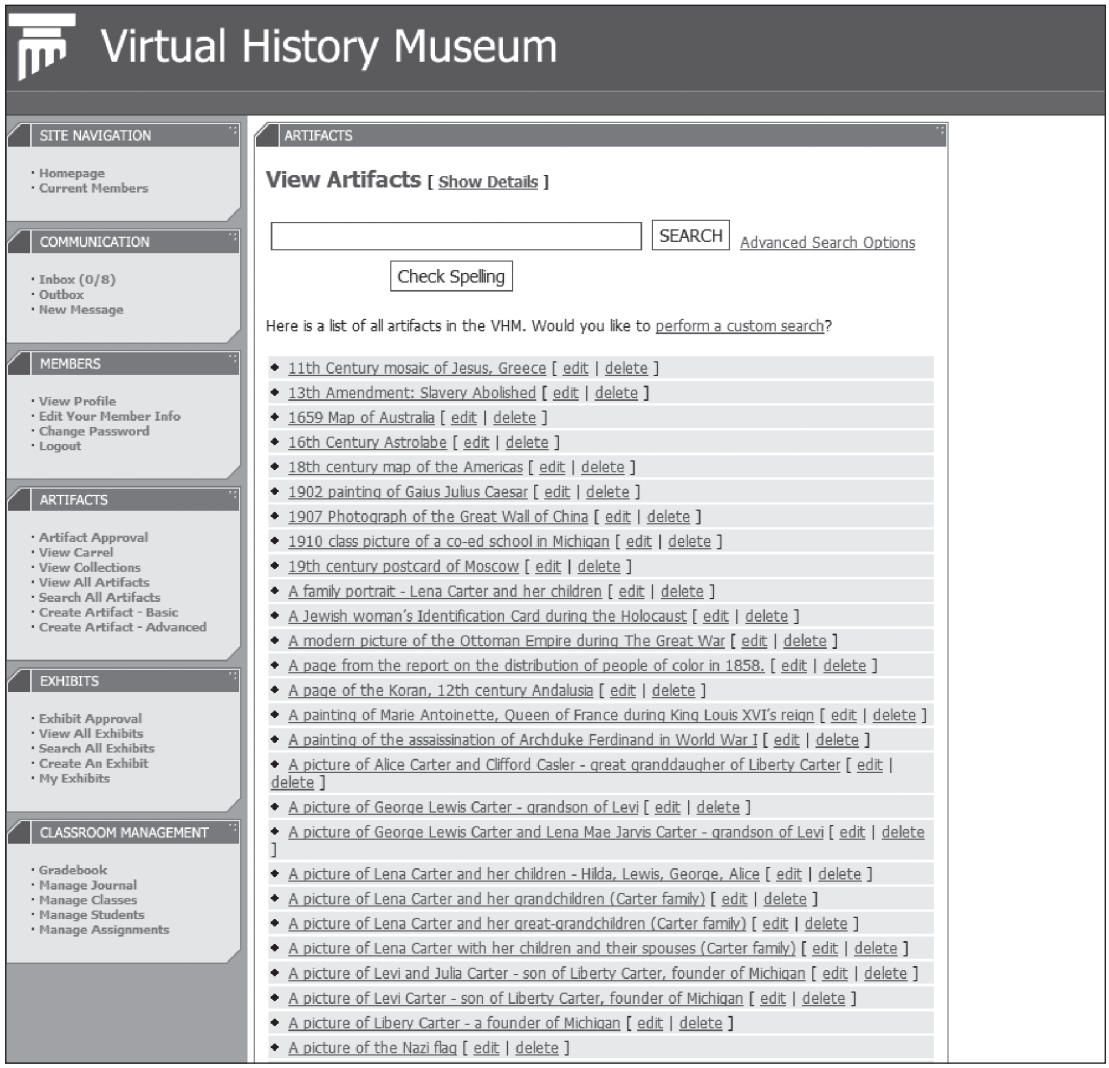

FIGURE 1. Partial list of artifacts.

ing. In these activities, students may produce the following written work:

- diary
- position paper
- essay
- newspaper account
- prediction paper
- letter

Teachers can also construct a variety of activities in which students organize and communicate information in the form of a chart, table, or diagram, such as

- compare and contrast chart
- alike and different table
- cause and effect table
- problem and solution chart
- descriptive chart
- KWL (Know–Want to Know–Learned)
- Venn diagram
- flow Chart

Each student can have his or her own *historian's notebook* within the VHM, into which he or she can write about any item in the VHM. The notebook is available to the student at any time and from within any location in the VHM.

