5 Exploring Art and History at the Warhol Museum Using a Timeweb

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Using a project developed by the Warhol Museum—the Timeweb—this chapter explores some of the key issues that museums, particularly art museums, face as they consider interactive interpretive projects. The Timeweb was designed as a stand-alone digital experience for both in-gallery as well as off-site visitors that allows users to explore historical aspects of Warhol's life, times, and art in a nonlinear way. Institutionally, the Timeweb project team hoped to expand potential audiences and to create a sense of community engagement around Warhol and art historical interpretations of him. Coauthoring tools for user-generated content were envisioned for both the casual user of the site as well as for the community of art experts interested in Warhol and his times. The chapter discusses some of the lessons learned from the design and prototyping process. In particular, the Timeweb project sheds light on the tensions that arise around issues of innovation, institutional voice and interpretation, and didactic vs. user-driven experiences as museums work to embrace Web 2.0.

THE WARHOL MUSEUM

With a long history of experimenting with new approaches to interpretation and curation, the Warhol Museum has become known for innovative museum practice. A quick look at the museum's mission statement helps us to understand the level to which this commitment to being innovative and, more importantly, relevant, to diverse audiences, is central to the museum's operations:

> The Andy Warhol Museum is a vital forum in which diverse audiences of artists, scholars, and the general public are galvanized through creative interactions with the art and life of Andy Warhol. The Warhol is ever-changing, constantly redefining itself in relationship to contemporary life using its unique collections and dynamic interactive programming as tools.

The museum's commitment to its mission is well illustrated by an exhibition mounted in 2002. *Without Sanctuary: Lynching Photography in*

America, was an exhibition that focused on a historical collection of post-cards and photographs that documented lynchings. The museum created a series of informational installations around the historical postcards: installations that provided both a national and local context to the history of race relations. To encourage visitor engagement with the difficult topic, the museum worked with a community advisory committee to plan events around the exhibition. The museum also brought in a social justice organization Animating Democracy to train museum staff to convene dialogue groups in the museum. Video feedback stations allowed visitors to share their reactions to the show. "Postcards for Tolerance" was another feedback option, where visitors were encouraged to write postcards describing their visit to a recipient and mount them on the museum's wall. While the nature of the project—centered around a display of historical postcards—might seem at first glance to be a stretch for a single artist art museum, *Without Sanctuary* offered the museum the chance enact its "museum as forum" mission, using the museum as a platform to generate community dialogue around issues of race and bias.

In addition to creating innovative temporary exhibitions, the museum has also experimented with different interpretive formats throughout the galleries, creating interactives, audio stations, and other mechanisms to encourage visitor response and feedback, as well as utilizing different styles of interpretive labels. Part of the Warhol's approach to innovation involves carefully documenting its practice and impact through evaluation (see Gogan, 2005). Along with my colleagues at the University of Pittsburgh Center for Learning in Out of School Environments (UPCLOSE), I have been collaborating with the Warhol Museum for 10 years, helping the museum to better understand how its work impacts and engages the audiences it serves. We have conducted program evaluations as well as visitor studies that have documented the ways in which visitors experience interpretation within the museum. In the Timeweb project, I would serve as part of the design team. As someone who studies primarily in-museum activities and learning in informal settings, and not technology per se, I was interested to see how the museum was thinking about technology, and how they were thinking about engaging their on-site visitors with a technology interactive.

VISITOR NEEDS AT THE SINGLE ARTIST MUSEUM

There are many different kinds of art museums, and the single artist museum has its own specific institutional challenges. As the then-director of the Warhol Museum once explained, while a survey museum may feature temporary exhibitions that invite repeat visits, single artist museums fear that they may be seen as a one-visit tourist destination (Kino, 2008), and they struggle with finding ways to satisfy the first-time visitor while offering the repeat visitor a different kind of experience. Audiences at the Warhol Museum fit this profile; one study confirmed that over 70% of visitors were seeing the Warhol

Museum for the first time with many of these visitors coming from outside the regional area (UPCLOSE, 2004). The Warhol has been working to create exhibitions and interpretive areas to help raise the visibility of the museum as a constantly changing forum to engage with contemporary art as well as the work of Warhol.

