

# **The History Museum Web, Examined**

**Sheila A. Brennan**  
**George Mason University**  
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What are history museums in the United States doing on the Web? Colonial Williamsburg offers and charges for online field trips; the National Museum of American History allows visitors to dive into select objects from their collection; and the U.S. Holocaust Memorial Museum provides a gateway into their collections, exhibitions, and learning experiences. For a medium that offered smaller museums the opportunity to have as large a presence online as bigger institutions, there is a digital divide within the history museum community. Some museums jump ahead and explore ways of designing experiences for the web, while many others lag behind. While those museums experiment with online technologies, they also may leave behind potential online visitors.

This field statement will examine the current state of history museums in the United States on the web. First, I will review the history of media inside museums. Tracing museum media will lead me to look at what history museums do on the web. A survey of history sites allows me to see what a typical museum offers the public online. I will then highlight a few excellent examples of online museums, exhibitions, and learning experiences. Many museums use their sites to teach, so I will see how museum educators use the web to teach history. Other issues to be examined will include: online audiences; trends in design; challenges with accessibility; and institutional challenges to financing online projects.

History museums strive at interpreting the past in a three dimensional environment where objects and environment tell a story. They are challenged with creating innovative online experiences, knowing that those experiences will never replicate a museum visit. This statement will determine the state of online history museums and examine how they interpret the past through the web medium.

## **A Brief History of Museums and Technology**

The current state of history museums' presence on the web is an extension of media inside physical exhibitions. Beginning in the mid-1980s electronic media appeared in museums. Curators and interpreters tapped into the potential for creating contextual pieces, using laser disc and video presentations, impossible through a static exhibition. Selma Thomas wrote that electronic media can be authoritative and substantive by creating conceptual links to real collections.<sup>1</sup> The permanent place of media in museums was recognized by the creation of the media and technology professional committee of the American Association of Museums in 1989. By 1991, the International Conference on Hypermedia and Interactivity in Museums (ICHIM) addressed new issues facing museums, such as creating multi-media presentations for public consumption inside museums or for visitors to buy and experience at home. As some museum professionals questioned the place of electronic media inside traditional exhibitions, others hoped to appeal to younger and diverse museum audiences.<sup>2</sup>

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<sup>1</sup> Selma Thomas, "Mediated Realities: A Media Perspective," in *Virtual & the Real, The Media in the Museum*, Mintz, Ann, and Selma Thomas, eds. (Washington, DC: American Association of Museums, 1998), 1-17.

<sup>2</sup> For a good chronology of computer technology in museums, see Katherine Jones-Garmil, "Laying the Foundation: Three Decades of Computer Technology in Museums," in *The Wired Museum: Emerging Technology & Changing Paradigms*, Katherine Jones-Garmil, ed. (Washington, DC: American Association of Museums, 1997), 35-62. International Conference on Hypermedia and Interactivity in

Electronic media remained inside the walls of the museum until the mid-1990s when the World Wide Web stretched beyond the academic world to a wider public. A turning point in web usage occurred for museums when the first book examining the role of media in museums included an examination of the Internet influence, *The Wired Museum*, edited by Katherine Jones-Garmil in 1997. The essays offered perspectives of the evolving digital world inside museums. Some authors acknowledged a place for digital and networked media, such as Guy Hermann. He spoke to technophobic museum professionals by writing, "let's make it clear that computer technology is not going to go away. All the hype surrounding the Internet and related digital media is not necessarily evidence of its ephemeral nature." He offered a plan for slowly integrating digital media into a museum's overall plan.<sup>3</sup> Leslie Johnston introduced the basics of digitizing images to increase access to museum collections. In contrast, Howard Besser contested the placement of digitized collections that encouraged visitors to take a more interactive role with those objects. He feared that the authority of a museum eroded with the proliferation of online images:

"And when members or the general public have (from their own home) access to a wealth of digitized images and scholarly information, many will begin to make their own links and juxtapositions among these images. This may further erode the authority of the curator as the leading figure who places images within a context. A possible result may be an erosion of high culture in general, with the curator's role becoming somewhat akin to that of a film critic."<sup>4</sup>

In another essay, Besser worried that virtual museum visitation would replace physical visitation because people "must wrestle with parking and limited hours, and will only

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Museums is organized by Archives and Museum Informatics,  
<http://www.archimuse.com/conferences/ichim.html>

<sup>3</sup> Guy Hermann, "Shortcuts to Oz: Strategies and Tactics for Getting Museums to the Emerald City," in *The Wired Museum*, 65-91.

<sup>4</sup> Leslie Johnston, "Imaging in Museums: Issues in Resource Development," 93-113; Howard Besser, "The Changing Role of Photographic Collections with the Advent of Digitization," 121; both in *The Wired Museum*.

visit cultural repositories if they can do so any time of day or night from the comfort of their home workstation."<sup>5</sup> *The Wired Museum's* final essay by George F. McDonald and Stephen Alsford concluded with a more positive outlook on the future of wired institutions. They wrote:

The true vision of a virtual museum extends beyond the digitization of the resources of any individual museum, into a collaboration recombining the resources of multiple institutions, as well as those of private citizens.<sup>6</sup>

Their vision encouraged museum professionals to reconsider their role as insular cultural institutions, and look outward to accept new roles for themselves and their public.

As *The Wired Museum* dealt with institutional issues, *The Virtual and the Real: Media in the Museum* published in 1998, treated the museum audience experience with media inside museums and online. Essay authors Ruth Perlin, Kristine Morrissey, and Douglas Worts discussed how virtual experiences challenged museums to look at audiences differently by incorporating a visitor-focused approach to create and maintain dialog between the institution and the visitor. Perlin examined how art museums used technology to make visitor interaction with art more significant and more appealing, "by opening our walls, our vaults, our libraries, our curatorial files electronically, we are offering the public an opportunity to reshape the museum with us." Morrissey and Worts wrote that carefully crafted technology "can facilitate a change in the dynamics between museums and visitors as we recognize that we are partners in what museums are

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<sup>5</sup> Besser, "The Transformation of the Museum and the Way It's Perceived," in *The Wired Museum*, 157-58.

<sup>6</sup> George F. McDonald and Stephen Alsford, "Conclusion: Toward the Meta-Museum," in *The Wired Museum*, 277.

ultimately about—exploring and expressing our piece of the human experience.”<sup>7</sup> These authors believed that museums’ potential in the digital world might improve visitor experiences and enhance what a museum offered its public.

To encourage the growth of museum presence on the Internet, a technology consulting firm, Archives and Museum Informatics, organized the first conference dedicated to museum work on the web in 1997. The sessions at that first conference focused on building sites, copyright issues, and collaboration. Presenters represented museum professionals, information technology staff, and media designers. Museum web sites earned awards for their creativity and content, motivating some institutions to improve their online offerings. As mainstream museum professionals resisted digitizing projects and questioned the need for content-rich web sites, the trend toward professionalizing museum web design moved forward at the Museums and the Web conference. It offered technology and media designers a forum to showcase their work, and become leaders in the new subfield of online museum development. This influenced the American Association of Museums’ Media and Technology committee to offer awards for the best museum web sites in 1999.<sup>8</sup>

As more museums ventured onto the Internet, web design became increasingly sophisticated and site content rich. To sort through the plethora of new sites, the Public History Resource Center in 2000 developed guidelines for reviewing public history web sites with a critical eye, and created a rating system to encourage good standards of

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<sup>7</sup> Ruth R. Perlin, “Media, Art Museums, and Distant Audiences,” 86; Kristine Morrissey and Douglass Worts, “A Place for Muses? Negotiating the Role of Technology in Museums,” 155; both in *Virtual & the Real*.

<sup>8</sup> Most of the Museum and the Web conference papers from 1997 forward are available online at the Archives and Informatics site: <http://www.archimuse.com/conferences/mw.html>. Also found in this site are past winners of the “Best of the Web” awards. Media and Technology Committee Muse Awards may be found at: [http://www.mediaandtechnology.org/muse/2004muse\\_history.html](http://www.mediaandtechnology.org/muse/2004muse_history.html).

practice. As commercial media, such as Discovery Networks and the History Channel, created flashy web sites aimed at history enthusiasts but did not always practice good history more museum and academic publications offered reviews and guidelines for good sites. The *Journal of American History* and *History Matters* collaborated to review history web sites in June 2001, and included museums among them.<sup>9</sup> By 2002 *Curator*, *The Museum Journal* dedicated an entire issue to technology and museums where the Internet played a prominent role in each article. *Curator* focused primarily on physical exhibitions and published only a few articles prior to this issue dealing with museums' online role. In that issue, Klaus Müller reiterated the promise of digital museums, but that museums still struggled to find their virtual place. He raised questions reminiscent of Howard Besser in *Wired Museum* over the relevancy of three dimensional objects in physical museum buildings when virtual substitutes were available 24 hours a day. Müller reminded readers that exhibited objects rarely are displayed in their natural order, so that curating an exhibit already created a virtual of order of things.<sup>10</sup>

The emergence of scholarly analyses of museum web sites recognizes the volume of material available to the public, as some museums develop online content to attract millions of potential virtual visitors. According to the latest survey of the Pew Internet and American Life Project, 63 percent of adult Americans use the Internet, and that women are as likely as men to web surf. A greater percentage of non-whites access the web than ever before, and generational gaps are closing as older Americans catch up to

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<sup>9</sup> These reviews and other history sites are easily accessed through the *History Matters* web site maintained by the Center for History and New Media, <http://historymatters.gmu.edu/browse/wwwhistory/>. Public History Resource Center was founded by former graduate students of University of Maryland. Their rating system is available: [http://www.publichistory.org/reviews/rating\\_system.html](http://www.publichistory.org/reviews/rating_system.html). The Internet archive offers a look back at the History Channel's site in March 2000, <http://web.archive.org/web/20000229224528/www.historychannel.com/index.html>.