A teacher can create multiple versions of an activity to differentiate instruction for learners with a variety of different needs and skill levels. Procedural or substantive prompts can be added to all activities. Activities can be segmented so that students complete them in a specific order or with explicit directions for each section of the activity.

Consider an activity that one of our participating teachers designed for an exhibit, used by his eighth graders, about the presidency of Andrew Jackson. In this exhibit, students learned about the contradictions within the per-

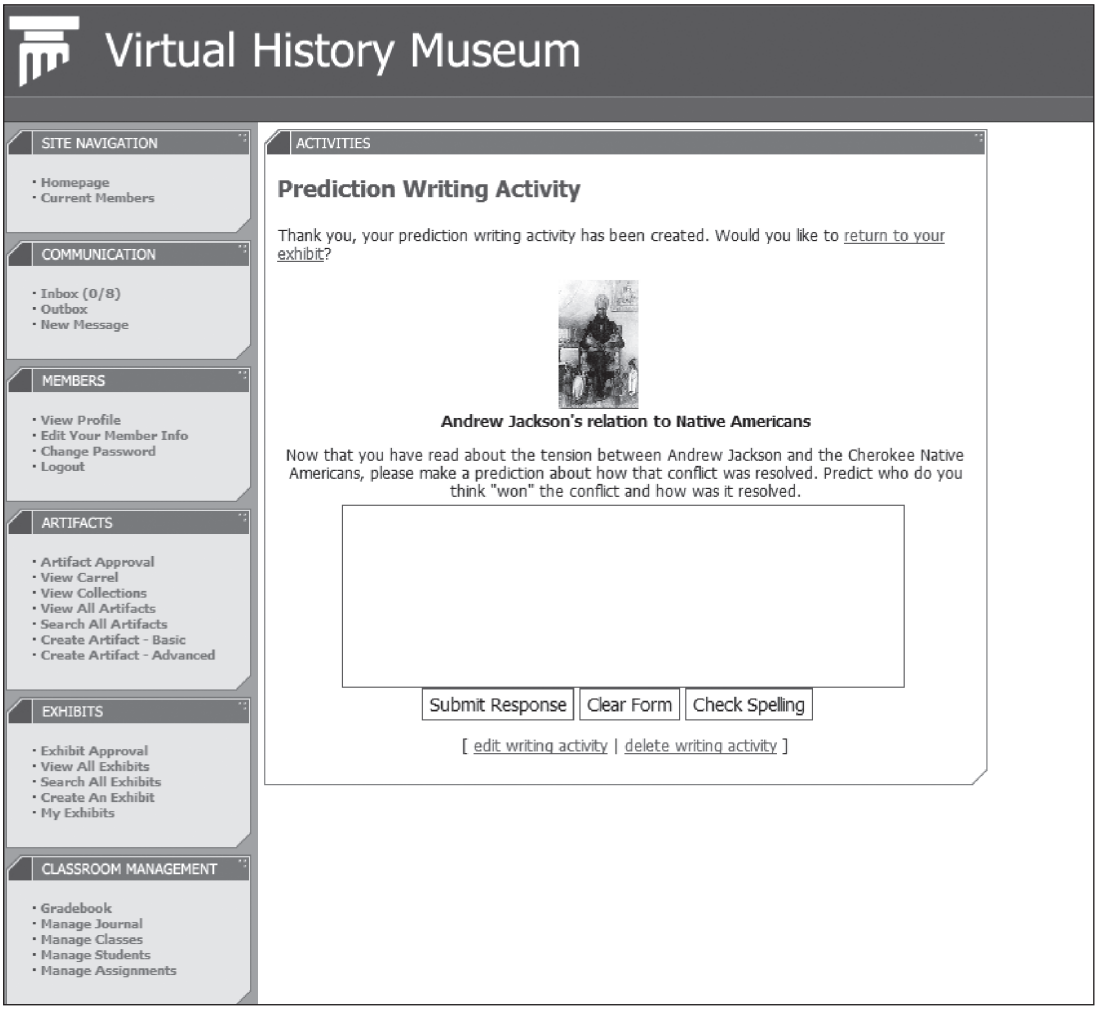

FIGURE 2. Prediction writing activity without supports.

sonal and political life of our seventh president. For instance, Jackson was the first president who was not born to wealth and privilege and was thus viewed by many as a man of the people. But Jackson became a very wealthy man who owned a plantation and hundreds of slaves, and he was accused of using his presidential powers for his own political and personal benefit. The Jackson administration, led by the president himself, engaged in a protracted battle to remove the Cherokee nation from its lands. The Cherokee challenged the removal and asserted their right to remain on their lands by virtue of previous treaties that had been struck with the federal government. The students learned about the events leading up to the Supreme Court case *Cherokee Nation v. State of Georgia* and were then asked to predict the outcome of the trial. Figure 2 shows one version of this prediction activity.