Audiences for single artist museums also put pressure on museums to utilize different display tactics than other kinds of art museums. As art museums, they might like to follow more traditional art display practices, with interpretive text that focuses on aesthetic issues in the artworks, but visitors to a single artist museum tend to want to explore the biography of the signature artist. Andy Warhol is a particularly interesting case since, in many ways, Warhol's biography is almost bigger than his art. Warhol entered the popular culture, cultivated his persona and loved his celebrity status. An UPCLOSE study found that nearly all visitors to the Warhol Museum knew a little about his life and his iconic artworks such as the Campbell's Soup Cans, but 65% had no visual arts background. Visitors' questions instead showed an ongoing fascination with the artist himself, or the times in which he lived and worked, and they found that the museum's interpretive texts were not sufficient to answer their questions (UPCLOSE, 2004). In response to this visitor feedback, staff decided to focus their attention on the creation of an overview gallery that would address common questions about Warhol's life and times. It provided a thematic introduction to Warhol, with sections about his upbringing; family; connections to Pittsburgh; his early work life in commercial advertising; and later, his celebrity circles in New York. Informational text, photos of Warhol, his friends, and family were situated around large quotes and thematic titles as well as reproductions of his works. The room was a lively introduction to the museum with great visual appeal, and the process of pulling it together got museum staff excited about other ways they might engage visitors in a more historical exploration of Warhol and his times.

TIMEWEB PROJECT IDEA EMERGES

The museum wanted to create a place to explore Warhol's life in more depth than could be handled within a single gallery space. They wanted to create a digital project that would allow visitors to have a personally directed and more in-depth experience with Warhol. And finally, they really wanted to provide online visitors, a large and underserved audience, with a novel way to experience Warhol and the museum's resources on Warhol. The Andy Warhol Museum annually sees around 100,000 visitors in its building, but interestingly, the museum sees more than 2.5 million visitors online, of which 20% are from international locations. While their website featured information about exhibitions and curriculum materials for teachers and school-aged children, the needs of many other online audiences were not being met very creatively.

The Timeweb concept emerged to fill all of these needs, and a local web designer was hired, a project team created, and funding was obtained. The team included a project manager, educators (to create content), IT staff (to work on an interface between Timeweb and the museum's image databases), and UPCLOSE (to work on prototyping and evaluation). The web designer had worked with the museum previously, and he had some creative ideas about a potential format for the project.

The Timeweb was envisioned as a means to energize a chronologically based exploration of the life and times of Andy Warhol and his art. It was created to provide a way to explore content-related nodes of information about culture, art, society, history—in a nonlinear and constantly redrawn set of what the designer called, "rhizomatic relationships between nodes." Unlike a chronological timeline, with a two-dimensional and straightforward linear progression from year to year or event to event, the Timeweb utilized a "rhizomatic" approach—where, much like the roots of a plant, links emerged in many directions, and one event could be connected to several others across different periods of time. In this way the Timeweb could suggest the multidimensional intersections of influences and events across time and space. The length of connecting lines between nodes was designed to vary—thus suggesting stronger or weaker ties between events, people, or things. User-generated content would be included by allowing users to add new events, create their own "node maps," or add "connections" between nodes. These could be saved and shared with other users.

Several components were part of the project plan for the Timeweb. The design process required the creation of the interface and the related algorithmic representations. Users would have a dynamic sense of events, people and art interacting within a nonlinear yet chronologically based field, a field that would redraw itself according to the path chosen by the user. The experience would need to be structured so that users would be able to intuitively understand the somewhat complicated nature of links and events in the Timeweb. The project architecture needed to accommodate the needs of users in terms of orientation and way finding. Content would need to be developed and a user community established. While the museum would use material generated for educational curricula to create content nodes, they would also need to create new content nodes, and to grow a community of users who would be willing to seed the database with new content. The database would also need to be integrated with the museum's collection management database, online education resources and the museum website. After this initial work, the resulting prototype would need to be tested both in the museum and online.

INNOVATIVE IDEAS FOR THE TIMEWEB

Unlike content developed for many online museum projects, where content is distilled and summarized in small, layered didactic chunks, the content

for the Timeweb would be based on primary source material, photos, newspaper clippings, artworks, etc. Staff wanted the material to be useful for upper level and college students and scholars who were searching the web for information about Warhol. Another somewhat unusual approach for an "educational" museum project was that while the project was not an educational game, the project was designed to put the experience first. Rather than providing a richly detailed informational website with clearly marked hierarchical sections for family, schooling, influences, etc., instead information would be presented piecemeal in an ever-changing web of possibilities. This was to be a place to encounter information about the life and times of Warhol, but the information would be provided in an unstructured way. Looking at the nodes would be visually interesting, choosing nodes would be somewhat idiosyncratic, and both activities were prioritized over finding the specific facts of Warhol's life and times on a timeline. The content would be primary source material, with both visual images and text-based items, all fully referenced to allow for further study. The digital experience would be visually interesting, engaging and fun.