<sup>10</sup> Klaus Müller, "Museums and Virtuality," *Curator: The Museum Journal* 45, no.1 (January 2002): 22-33.

other age groups in usage. Critical to museum professionals is that three out of four Internet users have sought information about a hobby or personal interest online. The number of hobby seekers increased by 40 percent between March 2000 and January 2002 — from 65 million to 91 million people.<sup>11</sup> As recreational use of the web increases, so does the potential for online museum visitation.

Even as total Internet users increase across racial and ethnic communities, a digital divide persists. A 2003 Pew report found that 64 percent of whites, 62 percent of English-speaking Hispanic, and 51 percent of African Americans connected to the web. The Pew report lacked a category for Spanish-speaking Hispanics, because their surveys are conducted in English.<sup>12</sup> As over 28 million people speak Spanish at home, the English-language web has not catered well to them. While some state governments offer Spanish language sites to serve the growing population of Spanish-speaking citizens most American museums do not offer multi-lingual options. The Smithsonian Institution which serves an international audience provides a one-page introduction in nine different languages, but each link within that specific language guide leads to pages written in English. Few American cultural institutions offer multi-language sites that are more commonly found in Canada and Europe. Even El Museo del Barrio, New York's "leading Latino cultural institution" lacks a Spanish translation of their site.<sup>13</sup> Not only do

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<sup>11</sup> Pew Internet and American Life Project, "America's Online Pursuits: The Changing Picture of Who's Online and What They Do," published online, December 22, 2003, <http://www.pewinternet.org/reports/reports.asp?Report=106&Section=ReportLevel1&Field=Level1ID&ID=463>.

<sup>12</sup> Pew, "America's Online Pursuits," <http://www.pewinternet.org/reports/reports.asp?Report=106&Section=ReportLevel1&Field=Level1ID&ID=467>.

<sup>13</sup> U.S. Census Bureau data, "Ability to Speak English," 2000: [http://factfinder.census.gov/servlet/QTTable?\\_bm=y&-geo\\_id=01000US&-qr\\_name=DEC\\_2000\\_SF3\\_U\\_QTP17&-ds\\_name=DEC\\_2000\\_SF3\\_U&-lang=en&-sse=on](http://factfinder.census.gov/servlet/QTTable?_bm=y&-geo_id=01000US&-qr_name=DEC_2000_SF3_U_QTP17&-ds_name=DEC_2000_SF3_U&-lang=en&-sse=on). Smithsonian Institution's Spanish-language guide that leads to English-language sites within the Institution,

institutions eliminate non-native speakers, but also demonstrate no interest in international outreach.

## History Museum Web Sites in the 21st Century

To gauge the level of technology use in museums and libraries, the Institute of Museums and Libraries Services surveyed 701 institutions in the United States in 2002. They found that American museums lag behind libraries in their commitment to incorporate technology into their daily functions through digitizing projects, electronic collections databases, and web sites. While 87 percent of museums used some type of technology in their daily operations, including desktop computers, nearly 100 percent of libraries did. This particular survey is significant for this statement because more than half of the respondents were history or historic house museums. Of those institutions surveyed, 62 percent reported having web sites, with 15 percent planning to add a site within the next 12 months. More public libraries than museums offer web sites, but academic and state libraries are the most wired. Discrepancies are great between large and small museums as only 41 percent of small museums reported having web sites compared with 100 percent of large institutions.<sup>14</sup> Ruth Perlin commented in 1998 how

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<http://www.si.edu/guides/spanish.htm>. Virtual Museums Canada offers a French version: [http://www.museevirtuel.ca/Francais/index\\_flash.html](http://www.museevirtuel.ca/Francais/index_flash.html). El Museo del Barrio, <http://www.elmuseo.org>. Also see Los Angeles Country Museum of Art offers an English-only site in the heavily-Hispanic L.A. county: <http://www.lacma.org/>.

<sup>14</sup> Institute of Museum and Library Services, *Status of Technology and Digitization in the Nation's Museums and Libraries 2002 Report*, on-line report posted May 10, 2002. Available at <http://www.ims.gov/reports/techreports/intro02.htm>. The respondents broke down as follows: history museums, 31 percent; historic house/site, 23 percent; art museums, 16 percent; specialized subject museums, 18 percent; general museums, 4 percent; natural history/anthropology, 3 percent; children's museums, 2 percent; aquariums, botanical gardens, nature centers, science centers, and zoological parks each represented less than 1 percent of total. The total response rate for museums was 22 percent.



the web could be "the great equalizer among museums large and small," yet the IMLS survey shows a deep divide which stems primarily from funding.<sup>15</sup>

In this survey, IMLS asked museums about technologies in use at their institutions, budgets, and their priorities in digitizing projects. The digital divide begins at a basic level, such as Internet access at responding institutions. All large and 94 percent of medium museums have internet access, while only 55 percent of small museums do. If staff members of smaller institutions cannot access the Internet, it is not surprising that only 41 percent invest in web sites. Lack of funding for projects was cited as the main hindrance to digitizing projects. Donors offered museums opportunities to do such projects, while nearly 20 percent of museums state that they have no funding for technology.<sup>16</sup>

Keeping in mind the IMLS study, I surveyed history museums already online to accurately portray what they are doing in 2004. I viewed 85 history museum sites and saw less sophistication than I expected, and witnessed the digital divide seen by IMLS. Because web sites change rapidly, this survey took a snapshot of what was available in January-February 2004. I began with a list of over 400 history museum web sites in the United States. My survey examined a range of institutions in 36 states from small county historical societies to the National Museum of American History. For each museum site viewed I searched for familiar museum subjects, including: exhibitions; design; collections; and education. Within each category, I hunted for specific information, such as type of exhibition and for interactive elements such as enlarged photos of objects or

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<sup>15</sup> Perlin, "Media, Art Museums, and Distant Audiences," 85.

<sup>16</sup> IMLS defines "small" museums as institutions with budgets of less than \$250,000; medium museums with budgets between \$250,000 and \$1 million; and large museums have budgets over \$1 million. Other statistics from IMLS, *Status of Technology and Digitization*, [http://www.ims.gov/Reports/TechReports/survey\\_museums02.htm](http://www.ims.gov/Reports/TechReports/survey_museums02.htm).

linkable sources. By seeking different levels of information for the sites, I achieved a better vision of what history museums are doing on the web.<sup>17</sup>

I first examined these sites as institutional representatives. Most museums offered multiple pages and basic visitation information. Typical museum sites looked like a detailed online brochure that contained more than 20 pages; described exhibitions or offered a short narrative of an exhibition; listed the institution's collection; provided information regarding site visits; and contained few or no interactive elements. One such example is the Charleston History Museum. They offered a professional-looking site with crisp design that exudes authority. Their exhibits section showed beautifully photographed objects illustrating descriptions of special and permanent exhibitions at the museum, but their collections were not available on the site. They described on-site education programs and offered teacher lesson plans. This site was excellent for those interested in visiting their sites, but offered nothing to lure patrons back to explore new web offerings.<sup>18</sup>

Like the Charleston History Museum, the Northern Indiana Center for History's site offers basic information to the potential on-site visitor about their historic properties and museum. Individuals find no information about the Victorian-era architecture of the main historic home, but may read a biography of the home's owners. For those interested in local history, they provide a "fact page" for students or teachers to print.<sup>19</sup>

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<sup>17</sup> Starting with this list of 453 history museums, I counted every fifth site and took a general survey of that museum's web site. Occasionally, I found dead links and moved on to the next museum listed. I devised a short checklist to reviewing each museum site. I derived my data from these surveys between January 30 and February 16, 2004. The list I started with is available here: [http://www.museumca.org/cgi-bin/cgiwrap/museumca/usa\\_search.cgi?category=history](http://www.museumca.org/cgi-bin/cgiwrap/museumca/usa_search.cgi?category=history). To see a complete list of the sites I visited, see the bibliography.

<sup>18</sup> Charleston History Museum, <http://www.charlestonmuseum.org>.

<sup>19</sup> Northern Indiana Center for History, <http://www.centerforhistory.org/>.

Few history sites go beyond the online brochure, but the U.S. Holocaust Memorial Museum (USHMM) site stands out among the best. It is an international museum with a serious mission, and its site offers much more than an online brochure or flashy representations of exhibitions. The museum remains one of the most popular in Washington, D.C. yet their site offers a complete online experience for those who do not visit. Their museum is experiential and, as Alison Landsberg argues, attempts to generate emotion where new or "prosthetic memories" are incorporated into visitors' physical bodies throughout its carefully designed exhibitions.<sup>20</sup> The question of whether an online component can reproduce a similar feeling arises. While I interpret their online exhibitions as accomplishing different goals than their physical exhibitions, others may feel moved by their virtual visits. The online component seeks to teach about the history of the Holocaust and genocide to many student audiences; serve as a living memorial for survivors; and provide access to their vast collections for further study. The content throughout the site is strong historically, as visitors may access sources referenced in the online presentations, whether in an exhibition or lesson plan. USHMM uses the multimedia capability of the web well by offering audio clips for oral histories, film clips, and Flash exhibition elements. Each piece of multimedia offers alternatives to accommodate those with disabilities, slow modem connections, or inability to download plug-ins. Tying together thousands of pages embedded within the site is done with design that allows anyone to find their way back to the homepage. All of these elements make USHMM's web site among the best history museum sites in the U.S.<sup>21</sup>

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<sup>20</sup> Alison Landsberg, "America, the Holocaust, and the Mass Culture of Memory: Toward a Radical Politics of Empathy," *New German Critique* 71 (Spring-Summer 1997), 63-86.

<sup>21</sup> U.S. Holocaust Memorial Museum, <http://www.ushmm.org> .