Figure 3 shows the same activity but with supports embedded for students who need additional directions and guidance. When a student logs on to the VHM and works within an exhibit, she sees a version of the activity her teacher has assigned. However, when she prints out her prediction paper, the supports are no longer present, and her paper looks just like those of her peers.

The VHM runs in any browser and works with all major screen-reading software programs. The ability to have anything on the screen read to users is a major advantage of a learning environment such as the VHM, and the students who have participated in our studies express highly positive opinions of the text-to-speech options. We recommend that teachers run the VHM in the Firefox browser (available for free at http://www.mozilla.com), using the FoxyVoice extension. FoxyVoice offers text-to-speech functionality by using Microsoft Speech API, and it runs under the Windows operating system. It is a free extension to Firefox and runs reliably. The VHM also has a built-in spell-checker that can be used by curators as they create exhibits and activities and by students as they complete activities.

The VHM is structured to make it easy for teachers to create exhibits for their students. Artifacts are added to

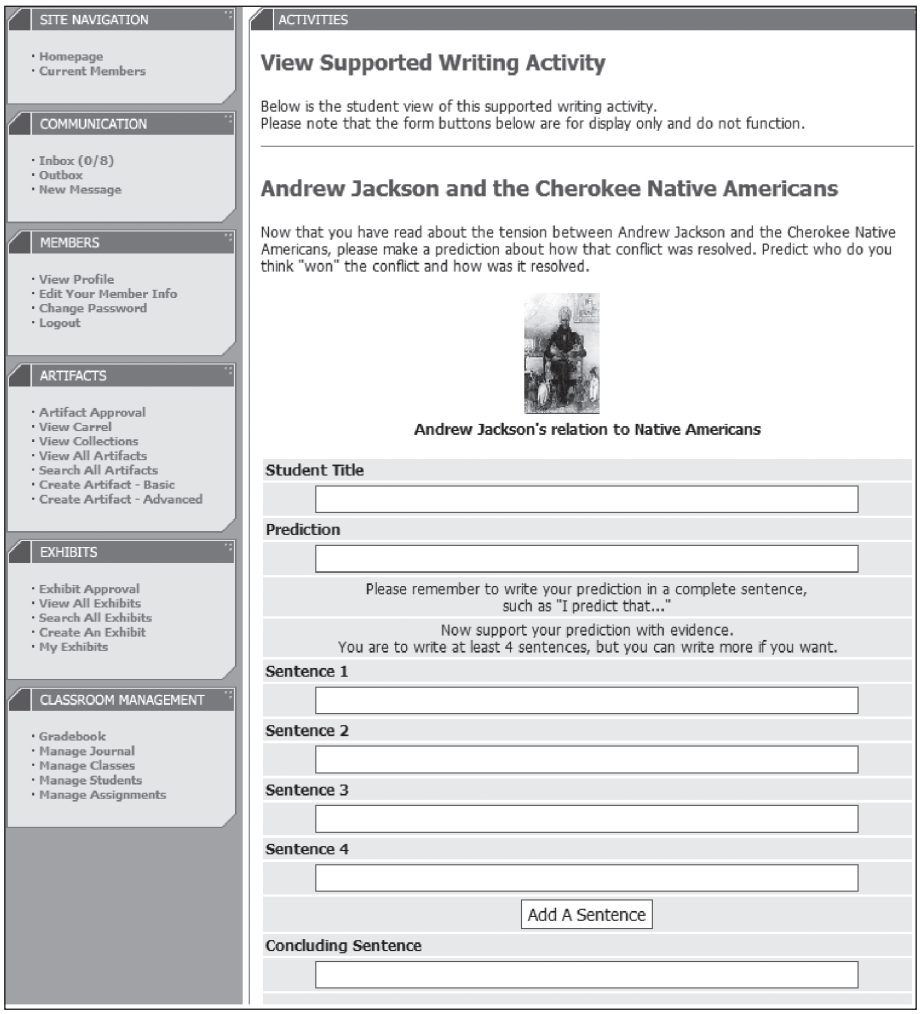

FIGURE 3. Prediction writing activity with supports.

an exhibit and activities are created through a series of drop-down menus that offer explicit guidance to the curator. More advanced users can opt for a more efficient, but less explicit, mode of exhibit construction.