The Warhol project team wanted to create an innovative product. The rhizomatic Timeweb interface was novel, but the project team also saw the potential for innovation in other ways:

Connecting with popular culture: The Timeweb project created an opportunity for the museum to find new ways to engage the audience in thinking about Warhol and his time period. Most exciting was the way in which this project created a venue for the museum to discuss aspects of popular culture and history.

Utilizing resources that are not artworks: Artworks in this project played a secondary role to the exploration of important iconic historical moments in American and international cultural life. The project featured newspaper articles, documents and photos—non-Warhol references. This broader focus highlighted the work of the art historian, or historian, in creating interpretations of art. This focus provided a sense of the rich literary and historical context that should be considered alongside study of the artwork itself.

Quality of resources: Many digital projects in art museum contexts are developed with a strong "educational" focus, which tends to mean a focus on school curricula, K–12 students, or a particular reading level. This project is geared toward a college or above audience, an adult audience, and the content is not digested or translated. It is selected and edited, but it has not been summarized or presented to meet certain objectives. Items are primary sources, and they are referenced and quoted verbatim. In this way the project has a certain academic appeal or utility not commonly seen in digital museum projects.

Interest-driven exploration of content. The visual and nonlinear project suggests many possible and serendipitous routes through the content. In

this way the web project interrupts typical searching and sorting patterns expected from an educational web project. This aspect of the project in some ways references the free-choice element of wandering through the physical museum, where one encounters things one did not expect to find.

PROTOTYPE OF THE TIMEWEB

Upon opening the Timeweb, a series of small circular pictures or "nodes," with a short descriptive title emerge from a single pile to fill all parts of the screen in a slightly random-looking layout (Figure 5.1). A timeline showing 1920 through 1969 appears at the bottom of the screen, and three navigational icons appear at the top right (home, search, and questions). Some of the nodes include Andrej Warhola dies, May 15, 1942; *Brillo Boxes*, 1964 (an artwork); Race Riot, 1963, Andy Warhol gets shot June 3, 1968; *Jackies*, 1963–64 (artwork series). To give you an idea of how the content was developed, consider the case of Jackie Kennedy Onassis, the wife of US president John F. Kennedy (JFK).

Clicking the Jackies icon opens a detail view that describes how Jackie was the subject of a famous series of portraits by Warhol (Figure 5.2). Warhol was struck by the treatment of JFK's 1963 assassination on television and did a series of portraits of her around the time of the assassination using widely circulated images found in newspapers. Text describes Warhol's process, and photos of Jackie and the artwork in progress are shown as well.
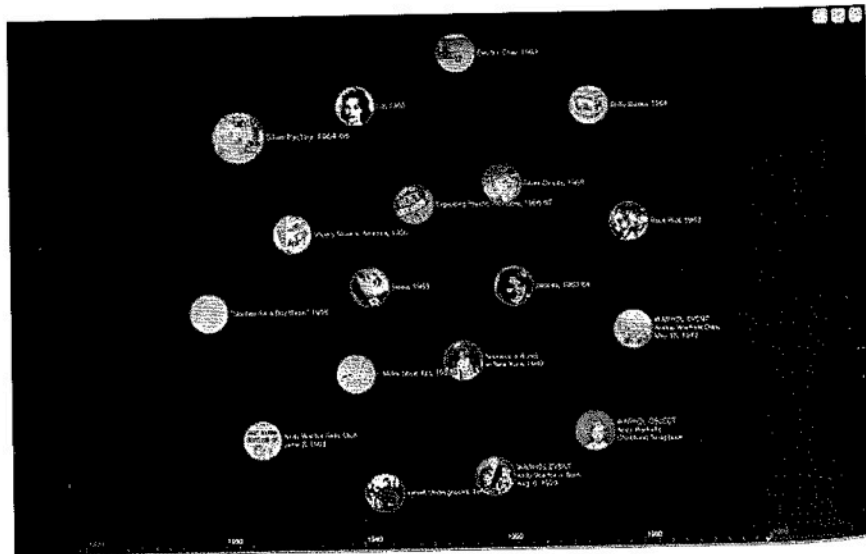

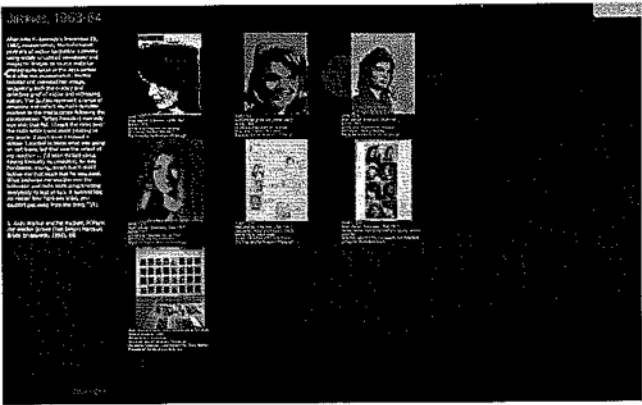*Figure 5.1*   First prototype of the Timeweb. Image Courtesy of the Andy Warhol Museum, Pittsburgh.