Few museum sites are strong in the areas of content, collections, exhibitions, and education like U.S. Holocaust Memorial Museum. I found that 84 percent of the museums I surveyed summarize their onsite permanent and temporary exhibits, and often illustrate them with photos of objects or the installation itself. Other institutions with nationally significant collections do not offer sophisticated online exhibitions, such as The Navy Museum or the Hagley Museum and Library. Some institutions develop exemplary exhibitions that offer rich historical content, interactive elements, object examination, and links to other resources.<sup>22</sup>

I found typical history exhibition sites offer lengthy narratives, such as the Museum of the City of New York's *Five Points, Manhattan's Infamous Slum*. *Five Points* narrates the story of the New York neighborhood and illustrates it with a few prints from their collection. While the prints do not enlarge in this presentation, some online objects do. Other museums use this technique to highlight exhibit objects, such as the Kansas Museum of History, *Willing to Die for Freedom*. Approximating labels, this summary site allows visitors to focus on highlighted artifacts such as one of John Brown's pikes.<sup>23</sup> The Anchorage Museum also uses this strategy for presenting their Alaska Gallery by focusing on highlighted objects from their physical gallery. And finally, one of the most popular online exhibitions at the National Museum of American History is a not one of their more recent Flash-based site, but rather HTML pages in

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<sup>22</sup> Smithsonian Institution's National Museum of American History, Behring Center, <http://www.americanhistory.si.edu/>; The Navy Museum, <http://www.history.navy.mil/branches/org8-5.htm>; The Hagley Museum and Library, <http://www.hagley.lib.de.us/exhibits.html>.

<sup>23</sup> Museum of the City of New York, *Five Points, Manhattan's Infamous Slum*, <http://www.mcny.org/Exhibitions/5points/fivepoints.htm>. Kansas Museum of History, *Willing to Die for Freedom: A Look Back at Kansas Territory*, <http://www.kshs.org/exhibits/current/territorial.htm>.

*Paint By Number*.<sup>24</sup> The content is from an onsite temporary exhibition. Images may be enlarged, but that is the extent of the interactivity. While many online history exhibitions are not designed sophisticatedly, they appeal to web users because they treat popular topics, provide excellent historical content, and tell good stories.

Exemplary exhibition sites contain content rich material, resources and links, interactivity, user-friendly design, and often give visitors an unique experience. I found only a small percentage of institutions offer in-depth narrative exhibitions. The New Jersey Historical Society pokes fun at its reputation as the "turnpike state" in *What Exit?*, a recipient of a Muse Award in 2003. The exhibit discusses the turnpike's construction within the context of post-war America. Users may enlarge images, listen to oral histories of turnpike workers, and enlarge photographs through pop-up windows that effectively add content while not taking users away via linking.<sup>25</sup>

Just as *What Exit?* focuses on one very long road, *George Washington, A National Treasure* focuses on one historic painting. This exhibition successfully incorporates a Flash-based interface for the online exhibition, and offers an accessible alternative. Exploring an object never seemed so easy with this site that allows users to view different perspectives of the same object. Though this site is an excellent example of in-depth object examination, very few history sites focus on a single artifact.<sup>26</sup>

A few history exhibition sites seek to redefine the roles of visitor and curator, such as *September 11, Bearing Witness to History*, a collaborative project of many

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<sup>24</sup> Anchorage Museum, Alaska Gallery, [http://www.anchoragemuseum.org/ag\\_main.asp](http://www.anchoragemuseum.org/ag_main.asp) . National Museum of American History, *Paint by Number*, <http://www.americanhistory.si.edu/paint/index.html>. Matt MacArthur, email to author, March 25, 2004. Matt is the web master at the National Museum of American History, Behring Center.

<sup>25</sup> From my survey, 16.5% of museums offered in-depth narratives. New Jersey Historical Society, *What Exit? New Jersey and its Turnpike*, [http://www.jerseyhistory.org/what\\_exit/index.html](http://www.jerseyhistory.org/what_exit/index.html).

<sup>26</sup> National Portrait Gallery, *George Washington: A National Portrait*, <http://georgewashington.si.edu>.

institutions including the National Museum of American History, Library of Congress, American Social History Project, and the Center for History and New Media. Like the onsite exhibition of objects from New York, Pennsylvania, and Washington, D.C., the online version offers anyone an opportunity to contribute their story from September 11 for a growing online archive. The site becomes a space for the public, curators, and historians to remember and share experiences. This unique feature becomes part of the historical record, or part of a growing virtual exhibition catalog. Interactivity takes different forms, but this example shows how museum web sites challenge traditional museum practices. This exhibition won Gold recognition in 2003 Muse Awards.<sup>27</sup>

*September 11* is also unique because objects and oral histories were collected soon after the event and immediately were made available electronically via a database. Most online history exhibitions or museums, however, do not offer searchable databases of their collection. According to the IMLS survey, access to collections through technological solutions ranks as the highest priority for using technology in museums, but only a few showcase those collections on-line. Eight museums I surveyed offer large searchable collections, such as the Jewish Museum of Maryland, while 18 place a small number of objects online, 25 list what comprises their collections, and 34 provide nothing. The National Museum of American History brings visitors into a small portion of their collection in *History Wired*. Though the interface is confusing, users find in-depth information on popular artifacts. Many institutions do not offer a glimpse into their collections, but some museums are beginning to showcase objects in special exhibitions. The Missouri Historical Society's online presentation, *Lewis and Clark, the National*

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<sup>27</sup> National Museum of American History, *September 11: Bearing Witness to History*, <http://americanhistory.si.edu/september11>.

*Bicentennial Exhibition*, offers a searchable gallery of objects from this traveling exhibition, yet their institutional site merely describes what comprises their collection.<sup>28</sup>

For most history museums, objects guide and enhance exhibitions but they must remain protected and untouched inside physical museum buildings. The web offers an opportunity to show visitors multiple views or unique features of an object not possible within the museum setting, like *George Washington*. Though the technology is available, most history museums do not devote online space to showcasing their objects through virtual reality. In 1998, Stephen Dietz extolled the virtues of art museums using Quicktime Virtual Reality (QTVR) programs for online tours and experiences. Some art museums currently use such technology to zoom in on paintings and for virtual gallery tours. Despite their availability and reasonable cost, history museums have been slow to incorporate this technology into their exhibits and object examinations.<sup>29</sup> Few museums use 3-D or Virtual Reality (VR) software to explore objects in-depth, while a handful more incorporate Quicktime, Javascript elements, or Flash into their web pages for online tours or exhibition pieces. One exhibition site that uses technology to bring people into a landscape and zoom in on objects is *Bon Appetit: Julia Child's Kitchen* from the National Museum of American History. Designed to bring visitors into her kitchen, the exhibit shows a 360° view of the interior and highlights objects within the space for zooming. This takes visitors inside a place they could not go at the physical museum.<sup>30</sup>

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<sup>28</sup> Jewish Museum of Maryland, <http://www.jhsm.org/>; National Museum of American History, *History Wired: A Few of Our Favorite Things*, <http://historywired.si.edu/index.html>. Missouri Historical Society, <http://www.mohistory.org/>; *Lewis and Clark, the National Bicentennial Exhibition*, <http://www.lewisandclarkexhibit.org/>, won Best of the Web award for best online exhibition in 2004. Missouri Historical Society and its exhibits are separate from my survey.

<sup>29</sup> Steven Dietz, "Curating (on) the Web," paper given at Museums and the Web Conference, 1998, available at: [http://www.archimuse.com/mw98/papers/dietz/dietz\\_curatingtheweb.html](http://www.archimuse.com/mw98/papers/dietz/dietz_curatingtheweb.html).

<sup>30</sup> National Museum of American History, *Bon Appetit: Julia Child's Kitchen*, <http://americanhistory.si.edu/juliachild/>.

As museums develop new and innovative web projects, most are done by larger institutions with budgets that can handle the costs of hiring professional design firms. Most top winners of the Best of the Web and Muse Awards went to museums working with design firms. As computer software continues to specialize, many museums are looking to professional designers to handle their web work. Debates over whether museums or historians should spend time designing web sites surface as designers believe they should handle the coding while curators and historians handle the content. When costs hover around \$85 thousand per site, many smaller institutions cannot absorb the expense and must consider alternatives to outsourcing. Carrie Bickner recommends that smaller institutions create accessible web sites on a shoestring. From her experience digitizing objects at the New York Public Library, she wrote the book to encourage those feeling left behind in the technology boom to design themselves.<sup>31</sup>

One very small institution launched an innovative Flash-based site in February 2004, *Raid on Deerfield: The Many Stories of 1704*. With the assistance of IMLS and National Endowment for the Humanities grants, the very small Pocumtuck Valley Memorial Association (PVMA) designed a web site that could present multiple perspectives of one story—the Raid on Deerfield village—simultaneously. This site does some things impossible in a physical exhibition: it allows visitors to switch cultural perspectives in the middle of the story.<sup>32</sup>

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<sup>31</sup> Discussion of design costs came from conversations by staff at the National Geographic Society referring to their online exhibit, *Remembering Pearl Harbor*, <http://plasma.nationalgeographic.com/pearlharbor/>, Washington, DC Forum on Technology and the Humanities, "What Can Good Web Design Do for Humanities Projects," at George Mason University, Fairfax, VA, October 2, 2003. Carrie Bickner, *Web Design on a Shoestring* (Indianapolis: New Riders, 2004).

<sup>32</sup> Pocumtuck Valley Memorial Association, *Raid on Deerfield: The Many Stories of 1704*, <http://www.1704.deerfield.history.museum/>.