From a teacher's perspective, the VHM has two sides—one public, the other private. Once teachers have a curator's account, they can add any artifacts to their own space (or *carrel*) on the VHM. They can create class lists on the VHM, construct and assign exhibits and activities to their students, and manage student accounts and assignments. This is the private side of the VHM. A teacher's activities on the VHM remain available only to that teacher (and to VHM staff) unless the teacher chooses to share his or her work on the VHM. Student work always remains private, available only to the teacher and the research staff.

The VHM also has a public side. Teachers can choose to make their artifacts and exhibits available to others. Before any items are put on public display, the VHM staff checks them for historical accuracy and to ensure that they meet copyright regulations. Teachers may instead opt to share their work with only a particular colleague, such as a teaching partner. Figure 4 shows a partial list of VHM exhibits that are publicly available.

Others may edit public and shared exhibits. Thus, a teacher may adapt a VHM exhibit to meet the particular needs of his or her class, curriculum, and students. Copies of a VHM exhibit give credit to both the original author and the teacher who modified that exhibit.

Classroom management tools are a key feature of the VHM and are essential for allowing teachers to differentiate instruction. These types of tools are rarely available on other history Web sites developed for use in the classroom. Teachers can create classes and groups within those classes, allowing them to assign different exhibits and supported or nonsupported versions of activities to particular students. When students log on to the VHM, they receive a message about the exhibits to which they have been assigned. The VHM also has a grading feature that permits teachers to provide feedback and assign grades to students' work. An electronic mail feature facilitates communication among teachers, students, and VHM staff.