Figure 5.2 Detail view of Jackie Node. Image Courtesy of the Andy Warhol Museum, Pittsburgh.
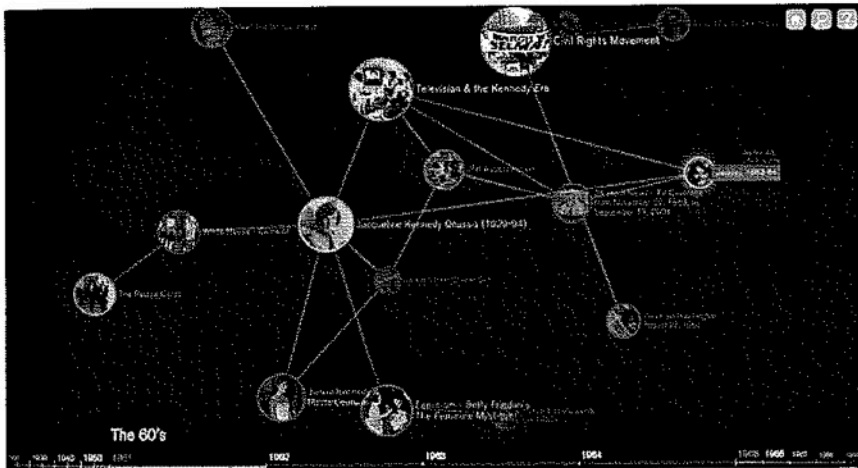

Figure 5.3 Jackie Node in redistributed Timeweb. Image Courtesy of the Andy Warhol Museum, Pittsburgh.

Clicking back to the Timeweb front page after looking at the Jackies node, you find that the layout has changed. Now you see the Jackies node with links to a lot of other things—in an unpatterned layout with differing distances and connections to suggest different kinds of relations between nodes (Figure 5.3). For instance, a central node *Jacqueline Kennedy Onassis (1929–1994)*, is linked with *White House-Camelot, Television & the Kennedy Era, Feminism—Betty Friedan's The Feminine Mystique*, etc. These nodes further explore ideas associated with Jackie and the presidency. The White House was called Camelot at this time (as JFK was seen as an idealistic ruler not

unlike King Arthur), John Kennedy was the first president to be regularly on TV, and the book *The Feminine Mystique* came out in 1963 and marked the beginning of the second-wave feminist movement. Some of the nodes have smaller subconnected nodes, like *Jackie Kennedy & Haute Couture*, which has a subsequent link to *Jackie's Pink Chanel Suit*, an iconic fashion look for which she became famous. At this point you begin to see the ways in which you are moving from examining Warhol's work per se, to exploring historical themes and events that occurred during the time of the work. You can also see that the content is not designed to explore the most obvious art-related themes, such as composition, style, or technique.

This second tier into the Timeweb also shows the extent to which content development would be a key driving factor in the completion of the project. Education staff developed content for the nodes, and this process was not trivial. Ideas for nodes were generated and prioritized. Source material needed to be found or written and copyright clearance obtained. The nodes were then hand coded and linked to one another within the interface. In this way connections were posited on a chronological as well as a conceptual basis. The distance between linked nodes was a way to represent the perceived closeness, or directness of links. Staff had to determine potential distances within the node structure.

TESTING THE TIMEWEB WITH VISITORS

In fall 2007, UPCLOSE conducted an evaluation of the overview gallery and the in-gallery *Timeweb*. An online survey was also conducted for users of the online version of the Timeweb. The prototype version of the Timeweb was first set out in the galleries, and during our prototyping, some technical difficulties impacted our ability to fully understand visitor's perspectives. We found ourselves relearning what multimedia designer Scott Sayre had pointed out in his analysis of art museum interactive projects—that technical and usability problems provide some of the greatest frustrations for users (Sayre, 2005). A somewhat unintuitive interface—with inadequate instructional signage combined with some technical glitches, created problems for users. Some of the visitors couldn't use the Timeweb or didn't know what it was to be used for. After solving some of these initial problems, we were able to get a sense of how the Timeweb might function in a gallery setting. Our study included 32 groups of visitors (1 group of 3 visitors, 17 groups of 2, and 7 singletons). Eight of these groups noticed and used the Timeweb station. Three felt that the computer seemed to be broken, while 2 said that they weren't interested in the kind of information presented in the Timeweb. The remaining 3 groups had more sustained interactions with the Timeweb and had comments to share.