Another unique aspect is that this collaborative, web-only exhibition design and code is meant to be shared. *Raid on Deerfield* replicates no exhibit at a physical site, nor will it ever. Collaborating with historical institutions and advisors from the three Native groups present at the raid in 1704 on content and objects expanded the scope of the project. Incorporating each interpretation on equal footing with French and English colonial views challenges the story told in Deerfield from a brutal attack of savage Indians on colonial settlers, to a more complicated view of conquest and culture clash in what is now Massachusetts. Lastly, the PVMA seeks to share this web site template, with accompanying code and design, with other institutions seeking to represent multiple perspectives in an exhibit. Through grants from the IMLS and NEH, they were able to hire professional designers so that other institutions will not need to. This truly is an innovative way to use the Internet to fulfill its promise as an equalizing force in the museum field bridging gaps between small and large institutions, and strong and underrepresented cultural voices.<sup>33</sup>

*Raid on Deerfield*, like many exhibitions, incorporated Flash into its presentation as Flash-based sites are becoming a new industry standard for interactive exhibition and education sites. Many nominees and winners from "Best of the Web" and American Association of Museums "Muse Awards" incorporate Flash technology into their sites. The first history site with a Flash element to win a web award was *The Star-Spangled Banner* in 2000. By 2002, Flash-based sites bombarded the awards scene, and in 2004 all

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<sup>33</sup> Conversation with Lynne Spichiger and author, Pocumtuck Valley Memorial Association, April 3, 2004, at Museums and the Web Conference, Arlington, VA.

of the finalists for the "Best of the Web" exhibitions contained elements of Flash, as did all history and culture web site winners of 2004 Muse Awards.<sup>34</sup>

Multi-media sites incorporating programs such as Flash offer many challenges to potential users. First, Flash sites are not accessible for those with vision problems using screen readers or those who explore the web with text-based browsers. These sites also exclude potential users who cannot get to their site through barriers of bandwidth, slow processors, or inaccessible browsers. For instance, I am unable to view Flash sites through my computer at work because my agency does not support many plug-ins nor allows downloading from the Internet. Exhibitions such as *Mapping Colonial America* by Colonial Williamsburg are completely inaccessible, but offer a rich collection of historic maps. Unlike *Mapping*, most museum Flash sites offer an accessible home page. Many commercial entities are moving towards all Flash sites, which automatically eliminate users who do not have the plug-in. One such company is the museum web design firm Terra Incognita.<sup>35</sup>

This is a particularly interesting issue because of the growing movement of CSS-based web design. Designing with the new "web standard" makes sites accessible to the greatest number of people, because the CSS-based code recognizes the differences in how browsers read web pages. This means that an individual surfing the web with

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<sup>34</sup> National Museum of American History, *The Star-Spangled Banner: The Flag that Inspired a Nation*, <http://americanhistory.si.edu/ssb/>. The Media and Technology Committee of the American Association of Museums began awarding web sites in 1999:

[http://www.mediaandtechnology.org/muse/2004muse\\_history.html](http://www.mediaandtechnology.org/muse/2004muse_history.html). Archives and Informatics began awarding Best of the Web awards in 1997: <http://www.archimuse.com/mw2004/best/index.html>.

<sup>35</sup> I work for the Department of the Navy, at The Navy Museum. Their Navy-Marine Corps Intranet system is firewall protected and also detects when a user tries to download something and rejects the attempt. It is challenging to view museum sites with Flash presentations or share them with colleagues. Colonial Williamsburg Foundation, *Mapping Colonial America*, [http://www.history.org/History/museums/online\\_exhibits.cfm](http://www.history.org/History/museums/online_exhibits.cfm). Terra Incognita, <http://www.terraincognita.com>. Another example of commercial all-Flash sites is Chipotle restaurants, see <http://www.chipotle.com/>.

Internet Explorer 4.0 can access the same information as a person using Netscape Navigator 7.1. Currently, many users surfing with older browsers cannot access sites designed only for newer versions. Also by using style sheets webmasters may update sites more easily without requiring newly designed elements each time there is a change in the site. This is particularly applicable to small history museums because the cost of maintaining a site goes down as design elements are easily controlled through CSS.<sup>36</sup> The greatest challenge with the web standard lies in converting existing sites to a CSS-based XHTML coding.

Second, most Flash-based sites are not searchable, internally or externally. Many designers mention that creating a search engine is put aside in favor of adding more interactivity or other elements of design during project planning. *Bon Appétit!*, lacks an internal search function, but the 2004 Best of the Web winning site, *Lewis and Clark, The National Bicentennial Exhibition*, does. *Lewis and Clark* offers an internal search function so that when a visitor looks for "fur" they find 27 objects in their exhibit. Yet, neither Google or Yahoo locates "lewis and clark fur" objects from the exhibit. The only hits from the exhibition site that appear on Google are HTML pages with resources of non-exhibit links about animals. Unless a user searches specifically for an exhibit on Lewis and Clark they will miss wonderful objects in that online presentation. In contrast, individuals may search from inside the *September 11, Bearing Witness to History* site or outside it with Google and Yahoo. While the online exhibition contains elements of Flash, the objects are available in HTML pages. This opens the collection and ultimately makes the exhibition more accessible to web users. Lacking searchability frustrates users

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<sup>36</sup> For information on Web Standard, see W3C, <http://www.w3.org/>, and Jeffery Zeldman, *Designing with Web Standards* (Indianapolis, IN: New Riders, 2003).

when looking for specific information and shields an excellent exhibition site from web traffic.<sup>37</sup>

Finally the last challenge with Flash sites is that they often feel small and confined. The typical museum Flash site is designed within a rectangular box that generally does not fill a screen and cannot be resized. The web design firm Second Story has been influential in shaping the look of online exhibitions, as they developed a distinctive look to their work. Early success in exhibition design with interactive storytelling seemed to influence museums and designers seeking similarly designed sites. One firm, Terra Incognita, produced the 2001 exhibition *African Voices* that filled the entire screen with images and text. But by 2004 their *Lewis and Clark* site consisted of one rectangular box with a movie-like exhibition experience. This design style makes the experience confining, and sometimes difficult to read.<sup>38</sup> If museums are most concerned with getting their collections and expertise out to the public, they must balance attractive design with usability so as not to perpetuate a digital divide among their users. Museums also must determine who comprises their online public. The next section will show that few museums seek out this information.

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<sup>37</sup>I stopped searching for objects after 10 Google pages, and after 80 Yahoo hits. *Lewis and Clark*, <http://www.lewisandclarkexhibit.org>, September 11, <http://americanhistory.si.edu/september11/>; searched August 6, 2004. I did a similar test with *Julia Child's Kitchen*, <http://americanhistory.si.edu/juliachild/>, which does not have an internal search engine, and found that the only objects that appear via search engines are those described in the text version. The text version is the alternative to the multi-media site, but does not contain any images or links to images. When searching for a specific map from Colonial Williamsburg's *Mapping Colonial America*, [http://www.history.org/History/museums/online\\_exhibits.cfm#](http://www.history.org/History/museums/online_exhibits.cfm#), I found the Library of Congress's online copy of the map, but not the one from CW's site which is embedded in a Flash presentation.

<sup>38</sup>To view this box design see Second Story's web site, <http://www.secondstory.com/>; and also Interactive Knowledge, <http://www.interactiveknowledge.com/>; Educational Web Adventures, <http://www.eduweb.com/portfolio/portfolio.php>. Terra Incognita does not have a comprehensive view of products on their site. Compare *African Voices*, <http://www.mnh.si.edu/africanvoices/> with *Lewis and Clark, the Bicentennial Exhibition*: <http://www.lewisandclarkexhibit.org/>.

## Online Museum Visitors

Several questions remain regarding why visitors come to history museum web sites and if museums design sites for those visitors. Few studies address these issues. Professionals working in the field and a handful of published statistical data shed light on these issues.

Often history museums find that visitors drop-in and out of their sites and spend less time exploring or following prescribed web paths. Flash-based exhibitions, for example, are designed for in-depth visitor experiences and generally not designed for drop-ins. Some web designers tout the length of time that visitors spend at a site as evidence of success. The designer of *Bon Appétit! Julia Child's Kitchen*, stated that many people stayed as long as an hour exploring Child's kitchen. When pressed about the average time spent by visitors she conceded that it was between two and three minutes.<sup>39</sup>

Visit length does not answer the question of whether the visitor found what they came for or if they had a satisfactory experience. Conversely, if a visitor finds what they seek quickly a museum site visit will be very short. Knowing that visitors will be satisfied with their experience if they find what they want, the Smithsonian Institution studied what kinds of information users seek in their sites. During the Summer of 2003, 38 percent of visitors looked for information about visiting the museums while 21 percent sought answers to a specific question. This small survey told the Smithsonian that they needed to rethink what their web sites tell. As a result, the National Museum of American History is moving away from movie-like Flash presentations and towards smaller bits of Flash in exhibitions so that more of the pages are searchable. One example is the *America*

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<sup>39</sup> Conversation with Michelle Chambers, President, New Tilt, at Museums and the Web Conference, Arlington, VA, April 1, 2004 about the online exhibition done for the National Museum of American History, *Bon Appétit! Julia Child's Kitchen*, <http://www.americanhistory.si.edu/juliachild/default.asp>.

*on the Move* exhibition companion site, which offers a searchable artifact database and receives more hits than the other sections in the exhibit including a Flash movie. The Museum continues to survey visitors with a pop-up window and a link on their home page.<sup>40</sup>

Studying visitor logs is one way for museums to examine the direction of traffic on their sites and where they come from. Though log analysis software is widely available, it was difficult for me to discern how widely use this because museums do not share their findings. Log analysis is time consuming and most non-profit institutions lack staff time to study these logs regularly. The Naval Historical Center has been instructed not to review web logs, and the National Museum of American History's online visitor survey asks visitors how they came to the site, something detectable from analyzing logs. While web analysis is possible some national museums are not using the available tools.<sup>41</sup>

Visitors find museum sites from different paths. Some museums advertise their sites through the media to bring in visitors. When asked how they might find an online exhibition, such as the *Theban Mapping Project*, focus group participants commented that they look to the media and marketing efforts to direct them to subject-specific projects because they had no idea how to find such a site on their own. Directly marketing a site to museum members and patrons is an easy way to start showcasing a new online offering.

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<sup>40</sup> Judy Gradwohl, "Online Exhibitions: What Works, What Doesn't—An International Forum." presentation at the American Association of Museums Conference, New Orleans, LA on May 6, 2004. *America on the Move*, National Museum of American History, <http://www.americanhistory.si.edu/onthemove/index.html> .

<sup>41</sup> Conversations with Kathy Lloyd, Webmaster, Naval Historical Center, February, 2004. Find NMAH survey on their homepage, <http://www.americanhistory.si.edu>.