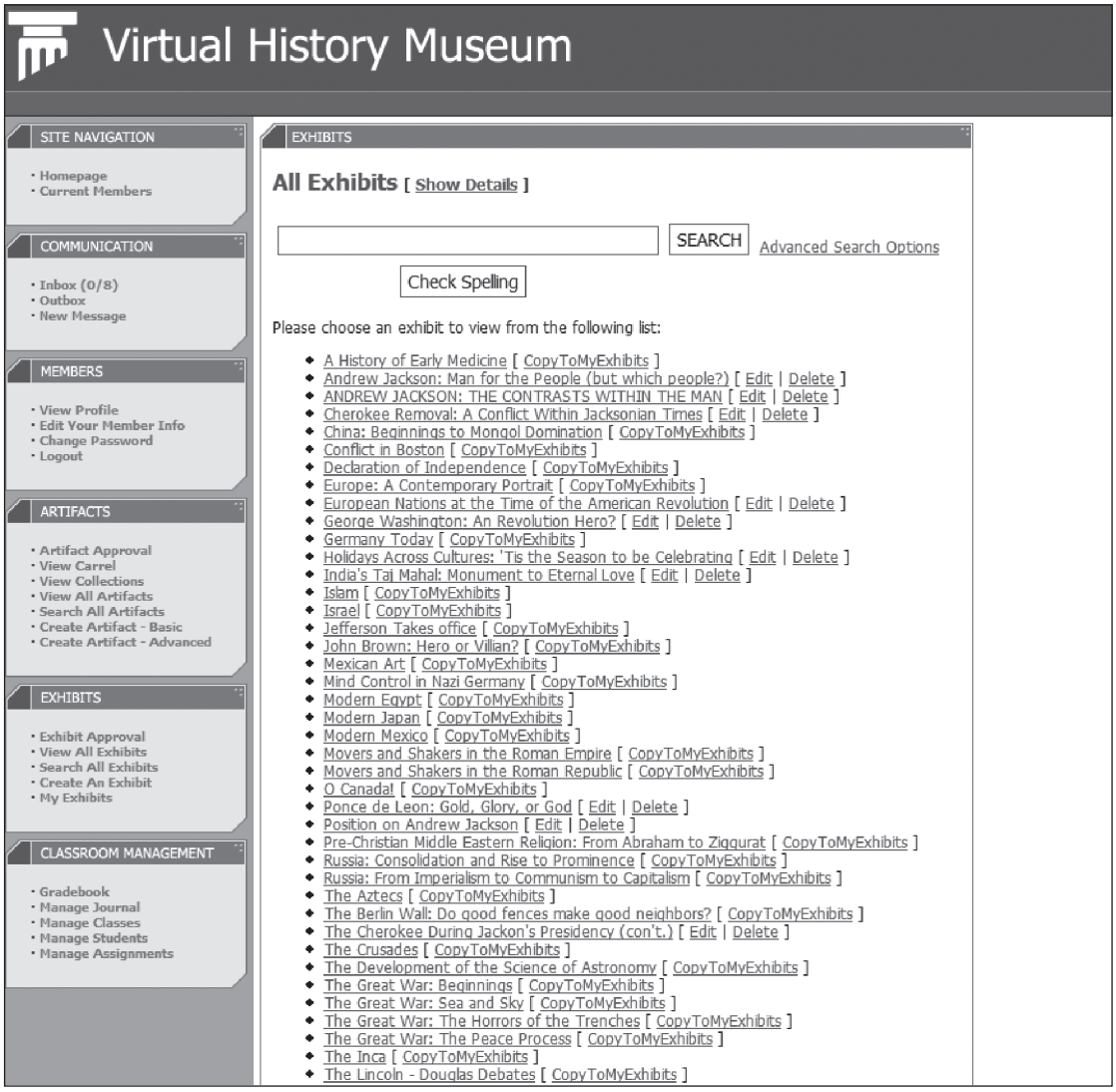

FIGURE 4. Partial list of exhibits.

Teachers can restrict their students' e-mail access to others within their class or within their school, if desired.

Does the VHM Help Students?

In a pilot study of the VHM, an eighth-grade general education teacher in an urban middle school used the VHM with three classes of students (Okolo, Englert, Bouck, & Heutsche, 2007). Two of these classes, which were cotaught by a special education teacher, included students with mild disabilities. The third was an honors class. Students used the VHM over six class periods to learn about the contradictions in Andrew Jackson's presidency. We assessed student learning through a multiple-choice test of factual information and an in-depth interview that probed students' reasoning about key historical ideas covered in the unit. We also analyzed students' written responses to learning activities within the VHM unit. In our analyses, we examined differences on these measures among students with disabilities, students without disabilities, and honors students.

Results showed that the three groups of students were significantly different on pretests of knowledge and historical reasoning. However, when posttest scores were adjusted for pretest differences, posttest scores were comparable for all three groups. These results suggested that participation in this VHM unit leveled the playing field, enabling students with disabilities to learn as much as honors students over the course of the instructional unit. Students with disabilities did not fare as well on the position paper they were asked to write as part of the VHM unit, however. As might be expected, honors students outperformed general education students, who outperformed students with disabilities on this measure. One interesting aspect of this analysis was the finding that word count

contributed significantly to students' scores on the position paper. Students with disabilities wrote less than students in the other two groups, and it is likely that their writing skills limited their ability to demonstrate their knowledge and understanding through writing. This finding underscores the need to explicitly teach cognitive strategies, such as persuasive writing, within the context of history instruction. It also reminds us that we may underestimate what our students are learning if we rely only on their written work as evidence.

Students expressed great interest in the VHM and believed they had benefited from its use. They particularly liked the text-to-speech features. We observed students with disabilities during traditional social studies and during VHM instruction. Students had high rates of engagement when the VHM was used, and they were more willing to write in the VHM than they were during regular history instruction. Teachers reported that students asked more questions and consistently turned in assignments during the VHM unit. In fact, some students who did not complete their VHM activities within the allotted class time chose to finish them in lieu of attending elective classes later in the day.

Conclusion

History instruction is an important component of the general education curriculum not only because it helps prepare future citizens but also because it offers a powerful domain for the development of literacy, reasoning, and problem solving. If the research literature and availability of curricular materials is any indication, there have been few options beyond the textbook to make history more accessible to all learners. The Internet can provide numerous opportunities for more effective and motivating history instruction.

The VHM makes the most of the power of technology and the Internet in ways that make it feasible for teachers to provide history instruction that incorporates a variety of media and supports for all students. Teachers can create their own exhibits in the VHM, or they can use or adapt exhibits created by others. The VHM can be employed as teachers' resources as interests dictate. One teacher might choose to use the VHM for simple assignments that support the textbook, such as displaying a picture of the first Thanksgiving and asking students to describe differences in the depictions of the colonists and the Native Americans. Or, as some of our participating teachers are now doing, a teacher might develop an extended unit about Latin America or early medicine or material culture during the early 20th century. Eventually, we hope that students themselves will become curators and create exhibits for other classes and students to use. As more educators use the VHM and develop exhibits and learning activities that can be shared, we hope the VHM will grow to be a resource that can improve history learning for all students.

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Authors' Notes

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