The design team saw the Timeweb as a way for users to create an individual path through events, documents, and artifacts. The nodes would

respond and change according to selections made by the user, lending a dynamic air to the exploration of content and disrupting the sense of linearity and lock step connectedness of a typical timeline format. However, the Timeweb user study in the museum showed that the interaction might require a different configuration in order to best suit the needs of the on-site audience, who were not necessarily in a position to spend time navigating through a purposefully meandering exploration of content.

Users thought that the interface was visually appealing. Indeed, the constellation-like changing layout of nodes—so unlike a typical web-based display—was a real draw for users, who were compelled to try and interact with the screen. While they soon figured out how to operate and change the screen, users were somewhat confused by the way in which the system functioned—they didn't really understand that the nodes were connected in any way. And, users felt overwhelmed by the number of nodes as well as the sheer amount of text in the nodes. They also noted that they couldn't find their way back to a place they had previously visited on the Timeweb. They wondered if the Timeweb might be able to include short audio or video clips as they thought that videos might hold their attention better than some of the longer text segments. Ultimately even the most interested groups made it through only a few rounds of exploration within the Timeweb, as they just didn't have the time or patience to really delve deeply into the layers of the Timeweb.

Interestingly, the shortcomings of the Timeweb in the physical space of the museum are some of the great possibilities provided by the interface online. Using a Timeweb in a social context with so many joint decisions to be made is a difficult task. Using an interactive for an extended period of time in museum space is also a challenge. Visitors in the museum tended to be looking for a way to use the Timeweb to help them plan their visit or to learn a specific thing, something that the Timeweb was not designed to support. Online and in-gallery Timeweb interfaces needed to be designed for their distinct setting.

TESTING THE PROTOTYPE WITH ONLINE USERS

As in the in-gallery prototyping, off-site online users experienced similar frustrations with the Timeweb. We added an online survey to the Timeweb and received 230 complete user surveys from users all around the world. The user testing was revealing. While the concept of having a nonlinear timeline representation was exciting, in practice it proved difficult for users to understand. Visitors didn't perceive the weightedness of connections of nodes, though they did understand the first level of connections. Navigation back to the starting point after reading nodes was challenging. There was no way to retrace one's steps as the representation would regenerate, and you might not necessarily wind up back at the same view that you had started with.

On the other hand, online users were more likely to find value in the interactive experience: 70% found the information interesting to read and 74% liked the different images on the site. And 70% were either surprised or somewhat surprised by the information provided on the site. Comments show users responding to the wow factor of the site:

> What a cool, alternative to the usual timeline.
> I love the format of the web page. It's like his art work, it's new and hip.

Other users indicate that they are also interested in the actual content of the nodes.

> I'm not an art history buff, but this site could make someone (myself) want to know more about the times of the artists and the events that may have inspired the art.
> Well I've only just landed on the site and the Timeweb thingie was the first thing I clicked on. I recently read Victor Bockris's biography of Warhol and was hungering for more info and more images—5 minutes into the site and already you've filled in a few gaps. Nice work.
> This was so neat. I am so glad I found this!! I am writing a paper on how the events in Warhol's life connect to his work and this is amazing. I learned so much about my own history. I wish history classes could be this fun!
> The connections are obscure—but maybe not vital. I am old enough that I already am familiar with these images and content so the site didn't aid understanding but piqued nostalgia.

Online users clearly spent more time exploring and reading the nodes than our museum visitors. While the content was aimed at adults and contained many primary source materials and references, a potential obstacle in the uptake and use of the site, our survey showed that only 14% of users noted that the text was somewhat or very hard to understand. Comments about content included:

> Very in-depth information offered. I was actually a bit fuzzy on what the Marshall plan was as I had heard news commentators recently talking Marshall plan in regards to Afghanistan. So, thanks for that! The way that the images pop up emerging organically and slowly makes me feel like I am discovering them. I hope to share this part of the Warhol site with my HS Art students!
> Wasn't sure of the reason/s why some things were there (like the Soviet SciFi) . . . but interested and interesting!

The design team felt that the prototype was meeting the overall goals for the project when the survey showed that 83% said that the site helped

them to understand the connection between history and art, and 84% that it helped them to understand something about 20th-century history. As we expected some users had difficulty understanding why different events might be connected. But, about 77% felt that they sort of, or really understood, those connections.