Some museums try to make their pages easy to find via search engines such as Google. Titling individual pages and URLs to reflect the subject of an exhibit with specific words, rather than "homepage" or "exhibitions," allows small and large museums to gain a better Google rating on general word searches. Getting a site linked to other institutions also raises the rating, all of which increases drop-in visitor traffic.<sup>42</sup> But, the trend of Flash-based web sites makes finding information embedded in such presentations impossible from an Internet search. Unless material included within Flash is available in an alternative page, search engines will not mine that information. When web exhibits do not include search engines or searchable pages, I interpret this to mean that institutions would like visitors to browse through exhibitions rather than dart in for information and leave.<sup>43</sup> Driving traffic to museum sites requires a multi-pronged effort, understanding that visitors find sites through different means.

Audience surveys can help bridge the gap between impersonal web logs that track visitor behavior and visit length by asking what the visitor learned or why they came to a particular site. Unfortunately, few American museums invest in such surveys or publish the results. Two studies completed in 1998 and 1999 surveyed general museum site visitation via online surveys. These surveys sought to determine who visited museum web sites and why. Susan Sarraf asked web users about their behavior and found that 76

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<sup>42</sup> Google home site describes the process by which they find web pages:  
<http://www.google.com/corporate/tech.html>.

<sup>43</sup> Brad Johnson, "Beyond Google: Constructing Innovative Access to Collections on the Web," paper given at the American Association of Museums Conference, New Orleans, LA (May 8, 2004). Focus group discussions on the Theban Mapping Project ([www.thebanmappingproject.com](http://www.thebanmappingproject.com)) is described in this paper, available at: <http://www.mediaandtechnology.org/panels/next.html>.

Driving traffic to sites via Google is part of an ongoing dialog on the appropriateness of Flash in online listservs. And in "Why Not Google? Is there a future for Content Aggregators or Distributed Searching," Museums and the Web Conference, Arlington, VA, (April 2, 2004). Also, web designers from Interactive Knowledge, New Tilt, and Terra Incognita casually discussed with me why some of their history sites do not contain search engines at Museums and the Web Conference.

percent had visited a museum web site, and most did so intentionally. She probed whether websites encouraged museum visitation, and 71 percent stated that the website encouraged them to visit the actual museum building. These questions were important in the earlier days of the web as many museums worried that online content might reduce onsite visitation. Those surveyed were asked what they expected to find at a museum site, and among the choices the greatest percentage expected to find collections. The Internet Museum in Japan found similar interest in collections when they asked international museums with web sites in 1998 about their visitor traffic. Over 50 percent of museums internationally reported their exhibition and collection sections to be most popular with users. The Internet Museum also asked their survey participants if they designed their sites for specific age groups and 63 percent answered no. These two surveys represent small samples, and only one reached out to web users. Some museums ask visitors when they walk through the doors of a museum about online offerings, but do not publish the results. Since few surveys have been published it appears as if many museum guess as to what their visitors will enjoy.<sup>44</sup>

In contrast, Virtual Museums Canada dedicated themselves to re-conceptualizing their online museums and collections to involve potential users through front-end evaluations to help in the design process. A collaborative exhibition, *Cloth and Clay: Communicating Cultures*, was the subject of this front-end evaluation. The product of these surveys guided the site designers in choosing objects to feature on the site, interpretative voices, and accessibility levels. The New Jersey Historical Society involved

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<sup>44</sup> Suzanne Sarraf, "A Survey of Museums on the Web: Who Uses Museum Web Sites," *Curator: The Museum Journal* 42, 3 (July 1999): 231-243. The Internet Museum, Japan, *The World Wide Museum Survey on the Web*. (September 1998). [http://www.museum.or.jp/IM\\_english/f-survey.html](http://www.museum.or.jp/IM_english/f-survey.html). This survey received 206 responses from 986 museums from around the world. Anecdotally, I know a few museums survey their onsite visitors about web material.



teachers in evaluating and testing their exhibition companion site *What Exit?* The exhibit producers commented, "(t)his process led us to understand ways in which we could make the website more accessible, more readable, and more useful for students' independent research."<sup>45</sup> Evaluating visitors before three-dimensional exhibits are created is not new, but is slowly changing in the online world. Often once exhibitions go live, user testing with focus groups assesses the effectiveness of site navigation, but not always for content. These tests many times occur within the physical site of the museum and users are given scripted paths to follow.<sup>46</sup>

Testing in this way does not answer the question of what users take with them when they leave sites. These deeper questions are difficult to answer and expensive to pursue. One recent study published in 2004 attempted to answer those more challenging questions with a pop-up survey embedded in six museum sites. Unfortunately, this evaluation ran into problems with online testing: few useable surveys. Data from two history museums participating were thrown out because the response rates were too low, while the responses from other museums were low but statistically useable. No conclusions could be made about meaning making from individuals as their responses were too diverse. While a user might comment that they liked a specific element of a site, motivations still were unknown.<sup>47</sup> Creators of the *Theban Mapping Project* interviewed visitors at the Getty Museum about this site. *The Theban Mapping Project* is both an

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<sup>45</sup> Barbara J. Soren and Nathalie Lemelin, "Developing and Evaluating 'Quality' On-line Experiences for Museums," paper given at the American Association of Museums Conference, Dallas, Texas (May 14, 2002). Comment from Muse Award announcements, Producer not named, [http://www.mediaandtechnology.org/muse/2003muse\\_history.html](http://www.mediaandtechnology.org/muse/2003muse_history.html). Exhibit may be found at: [http://www.jerseyhistory.org/what\\_exit/index.html](http://www.jerseyhistory.org/what_exit/index.html).

<sup>46</sup> Johnson, "Beyond Google."

<sup>47</sup> Kate Haley Goldman, David T. Schaller, "Exploring Motivational Factors and Visitor Satisfaction in On-Line Museum Visits," paper given at Museums and the Web Conference, Arlington, VA (April 3, 2004). Available at: <http://www.archimuse.com/mw2004/papers/haleyGoldman/haleyGoldman.html>.

online collection of every tomb in the Valley of the Kings, and of over 5,000 images of the ancient underground funerary structures. While users seem to like the interface, few were able to answer the question, "What would you say the site was about?" These responses prompt asking, how effective is a site when general visitors are unable to see the main idea of the online project. This site earned the Best Museum Web Site award in 2003 from Museums and the Web conference.<sup>48</sup>

Due to the difficulty and expense of collecting data to determine what individuals absorb from their online visits, some museums do not pursue this information. A few museum web professionals firmly believe that museums are places of informal learning and that too much emphasis is placed now on evaluating web sites.<sup>49</sup> Despite this debate more museums are using their web sites as formal educational tools to reach into classrooms and homes around the world. The next section will describe how museums are using their sites to teach.

## **Museum Education on the Web**

In August 1966 the Smithsonian Institution held the first conference examining the educational role of museums. The conference commissioned papers to encourage the study of education in museums as more institutions engaged the public in formal educational programs. Then Secretary of the Smithsonian Institution, S. Dillon Ripley, commented that museums provide direct exposure to new ideas and objects, but that they

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<sup>48</sup> Johnson, "Beyond Google."

<sup>49</sup> Questions I asked of panel at session "Getting Your Message Out: Exhibits Onsite and Online," American Association of Museums Conference, New Orleans, LA (May 9, 2004). Main response from Steven Boyd-Smith.

alone do not constitute "education."<sup>50</sup> Concern was voiced that museums did not understand the workings of schools and that museums needed to increasingly look outside of its walls to succeed as educational institutions.<sup>51</sup>

In the United States, the Museum Education Roundtable (MER) began discussing these issues in 1969 in Washington, D.C. and published early writings on the subject in 1973. By 1985, the *Journal of Museum Education* became the first academic journal to address theory and issues of museum education. Around this time, the American Association of Museums challenged their members to realize their full educational potential in a 1984 report and by 1992 urged museums to actively engage their communities in learning.<sup>52</sup> With the influence of museum educators, museums looked to identify and satisfy their audiences as never before. Curators and exhibit designers moved away from didactic displays to something authoritative but more instructive and interesting to visitors.

Current trends in museum education encourage free-choice learning that acknowledges visitors are active participants who bring their own learning context with them to the museum. These trends are influenced by Howard Gardner's learning theory of multiple intelligences, and vice-versa Gardner is a great believer in the vitality of museum education. Advocates of educational reform in the United States, such as Neil Postman, look to museums as excellent models for educating disengaged students. Free

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<sup>50</sup> S. Dillon Ripley, "Introduction," in *Museums and Education*, Eric Larrabee, ed., (Washington, DC: Smithsonian Institution Press, 1968), 2-3.

<sup>51</sup> Richard Grove's essay deals with this issue, "Some Problems in Museums Education," in *Museums and Education*, 79-85.

<sup>52</sup> Museum Education Roundtable, <http://www.mer-online.org/index.html> contains a short history of the organization and its publications. American Association of Museums wrote both *Museums for a New Century* (Washington, DC: American Association of Museums, 1984) and *Excellence and Equity: Education and the Public Dimension of Museums* (Washington, DC: American Association of Museums, 1992).

from most political pressures placed on public schools, museums may experiment with less traditional ways of teaching students outside of classrooms. Though separate from national and local education debates, museums seek to satisfy community school systems. Since public schools must focus on standards, museums are tailoring their programs to coincide with local standards of learning.<sup>53</sup>

Many grant-making institutions require evaluations to assist museums reach their intended audience. Just as public schools must show what their students are learning, such pressure exists for museums as well. Meaningful experiences that satisfy visitors and raise attendance also enhance an institution's fiscal stability—either by securing grants or increasing ticket sales. This emphasis on creating meaningful visitor experiences generally falls to museum educators.<sup>54</sup>

The body of literature on museum education grew after the Smithsonian's 1966 conference, yet very little exists on the subject of online museum education. Articles in the *Journal of Museum Education* focus on programming inside physical museums. In place of that, I look to research in online pedagogy, specifically for historians. Much that has been written focuses on how to integrate technology into the classroom, and how teachers may engage students to practice and develop critical thinking skills. In 1999,

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<sup>53</sup> John H. Falk and Lynn D. Dierking, *Learning from Museums: Visitor Experiences and the Making of Meaning* (Walnut Creek, CA: AltaMira, 2000). A concise explanation of Gardner's theory as it applies to museums can be found in: Jessica Davis and Howard Gardner, "Open Windows, Open Doors," in *The Educational Role of the Museum*, second edition, Eilean Hooper-Greenhill, ed. (NY: Routledge, 1999), 99-104. Other pertinent books by Gardner include: *The Disciplined Mind: What All Students Should Understand* (NY: Simon and Schuster, 1999); *The Unschooled Mind: How Children Think and How Schools Should Teach* (NY: Basic Books, 1993). Neil Postman, *The End of Education: Redefining the Value of School* (NY: Vintage Books, 1995).