Issues noticed in the in-museum prototype about navigation processes also came up in the online version. Twenty-eight percent reported either "kind of," or "really, getting lost" on the site, and 27% reported having trouble figuring out how to navigate the site. Many users commented on issues with navigation:

> I felt that I probably wasn't making the most of the site because I wasn't sure how the navigation worked.
>
> I could not figure out the system as to which image to click next.
>
> I was not looking for anything in particular, so I didn't exactly get lost, however, if I were trying to get "back" to something that I wanted to view more, I'm not sure that I'd be able to as it seems that connections "disappear" and are replaced by new ones depending on what you view.

RETURNING TO THE DESIGN

The prototyping revealed some key interface problems that would need to be corrected, but the design team felt that prototyping was a good proof of concept test for the project—the Timeweb was interesting and compelling for users to explore issues of Warhol and history. The second iteration is on-going as I write this chapter, and it includes looking into how the Timeweb could connect to the museum's object database so that viewers could ultimately search through the museum's collection to find related works. Designers want to change the front-page interface to improve visitor way finding. Museum staff want to develop more content for the project, and they also want to visitors to be able to tag their route through the Timeweb, to collect images and ideas for future reference or sharing. Museum staff also plan to develop a scholar's area where advanced visitors could add their own content to the broader Timeweb project.

Some of the challenges the team is now grappling with are illustrative of some broader issues that these kinds of digital projects pose for art museums. These issues include coauthoring, dialogue/ participation, and organizational hurdles.

Coauthoring. One of the key goals of the Timeweb was to develop creative coauthoring tools for user-generated content. The idea was that users would be able to curate their own "web" or "my collection" that would be displayed online for other users to see. This coauthored content could appear in two forms—the ability to present their own map or tour through the

Timeweb, altering the algorithms to show user's own interpretations of the importance of relations between existing nodes; and second, users would be able to create their own Timeweb by adding personally significant events, or new nodes. The "my collection" idea was a compelling way of encouraging visitor participation and engagement with the creation of meaningful paths through the time in which Warhol lived and worked. This is a very exciting idea—and one that takes advantage of the digital format.

The team wondered about how, or whether users would like to draw upon the experiences of other users—how could they save and share their personal journeys through the Timeweb? Could they ultimately tag or annotate the Timeweb, could they be allowed to add their own nodes? If they added new nodes, how would the Timeweb distinguish between "sanctioned" interpretations and user-created ones? Would staff need to manage and possibly edit or censor added nodes? The design team also wondered about whether users would be engaged enough to participate in creating their own Timewebs. Would it be a compelling enough activity among all of the other user-focused places on the Internet to be worth the development cost?

The user survey for the initial prototype shed some doubt on the idea of working toward the development of a "my collection" concept. When we asked users if the site would be better if they could make their own node map, only 8% of users said they really wanted that feature. Fifty percent did not want the feature, and 29% were neutral on the issue. And when we asked whether they wanted to be able to comment on how the events were connected, 80% of respondents disagreed or felt neutral about the issue. One participant astutely commented:

> Allowing users to 'make [their] own map of the pictures and text' would certainly increase interactivity, but if one of the goals of the artifact is to foster an understanding of the relationship between Warhol and history, I think the didactic approach you've taken is the way to go.

This feedback added to the preexisting institutional concerns about moving forward with a "my collections/ my nodes" functionality in the site. At the same time, the team still highly valued the idea of having a user-generated aspect to the site, and the ability to have the site represent multiple points of view around the interpretation of Warhol and his work.

While the Timeweb team wanted to allow for user-generated input and collections, there was always a distinction made between the official institutional voice and those of users. This points toward an issue that is seen across digital art museum projects—where the notion of coauthoring and participation is challenging from an institutional perspective (Walsh, 1997). There have been many experiments with tagging and making personal collections by museums, but institutionally, there is still a great concern about editing and content control. In addition to the many challenges of copyright for art museums, the interpretation of objects is the core business for curators and educators (Knutson, 2002). This is professional work, after all, and it is

not taken lightly. As one museum director noted of a recent collections project, it took the museum curatorial staff 18 months to take its records from 5,168 to 12,598 (Brooklyn Museum blog, March 11, 2010). Just agreeing on basic object-level information for each record required an onerous internal vetting process, and the work was just plain slow. While we now have the technology to develop hugely powerful ways to search, use, tag and sort, pieces of our online collections from around the web, the art museum as an institutional form is still not directed to the easy development, release, and sharing of information about artworks.