<sup>54</sup> Hooper-Greenhill's collection of essays offers an international perspective to learning in museums. On constructivism see George Hein, *Learning in the Museum* (NY: Routledge, 1998). For audience contexts and evaluating visitor experiences see Falk and Dierking, *Learning from Museums*. The *Journal of Museum Education* offers articles on newest theories and practice. For highlights from previous editions see, Joanne S. Hirsch and Lois H. Silverman, eds. *Transforming Practice: Selections from the Journal of Museum Education, 1992-1999*, (Washington, DC: Museum Education Roundtable, 2000).

Roy Rosenzweig and Randy Bass set forth an ambitious set of goals and caveats for using technology in the social studies classroom. New media would allow teachers to engage their students in the processes of historians such as inquiry-based activities by researching and discovering primary sources, sharing, discussing, and critiquing their work in virtual public spaces. These suggestions did not mean that technology would take over the classroom, but rather used when appropriate.<sup>55</sup> Careful use and design of new media in the classroom can produce a more engaged student learner as those studying the scholarship of teaching and learning are discovering. Recent scholarship by T. Mills Kelly finds that students spend more time on projects when their work is open for public critique in virtual spaces. And, he and other educators see students following the process of historians by returning to their sources more often when they are readily available online. Merely designing technology-rich assignments does not ensure learning is taking place, but well assessed modules help in the teaching and learning process.<sup>56</sup>

One example of a history site that encourages historical inquiry and critical thinking is *Who Killed William Robinson? Race, Justice and Settling the Land: A Historical Whodunnit*. As its introduction states, the site is not merely an interesting murder mystery, but asks users "to interpret the raw material of the past and to ask the larger questions like, how do we know what happened in the past?" Within the site, users may access archival materials, maps, photographs, and character summaries to assist with

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<sup>55</sup> Randy Bass and Roy Rosenzweig, "Rewiring the History and Social Studies Classroom: Needs, Frameworks, Dangers, and Proposals," White Paper for Department of Education, Forum on Technology in K-12 Education: Envisioning a New Future, December 1999. Available at: <http://chnm.gmu.edu/assets/historyessays/rewiring.html>.

<sup>56</sup> T. Mills Kelly, "For Better or Worse? The Marriage of the Web and Classroom," *Journal of the History of Computing* III, no.2 (August 2000). Available at: <http://chnm.gmu.edu/assets/historyessays/betterorworse.html>. T. Mills Kelly, "Using New Media to Teach East European History," *Nationalities* 29, no. 3 (September 2001), 499-508. Available at: <http://chnm.gmu.edu/assets/historyessays/usingmedia.html>.

the numerous players involved with this story. To solve this mystery, students follow historical processes by returning to the available sources and comparing evidence. Most history museum sites do not offer such in-depth historical studies, but some do provide meaningful ways of studying the past.<sup>57</sup>

While many museums use the web to discuss their onsite educational programs, a few offer unique online experiences. The nature of museum education generally focuses on a collection and the experience of visiting a museum's physical space. Some museums are experimenting with new ways to create informal learning experiences by incorporating their collections and mission online. A study conducted in 2003 found 92 percent of art museums offer online information about their education programs; 57 percent showcase portions of their collection online; and 55 percent offer activities or lessons. Of the 85 museums surveyed, 30 percent provide another type of online education programming, such as opportunities for students to curate their own online exhibition or interactive sites for special exhibitions.<sup>58</sup>

Through my survey I discovered that American history museums lag behind art and science institutions in their online offerings. Typical sites offered statements of onsite museum programming with no other learning opportunities. Exemplary sites provided teachers and students with curricular lesson plans or online experiences that teach with primary sources typically from the museum's collection. Though a majority of the sites I surveyed offered information about physical visitation, 34 percent did not. Only 33

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<sup>57</sup> Ruth Sandwell and John Lutz, *Who Killed William Robinson? Race, Justice and Settling the Land: A Historical Whodunnit*, <http://web.uvic.ca/history-robinson/> Visited 5/24/04. Also see a web site review by Terry Crowley in *The Journal for MultiMedia History*, 3 (2000) available at: <http://www.albany.edu/jmmh/vol3/robinson/robinson.html>.

<sup>58</sup> Scott Sayre and Kris Wetterlund, "ARTstor and the K-12 Education Community," unpublished report for ARTstor, a non-profit initiative, founded by The Andrew W. Mellon Foundation, with a mission to use digital technology to enhance scholarship, teaching and learning in the arts and associated fields. Available at <http://www.artstor.org/news/ARTstorK-12.pdf>.

percent provided printable materials, and 15 percent offered curriculum-based lesson plans using their collections or expertise. Only five museums offered in-class learning experiences, and one institution charges for their field trips. These experiences and most lesson plans were inquiry-based activities asking students to examine pieces of evidence to answer historical questions.<sup>59</sup>

Few history museums design unique online educational experiences. Often, history museums digitize printed materials and make them available for educators to download and print. They use the web's ability to reach wider audiences than through a site visit alone and save money on printing. But, these sites do not exploit the multimedia capabilities of the web as have many art and science museums. As all museums are reconsidering their online roles, the New York Hall of Science asked local teachers what they wanted in an educator site. They found that teachers most preferred pre-and post-visit materials, field trip orientation, and visitation information on an educator site. Of those surveyed, 88 percent preferred acquiring classroom field trip materials by downloading printable documents from a web site.<sup>60</sup> Though commissioned for a science museum, this survey offers insight to what some teachers look for in online materials from museums. Sophisticated design and media-rich sites are not priorities. This study infers that history teachers could be satisfied with a site that offers printable materials without multimedia experiences.

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<sup>59</sup> For this portion of the survey, I counted institutions each time they offered something for teachers, a lesson plan, or a field trip experience. Some institutions, such as the U.S. Holocaust Memorial Museum counted for all three. So the percentages listed, are calculated based on the total number of museums for each question, and will not add up to 100 percent.

<sup>60</sup> New York Hall of Science and Altered Image Museums Group, "Survey of Teachers' Use of the Internet" unpublished report, part of the Connections Project (March 2004). This report summarized findings from 1255 teachers to assist in the development of a new educators' web site.

I found typical history sites offer an online version of a field trip brochure. Unlike institutional sites, a greater range exists for museums' education offerings. At the base level, most museums offer onsite visiting information, such as the Texas Seaport Museum. They describe all of their tours, but no pre- or post-visit materials supporting these onsite programs are available. At the Colorado Springs Museum, teachers may download a tour request form. And the San Diego Historical Society provides teachers with detailed reproductions of their pre-visit materials to download and print.<sup>61</sup> History museums that offer unique online experiences are new in museum education on the web.

One such program is from the University of Chicago Web Docent that links eight Chicago museums to the public school system to provide online object-based curricular lesson plans. Different themes are created by teachers and the Web Docent program to fill needs of the public school curriculum. While not an exclusively history museum project, Illinois history is a major component of the online lessons. This collaboration creates an interdisciplinary approach to modules, such as the Native peoples living in what is now Illinois and the sewer system in Chicago. Just as some museums convene teacher advisory boards to create and review all educational materials, the Web Docent asks teachers to create these modules, which make use of the rich artifacts available through Chicago's institutions.<sup>62</sup> This type of collaboration among unrelated museums is a rare, but excellent example of using the web in creative ways to reach classrooms.

Another way museums challenge students to learn history, is by examining

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<sup>61</sup> Texas Seaport Museum, <http://www.tsm-elissa.org/edu-main.htm> ; San Diego Historical Society, <http://www.sandiegohistory.org/education/education.htm>; Colorado Springs Museum, <http://www.cspm.org/>.

<sup>62</sup> Chicago Web Docent, <http://www.chicagowebdocent.chicago.edu> is a password protected system that runs directly into the Chicago Public School system. Visitors can ask for a guest password from the main web site.



multiple perspectives of a specific event. Plimoth Plantation's, *You Are the Historian*, asks students to reconsider their own ideas about the first Thanksgiving and discover "what really happened" using primary sources available to historians. It is designed in Flash to be an exclusive online experience. One source examined is the only written piece of evidence mentioning the "Thanksgiving" meal, which students must read closely. At any time students can listen to an expert, such as an historian or archaeologist, from Plimoth Plantation for guidance in interpreting sources and for pointing out unanswered pieces of the "Thanksgiving" puzzle. This site offers a printable teacher guide that frames lessons around historical skills, such as interpreting cultural evidence and considering multiple perspectives using the site in-class. The "Share What You've Discovered" section guides students through the process of writing an image label. The student will compile that label and others for an exhibit used as an in-class assessment. This site may be used independently of a site visit, as Plimoth Plantation sought to reach beyond their living history space and offer a meaningful experience through their web site.<sup>63</sup>

In contrast to this free online experience, Colonial Williamsburg offers produced electronic field trips on various subjects. Field trips are broadcast on television, usually through a local PBS station, with an average of 900 schools watching in their classrooms. Teachers use the electronic field trips with a series of lesson plans, written by other teachers, along with an online "web adventure" experience, and print teacher guide. During this broadcast, which is like a video conference, students interact with Colonial Williamsburg staff by submitting questions by phone or email, post an opinion, or participate in a poll. Anyone may view the broadcast on public television, but only

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<sup>63</sup> Plimoth Plantation, "You Are the Historian" [http://www.plimoth.org/OLC/index\\_js2.html#](http://www.plimoth.org/OLC/index_js2.html#). This site won a Best of the Web award for "Best Innovative or Experimental Application" in 2004.

paying schools may interact with staff. Identifying and analyzing primary sources are an important element of the lesson plans, but interaction with characters from the past—often talking in appropriate dialect—and historians through the broadcast is the crux of the field trip. This mimics the experience at Colonial Williamsburg by interacting with the past through living history interpreters.<sup>64</sup>

Offering electronic fields provides a way for schools that might never visit Williamsburg with an interactive lesson in early American history. According to the Program Coordinator, most schools that participate in the field trips do not visit the physical site. Access to the online field trips is password protected so that only paid users—the students and teachers from a school that paid \$120 per trip or \$500 for a year of trips—may access the materials. The fee covers expenses and also raises money. Because Williamsburg is a large institution certain aspects of the field trips are produced with in-house staff, such as video production crew, a web master, and 30 volunteers who answer phones and email during the broadcast. After eight years the program is considered very successful. Few history museums have this level of staff support dedicated to online education, as most departments focus on their on-site programs. Colonial Williamsburg's physical complex struggles to sell admission tickets and to employ its interpretative staff which was reduced by 20 percent this year. Character and building interpreters distinguish Colonial Williamsburg as a place to experience living

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<sup>64</sup> A short demo of one web adventure, "Jefferson's West," is available on Educational Web Adventures web site: <http://www.eduweb.com/portfolio/jeffwest/index.html>. Colonial Williamsburg's lesson plans available in their Teacher Resources section: [http://www.history.org/history/teaching/classroom\\_plans.cfm](http://www.history.org/history/teaching/classroom_plans.cfm).

history. From my survey, I found this to be the only history museum that charges for any online learning materials.<sup>65</sup>

The National Portrait Gallery created an entire site dedicated to one object, the Lansdowne portrait of George Washington. Although not technically an electronic field trip, the site provides users unique experiences not available to those visiting the painting. While individuals may explore the painting through an artistic, historical, or cultural perspective, the "portrait for kids" is the most fun. This section asks younger visitors to complete an unfinished version of the painting by answering questions about George Washington's life. Integrated into the site are downloadable curricular teacher lesson plans. *George Washington, A National Treasure* encourages educators to use paintings as primary sources for interpreting history.<sup>66</sup>

History museums are slowly transforming their online education offerings to accommodate users who may never visit their on-site exhibitions. Offering independent online learning experiences increases access to and interest in their collection, and museums share their expertise in ways impossible through a physical exhibition.

## **Institutional Challenges for Online History Projects**

The future for online history museum projects remains unclear as questions of sustainability and accessibility plague the direction of all museum web sites. Donald J. Waters wonders why humanities projects rarely connect across institutions when money

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<sup>65</sup> Phone conversation with Dewaun Countrymann, Program Coordinator for Electronic Field Trips, Colonial Williamsburg, on June 29, 2004. Colonial Williamsburg offers short, free lesson plans in their teacher resource section, but nothing that is quite as involved as their e-field trips. Email conversation with Terry Dunn, August 12, 2004. On their economic struggles, see April Taylor, "CW Hires Chief of Fundraising," *The Daily Press* 31 July 2004 available at: [http://www.dailypress.com/business/local/dp-53344sy0jul31\\_0.6289056.story?coll=dp-business-localheads](http://www.dailypress.com/business/local/dp-53344sy0jul31_0.6289056.story?coll=dp-business-localheads).

<sup>66</sup> George Washington: A National Treasure, <http://www.georgewashington.si.edu/index.html>.

for most digital scholarship projects is finite. While not speaking specifically of museums, his comments apply to the museum world.<sup>67</sup>

Waters question is relevant as more museums confront budgetary and sustainability challenges. Just as museums share artifacts for exhibitions, they could share online resources through linking. Diane M. Zorich encouraged museums to collaborate and share resources in 1997. She hypothesized how museum educators could develop programming that drew upon resources outside of their own institution's collection to broaden the scope of educational offerings. Online collaborations might drive more traffic to each institution's sites and encourage repeat visitors. Zorich concluded that museums need to look at how libraries cooperate successfully. "Museums need not fear that their institutional identity on the Internet will be compromised in the process of developing collaborative relationships with their peers."<sup>68</sup> I believe many institutions are concerned with sending their visitors away to other sites for fear they will not come back.

In Europe, the National Museum of Denmark worked with other institutions to virtually pull together objects in a re-creation of the King's Kunstkammer that will never again sit together as the King's cabinet of curiosities. Despite the institutional cooperation, the web site does not link to the "lending" museums but merely lists them.<sup>69</sup>

*Lewis and Clark: The National Bicentennial Exhibition* organized by the Missouri Historical Society commissioned a web site that highlighted 400 artifacts brought together from 60 institutions for the physical exhibition. Despite having a "Resources and

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<sup>67</sup> Donald J. Waters, "Building on Success, Forging New Ground: The Question of Sustainability," *First Monday*, 9 no. 5 (May 2004). Available at: [http://firstmonday.org/issues/issue9\\_5/waters/index.html](http://firstmonday.org/issues/issue9_5/waters/index.html). Mr. Waters is a Program Officer at the Andrew W. Mellon Foundation.

<sup>68</sup> Diane M. Zorich, "Beyond Bitlag: Integrating Museum Resources on the Internet," *The Wired Museum*, 171-95.

<sup>69</sup> The National Museum of Denmark, The King's Kunstkammer, <http://www.kunstkammer.dk/GBkolofon.shtml>.

Links" section, there is no link to each lending institution, which would have offered an easy way to connect all of these historic places across the U.S.<sup>70</sup> This easy application of linking connects small, medium, and large institutions, thus driving web traffic among the sites. Chicago Web Docent offers an excellent prototype for cooperation among museums by interconnecting institutions for the use of the public schools system.

Smaller museums confront issues of sustainability for keeping their doors open and maintaining online projects. *Raid on Deerfield* by Pocumtuck Valley Memorial Association was a collaborative project from the beginning that brought together other cultural institutions in the Deerfield area. The site design allows for the telling of multiple perspectives of one story. This design and code is meant to be shared with other museums that may like to embark on a similar project but can not afford the design costs. This ambitious online exhibition site is an excellent model for how museums can work together and share resources, such as design. One problem that the Project Manager acknowledges is that once the design is set in place they will not have more money to update the site. She is concerned that traffic to the site may drop after users find the same design and information. Long-term sustainability is a great concern for which they have no answer.<sup>71</sup>

*The Raid on Deerfield* and some other exceptional online experiences mentioned in this statement are examples of in-depth learning experiences, yet some museums seem to create sites that are as much for funders as for the general public. Matt McArthur of the National Museum of American History mentioned that sometimes "flashy" sections of sites are done to wow those funding an exhibition and to market it to the public. Through

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<sup>70</sup> Missouri Historical Society, *Lewis and Clark*, <http://www.lewisandclarkexhibit.org/>.

<sup>71</sup> Conversation with Lynne Spichiger, Pocumtuck Valley Memorial Association, April 3, 2004, at Museums and the Web Conference, Arlington, VA.

his experience, design did not matter as much to their users as the content. For larger institutions, web design is now part of exhibition expenses.<sup>72</sup> If viewed by the museum as part of positive public relations then impressive looking sites will be developed, but evaluating their effectiveness may not.

Museum budgets depend on a combination of revenue generating activities. Private and corporate donations, grants, admission fees, property rentals, and gift shop sales combine to keep museum doors open. Some museums receive donations of services, which might include web design or information technology support showcased through a small exhibition site. When grant funders or corporate executives are impressed with museum sites, they see a direct result of their donations that extend beyond a physical exhibition reaching even larger audiences. The museum will not receive any revenue from an online visitor browsing through free exhibitions or collections. Money invested in an online project is not recouped in the same way as a physical exhibition through admissions and gift shop sales. The larger question is how much longer will museums continue financing in-depth online content.

## **Conclusion**

I found a digital divide exists among history museums, and online audiences in the United States. Museums have web sites, but too few offer content beyond the basic online brochure. There are excellent examples of online history museum projects. The U.S. Holocaust Memorial Museum offers individuals an in-depth look at history of the Holocaust and genocide through a dense collection of primary sources, while Plimoth

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<sup>72</sup> Email conversation with Matt McArthur, March 25, 2004.

Plantation asks students to challenge traditional notions of "Thanksgiving" amidst a small collection of available sources. Visitors find interactive maps, listen to oral histories, and examine objects on history museums sites. Often those interactive elements shut out users with aging computers and low bandwidth connections.

Museum educators are just beginning to consider their role in online education. Few history museums offer unique online learning experiences for students, but they recognize that the web is where educators look for free teaching materials and are trying to cater to their needs. As museum educators rethink their roles online, the field needs to promote good practices and theory for web-only museum learning experiences.

The institutional challenge of funding large free projects hinders web site development in smaller museums. As some institutions leap forward to experiment with online experiences, they leave a majority of history museums, and some users, behind. The CSS-based "web standard" design may help bridge those gaps, but converting large sites to accessible pages is a daunting task for most institutions. Accessible design standards may equal the playing field for all museums and users in the coming years, an ideal that has not been realized.

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El Museum del Barrio, <http://www.elmuseo.org>.

Google Corporate, <http://www.google.com/corporate/tech.html>.

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## Museum Survey

Survey of history museum web sites conducted from January 30-February 16, 2004.

All sites checked on 8/13/04.