At the same time that art museums have been protective of the copyright of artworks, they have recognized the need and desire to provide new ways for audiences to engage and participate and to share their perspectives. The Timeweb example reflects a broader point about the difficulty of becoming a participatory museum. It is still a difficult process for museums to understand how to encourage and support feedback. The field is still finding ways to create a place for authentic dialogue to take place between museums and their publics. It is interesting to see how digital projects might help to advance this cause.

Scholar community in the Timeweb. While the notion of having the general public create user-generated content was becoming increasingly difficult to envision, the team was finding traction around the idea of having targeted communities of users seed the Timeweb.

A scholar's advisory committee was created and convened, and participating art historians were asked to test out the site, and each reported out on their assessment of the perceived strengths and weaknesses of the prototype (finding similar results as our other two groups of users). Scholars were paid a stipend for their participation and tasked with generating content for different time periods within the Timeweb.

It was hoped that as this initial group of scholars became involved in the site, eventually the site might become a place where other scholars would share their interpretations of the times and events around Warhol. Perhaps the Timeweb could be used by college classes, and other potential Warhol enthusiasts would be engaged by the additional content and multiple perspectives on the subject? Supporting an academic audience with the Timeweb is a timely endeavor as the humanities field is working to find new ways to conduct and support research in the digital age (Svensson, 2010).

For the design team, coauthoring and user-generated content were some of the most exciting aspects of the digital project, yet ultimately they would pose some of the most challenging problems for the team and the institution. Other similar museum online social projects face similar challenges, since after the first wave of social media development we are now at the place where we need to ask, "How many social networks can one person meaningfully belong to?" What is the real impetus for users to contribute to a project, and what is the payoff for the museum visitor?

The "my collection" aspects of the Timeweb project may have also missed their window of opportunity. In the past couple of years the explosion of

web applications like Pinterest means that visitors have highly sophisticated means to share their opinions, routes, and favorite items—*across projects and platforms*. Pinterest is a site that allows a user to create a pinboard of images from sources across the web. Boards and "pins" can be shared and retagged by other users. These multiplatform ways to tag and share are making it possible for visitors to create a collection that goes beyond the virtual walls of the museum website. Museum websites, many still designing in-site collecting and tagging possibilities, will now need to plan for this ability to interact with other places on the web. There may well be enough users out there (keep in mind the huge numbers of visitors the Warhol's website sees) to support a stand-alone site collection tagging like the "my collection" in Timeweb, but the design of such a service is challenging. The "my collection" part of Timeweb requires a great depth of understanding from users, who would be asked to not just "like" some artwork or event, but to understand, then assimilate, and develop their own interpretation of key events. It is unclear whether users of the Timeweb will be compelled to engage in this level of participation.

Collections management systems. Finally, the Timeweb redesign would also involve a great deal of back-end development. The node structures and algorithms were continuing to be refined, and the node database was being reoriented to draw from the museum's collections database. In this way the Timeweb would be able to easily create new nodes by drawing images and information directly from the collections database. This would allow the Timeweb a greater depth of assets, greater ease in terms of future node development. The process has been challenging and hindered by the fact that the Warhol Museum is institutionally part of a family of museums, the Carnegie Museums (Warhol Museum, Carnegie Museum of Art, Carnegie Museum of Natural History, Carnegie Science Center), which share resources including the collections system and some IT structures. Managing decisions about how the site would be integrated within a broader system of a proprietary collections database would cause many headaches for the team, and while the issue was not solved for the Timeweb project, it did help to further the discussion of how to provide an outward facing collection on the broader museum website.

TIMEWEB 2.0

Drawing from feedback from version 1, and working to include new features from the original design, version 2.0 looks quite different from the first prototype.

In this version the actual Timeweb application is situated within a broader context (Figure 5.4). Above the central Timeweb representation, an ordered series of photos recedes back in focus from a late self-portrait of Warhol, through a photo of JFK, to an earlier photo of Warhol. This series along

Figure 5.4 Timeweb version 2.0. Timeweb design and software by Gradient Labs. Image Courtesy of the Andy Warhol Museum, Pittsburgh.

with the time bar below the Timeweb, suggests the chronological focus of the Timeweb. Small images of Warhol's work below the time bar showcase the variety of media on the site.

Below the middle section of the page, new features round out the site. Realizing that users needed to have more choices and way-finding options

in order to successfully navigate the Timeweb, the Timeweb page now also provides a highlights page, as well as a gallery of images in addition to the Timeweb. These options allow a more structured interaction with the content with or without going into the Timeweb interactive. Below these options are the community features. Featured essays and expanded content are two places where contributions from the scholarly community can be found. These sections are clearly delineated at the top in a new navigation bar provides a home button, as well as highlights, gallery, web and scholarship. At this point the site is still under development to finalize the last bits of work on the connection to the collections management structure, and we have not yet conducted the final wave of prototyping, or an evaluation of the project.