I began with this list of museum sites: [http://www.museumca.org/cgi-bin/cgiwrap/museumca/usa\\_search.cgi?category=history](http://www.museumca.org/cgi-bin/cgiwrap/museumca/usa_search.cgi?category=history). I looked at every 5<sup>th</sup> site when counting down the list of history museum web sites. Upon finding a dead link, I searched for the institution, then moved onto the next museum. I found 22 dead links in the list. After finishing, I added five more sites to increase the number of sites surveyed to 85.

### Web Sites

Adirondack Museum, Blue Mountain Lake, NY, <http://www.adkmuseum.org/>

Andover Historical Society, Andover, MA, <http://www.andhist.org/>

Atlanta History Center, Atlanta, GA, <http://www.atlantahistorycenter.com/>

Band Museum of Pine Bluff, AR, Pine Bluff, AR, <http://bandmuseum.tripod.com/>

Belmont Mansion, Nashville, TN, <http://www.belmontmansion.com/>

Bonita Museum & Cultural Center, Bonita, CA, <http://www.bonitamuseum.netfirms.com/>

Bruderhof Museum, Rifton, NY, <http://www.bruderhofmuseum.com/bm/index.htm>

California Views Historical Photo Collection, Monterey, CA, <http://caviews.com/>

Charleston Museum, Charleston, SC <http://www.charlestonmuseum.org/>

Civil War Soldiers Museum, Pensacola, FL, <http://www.cwmuseum.org/>

Colonial Williamsburg, Williamsburg, VA, <http://www.history.org>

Colorado Springs Museum, Colorado Springs, CO, <http://www.cspm.org/>

Connecticut Historical Society, Hartford, CT, <http://www.chs.org/>

Cooper Regional History Museum, Upland, CA, <http://www.culturalcenter.org/>

*As of 8/13/04 this web site no longer exists.*

Dallas Historical Society, Dallas, TX, <http://www.dallashistory.org/>

Deer Valley Rock Art Center, Phoenix, AZ, <http://www.asu.edu/clas/anthropology/dvrac/>

Detroit Historical Museums and Society, Detroit, MI, <http://www.detroithistorical.org/>

East Benton County Historical Museum, Kennewick, WA, <http://www.owt.com/ebchs/>

Elkhorn Valley Museum and Research Center, Norfolk, NE,  
<http://www.elkhornvalleymuseum.org/index.htm>

Ethel Wright Mohamed Stitchery Museum, Belzoni, MS,  
<http://www.mamasdreamworld.com/>

Florida Holocaust Museum, St. Petersburg, FL, <http://www.flholocaustmuseum.org/>

Fort McHenry National Monument and Historic Shrine, Baltimore, MD,  
<http://www.bcpl.net/~etowner/patriots.html>

Frazier Farmstead Museum, Milton-Freewater, OR <http://www.museum.bmi.net/>

General Sweeny's, A Museum of Civil War History, Republic, MO,  
<http://www.civilwarmuseum.com/>

Gilcrease, Tulsa, OK, <http://www.gilcrease.org/index2.html>

Gomez Mill House, Marlboro, NY, <http://www.gomez.org/>

Hagley Museum and Library, Wilmington, DE, <http://www.hagley.lib.de.us/>

Henry B. Plant Museum, Tampa, FL, <http://www.plantmuseum.com/>

High Desert Museum, Bend, OR, <http://www.highdesert.org/>

Historic Latta Plantation, Huntersville, NC, <http://www.lattaplantation.org/>.

Historical Museum of Southern Florida, Miami, FL,  
<http://www.historical-museum.org/>

Hopper-Goetschius House Museum, Upper Saddle River, NJ,  
<http://www.usrhistoricalsociety.org/>.

Idaho Military History Museum, Boise, ID, <http://inghro.state.id.us/museum/>

J.M. Davis Arms & Historical Museum, Claremore, OK,  
<http://www.thegunmuseum.com/>

Jewish Museum of Maryland, Baltimore, MD, <http://www.jhsm.org/>

Johnny Gruelle Raggedy Ann and Andy Museum, Arcola, IL,  
<http://www.raggedyann-museum.org/>

Kansas State Historical Society, Topeka, KS, <http://www.kshs.org/index.htm>

Kern County Museum, Bakersfield, CA, <http://www.kcmuseum.org/>

Lawrence E. Will Museum, Belle Glade, FL, <http://www.pbclibrary.org/lew.htm>

Lightner Museum, St. Augustine, FL, <http://www.lightnermuseum.org/index.html>

Longmont Museum & Cultural Center, Longmont, CO,  
<http://www.ci.longmont.co.us/museum/about/index.htm>

Louisiana State Museum, New Orleans, LA, <http://lsm.crt.state.la.us/>

Maine Memory Network, Portland, ME, <http://www.mainememory.net/>

Martha Berry Museum, Rome, GA, <http://www.berry.edu/oakhill/>

McCabe Powers Historical Museum, St. Louis, MO,  
<http://www.cgmp.org/mccabe-powers/>

Medina Railroad Museum, Medina, NY, <http://railroadmuseum.net/>

Mineral County Museum, Hawthorne, NV, <http://web0.greatbasin.net/~mcmuseum/>

Mojave River Valley Museum, Barstow, CA, <http://mvm.4t.com/>

Motts Military Museum, Groveport, OH, <http://www.mottsmilitarymuseum.org/>

Museum of disABILITY History, Williamsville, NY,  
<http://www.people-inc.org/museum/>

Museum of the City of New York, NY, <http://www.mcny.org/>

Mystic Seaport Museum, Mystic, CT, <http://www.visitmysticseaport.com/>

National Museum of American History, Washington, DC, <http://americanhistory.si.edu/>

National Museum of American Jewish Military History, Washington, DC,  
<http://www.nmajmh.org/>

National Building Museum, Washington, DC, <http://www.nbm.org>

Nevada State Museum & Historical Society, Las Vegas, NV,  
<http://dmla.clan.lib.nv.us/docs/museums/lv/vegas.htm>

Nordic Heritage Museum, Seattle, WA, <http://www.nordicmuseum.com/>

Northern Indiana Center for History, South Bend, IN, <http://www.centerforhistory.org/>

Ohio Historical Society, Columbus, OH, <http://www.ohiohistory.org/>

Old Salem, Winston-Salem, NC, <http://www.oldsalem.org/>

Oliver House Museum, Penn Yan, NY, <http://www.yatespast.com/>

P.H. Sullivan Museum and Genealogy Library, Zionsville, IN,  
<http://www.sullivanmunce.org/>

Peekskill Museum, Peekskill, NY, <http://www.peekskillmuseum.com/>

Pioneer Museum, Bozeman, MT, <http://www.pioneermuseum.org/>

President Benjamin Harrison Home, Indianapolis, IN,  
<http://www.presidentbenjaminharrison.org/>

Plimoth Plantation, Plymouth, MA, <http://www.plimoth.org/>

Rim Country Museum, Payson, AZ, <http://www.rimcountrymuseums.org/>

Rosicrucian Egyptian Museum, San Jose, CA, <http://www.egyptianmuseum.org/>

San Diego Historical Society, San Diego, CA, <http://www.sandiegohistory.org/>

Sheerar Museum, Stillwater, OK, <http://www.sheerarmuseum.org/>

Smoky Hill Museum, Salina, KS, <http://www.smokyhillmuseum.org/>

Spellman Museum of Stamps and Postal History, Weston, MA,  
<http://www.spellman.org/index.php3>

Star of the Republic Museum, Washington, TX, <http://www.starmuseum.org/>

Tehama County Museum, Tehama, CA, <http://www.tco.net/tehama/museum/>

Texas Seaport Museum, Galveston, TX, <http://www.tsm-elissa.org/>

Truman Library & Museum, Independence, MO, <http://www.trumanlibrary.org/>

United States Holocaust Memorial Museum, Washington, DC, <http://www.ushmm.org/>

USS *Bowfin* Submarine Museum & Park, Honolulu, HI,  
<http://www.bowfin.org/website/index.cfm>

Varnum House Museum, Varnum Military Museum, East Greenwich, RI,  
<http://www.varnumcontinentals.org/>

Walker African-American Museum & Research Center, Las Vegas, NV,  
<http://www.churchesinlasvegas.com/walkermuseum/>

Waterloo Village, Stanhope, NJ, <http://www.waterloovillage.org/>

West Point Museum, West Point, NY, <http://www.usma.edu/Museum/>

Wibaux Museum, Wibaux, MT, <http://www.directu.com/Museum/>

World Museum of Mining, Butte, MT, <http://www.miningmuseum.org/>

Yeshiva University Museum, New York, NY, <http://www.yumuseum.org/>

## Survey Results

1. How many pages are on the site?

<b>1-5</b>	3	3.5 %
<b>5-10</b>	6	7 %
<b>10-20</b>	13	15 %
<b>20+</b>	63	80 %

2. Does the site contain on-line exhibitions, if so what type\*?

Description of exhibitions:	42	49%
Narrated story:	30	35%
In-depth narrative with hypertext:	14	16.5%
In-depth object examination using VR technology:	4	5%
Multimedia or interactive elements:	15	18%

*\*If a site contained more than one element, they were counted for each, so these numbers do not add up to 100 percent.*

3. Are museum collections available on line?

No:	34	40%
List or summary of collections:	25	29.4%
Part of collection available:	18	21.1%
Searchable database:	8	9.4%

Maine Memory Network, Jewish Museum of MD, Old Time Salem, NC (password); Texas Seaport Museum; Truman Museum, photo archive; U.S. Memorial Holocaust Museum; Ohio State Historical Society, Detroit Historical Museums and Society

4. How many sites provide information for visiting the site:	56	66%
5. How many sites offer something for teachers:	35	41%
6. How many sites offer printable learning materials?	28	33%
7. How many museums offer curricular lesson plans?	15	18%
8. How many sites have on-line field trips or experiences?	5	6%

Plimith Plantation, USS Bowfin, National Museum American History, U.S. Holocaust Memorial Museum—even has an online teacher workshop, Colonial Williamsburg

9. How many sites offer separate “kids’ pages”?	11	13%
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