CONCLUSIONS

We sometimes think about digital projects as being somewhat disconnected from our museum work—as something to be outsourced and designed to specifications we choose. What's interesting about the Timeweb project is the way that it provided education staff a means to not only repurpose educational content but also a means to rethink their work; generate new content; and most important, to find a way to engage a new set of stakeholders in a dialogue about Warhol. The project was hard work, and staff and designers were pushing themselves to do something unique.

The repurposing was relatively easy to pull off: they had photographs and ideas established as part of other curricular projects. A big part of the strategy was to recruit content matter specialists who would be asked to come up with key content nodes for different time periods in Warhol's life history. And this piece of the project required a lot of work from museum staff. The art historians, who were involved as coauthors, have not necessarily had the chance to think about their work in this way before. It is unclear how they will ultimately use the site, and whether they will see it as a useful place to house some of their interpretative work on Warhol, or whether they will continue to focus on more traditional sharing venues, like conferences and journal publications. Getting buy-in from this community was work, and it is a risk, but it really helped the Warhol continue its work to engage the community in dialogue about Warhol, art and society.

As you might have expected, working in a digital realm was also a big challenge for staff. The team soon discovered that designing an experience that would be exciting and useful for online visitors was quite different from the kind of interface that museum visitors wanted or needed. The Timeweb design was difficult not only in concept, but also in execution; staff were dependent on the ability of the designer to create a novel piece of software that would integrate into their existing IT system. From this process they gained a new way of thinking about how visitors might interact with content at their museum, but throughout the long design process, they also ran

the risk of designing a product that would be rapidly made obsolete by new software options appearing in the marketplace. At an institutional level, the project helped the team to stretch, grow, and innovate.

On a more theoretical level, the Timeweb project also challenged the status quo. In my mind, one of the most interesting aspects of the Timeweb project is the chosen audience. Many art museum education ventures tend to focus on the non-adult audience. Digital projects are often designed under the education department mantle, and so many interactives have been designed for school-aged children. This is a necessary and valid audience, to be sure. The provision of digital products—games and educational activities is great service, and the digital realm is revolutionizing how we think of museum education. But there is room for so much more. This project is somewhat unabashedly aimed at an adult or college-level audience. The user is asked to do a lot of reading and thinking about broad cultural issues and events.

The selection of content for the Timeweb is interesting. Primary sources, the sense of a variety of possible influences or connections between nodes, and the use of a scholar community puts the emphasis on the work of interpretation. This is key. Museum education has focused increasingly on supporting multiple ways of making meaning in museums. This is a good thing. However, coupled with this desire to empower visitors to make their own interpretations, too often this has led art museums to a point of view that "anything goes," or that "whatever interpretation" is equally valid (Meszaros, 2006). Staff at the Warhol struggled with the tension between wanting to create a place for user-generated content and the need to serve as a community resource and source of knowledge about Warhol—something visitors were expecting the museum to provide—a point of view. The design of the Timeweb does a good job at conveying the message that interpretation is grounded, takes work, but remains open for further reflection and revision. And the content on this site works to advance the field in thinking through the kinds of products that might be desirable for both museum visitors and other art educational objectives.

Interestingly, the content used for the Timeweb project also allows us to think more broadly about the potential audiences and their needs for museum-based information and knowledge on the web. When we consider the casual adult visitor to our digital sites—we need to ask ourselves if the kinds of digital products are we offering capitalize on the assets of the museum—its objects and expertise. The web provides many avenues for an individual to find information about art, artists, etc. What can museums offer that can compete with the almighty Google? While museums continue to struggle over issues of image copyright and proper documentation, other web products may take over as the place to find quality educational information about art and artists. There is a big gap here that requires the careful and extended consideration of curators, educators, IT staff and researchers to develop products that help to advance the museum's mission to provide a unique service relevant to a range of publics.

We should also ask how we might connect our traditional practices in the physical space of the museum (with the art, and our programs) to help the casual adult visitor have a novel experience with art online? Can we help our online visitors experience something of the context of art that lies somewhere outside of object-based learning, or an educationally framed curriculum? What other kinds of things could we do to offer art historical knowledge in a way that is not collection/object driven, but that provides a way to engage in thinking about broader societal issues about art and the creative process? With its focus on generating a content rich experience that is not explicitly didactic, and that includes art images and contextual information, the Timeweb project provides an innovative model for future museum-designed web experiences.

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