

Usability Report for the Presidential Timeline of the 20th Century

(Redesigned version, in development)

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Summary

This document outlines the design and results of a usability evaluation of the Presidential Timeline of the 20th Century website (PTL). The website is currently completing final steps of a major redesign, and stakeholders are interested in gaining user input before its release. The site was tested by five participants who were representative of the likely end-user of the Presidential Timeline.

Methods

The design of the usability evaluation was greatly influenced by Rubin and Chisnell's (2008) *Handbook of Usability Testing*. In separate sessions, each participant evaluated the website. The evaluation session consisted of (1) participant background questionnaire, and (2) performance evaluation consisting of several tasks, and (3) post-evaluation questionnaire.

Participant background questionnaire

Before viewing the website, participants first completed a short questionnaire. This questionnaire was designed to determine the users' abilities and experience with Internet applications as well as their interest in history. Participants who were teachers also answered additional questions related to their frequency of use of online educational materials and their experience with teaching with documents. A summary of data given by each participant is reported in the "Participants" Section of this document.

Performance evaluation

The performance evaluation portion of the usability evaluation consisted of three type of tasks influenced by the method of Nielsen, et al. (2001). These tasks consisted of an exploratory task, two specifics tasks and an open-ended scenario task. These tasks are further explained below. During the entirety of the performance evaluation, participants were encouraged to "think-aloud" as they performed each task. As the term suggests, this simply means that participants spoke freely about their thought process, questions, comments, and concerns as they used the site.

Exploratory task

During the exploratory task, the participants were allowed to freely browse the site while the moderator prompted him or her with questions about aspects of the site. (The Exploratory Task question protocol is attached to this document). The purpose of the exploratory task is to gather participant's first impressions of the site including their opinions of visual design, purpose of the site, and perceived usefulness and credibility of the site.

Specific tasks

After openly browsing the site, the participants were given two tasks. The purpose of performing specific tasks is to mimic probable use of an end user. While completing these tasks, the moderator noted the amount of clicks and approximate time needed for each participant to complete. For this usability evaluation, participants were asked to do two specific tasks:

1. Using the website, find a fact about or an event from Ronald Reagan's life before he was president.
2. Using the website, find a document, image, or other media related to the Japanese attack on Pearl Harbor.

Open-ended tasks

An open ended scenario task was assigned to each participant. The purpose of an open-ended task is to observe the user using a range of tools on the website to accomplish multiple steps toward a comprehensive goal. Non-teacher participants were instructed to learn about a particular topic of their choice (several choices were given to choose from), and share what they learned with the moderator. The two teacher participants were instructed to develop a lesson using the PTL. Sample lesson topics were given, but participants were also allowed to choose their own topic.

Post evaluation questionnaire

After each usability evaluation, participants were asked to fill out a post-evaluation survey. The survey was designed to make the participants rate aspects of information design, interface design, and interaction design of the site, as well as the participant's overall satisfaction with the site. These questions asked the participant to evaluate aspect of specific elements using a Lykert scale of 1 to 5. Participants were also given the chance voice any complaints or concerns they had with the site, as well as make suggestions to improve the usability of the Presidential Timeline.

Participants

Due to time restraints, only five participants took part in this usability evaluation. As the PTL is intended for educational use, both formal and informal, 2 teachers were among the participants. Each participant was between the age of 30 and 45. Each participant was given a short survey to collect information on their internet skills, interest in history, and experience with historical websites. If applicable, the participant was also asked questions about their use of online resources in the classroom. A summary of each participant is given below.

Participant 1

- Never has been a teacher

- Frequent user of basic and advanced Internet applications and web building.
- He has visited the Library of Congress website, has a personal interest in history and strong interest in discussing history.

Participant 2

- Middle grades science teacher; has taught social studies as a elementary teacher.
- Frequent user of basic Internet, and moderate user of Web 2.0 applications, but she does not have experience with advanced web applications or web building.
- Frequent user of resources found on the web for teaching, and uses images, audio, video, lessons and other activities she finds on the web.
- Has not visited any primary source websites. She does, however, express a strong personal interest in history, with a moderate interest in discussing history.

Participant 3

- High school social studies teacher; has taught history and government at the middle grades and high school level.
- Frequent user of basic Internet, and moderate user of Web 2.0 applications, and has little experience with advanced web applications or web building.
- Frequent user of resources found on the web for teaching, and uses images, audio, video, lessons and other activities he finds on the web.
- Has visited multiple online primary source websites, (including the older version PTL) and is a moderate user of online and in-print primary sources in his classroom. He also has a strong personal interest in history, and a strong interest in discussing history.

Participant 4

- Never has been a teacher
- Frequent user of basic Internet, and moderate user of Web 2.0 applications, and has little experience with advanced web applications or web building.
- Has visited the Library of Congress and National Archive websites, has a personal interest in history and strong interest in discussing history.

Participant 5

- Has never been a teacher.
- Frequent user of basic Internet, and moderate user of Web 2.0 applications, and no experience with advanced web applications or web building.
- Has not visited any primary source websites. Expresses a moderate personal interest in learning history.

Equipment

The website was tested on multiple devices. Two tests were done on a Apple MacBook Pro using Google Chrome Browser. Two tests were conducted on separate Dell PCs running Windows 7 and using Mozilla Firefox: one a 15 inch laptop, and the other a desktop connected to a projector. The fifth test was performed using an Apple iPad, 3rd Generation. Although different devices were used, the testing area

was similar in each test: the participant was stationed in front of a computer while the moderator gave prompts and took notes seated next to the participant.

Findings

Exploratory Task

Users had generally good first impressions of the website. Words used to describe the interface included “clean,” “modern,” and “pleasant.” Users described the coloring as “muted,” “serious,” and “important.”

Participants expressed the believe that the site was most intended for educator and students of history. One user said plainly, “this site would be used by anyone wanting to learn about the presidents.” Users agreed that the content seemed more appropriate for secondary students and adults, however the teachers in this study noted that the materials on the site could be used with younger students with teacher guidance.

Each participant noted that they could find something to their interest on the website. Teachers noted that they would be able to use images, documents, and other media in their classes. Non-teachers expressed interest in the images and other media available. Three users also explicitly mentioned the comparative time line feature as something that caught their interest.

Finally, all users agreed that the site seemed to be a credible source of information. For some of the participants, the visual design of the website (the badging, colors, etc.) was a contributing factor to the credibility of the site. Two participants noted that while the site provided information on political figures, the PTL did not display obvious agendas or biases. This lack of bias contributed to the perceived objectiveness of the Presidential Timeline.

Specific tasks

When asked about a specific president (i.e. “find information about an even in Ronald Reagan’s life before he was president”), participants started by either clicking on the portrait of the president (if they were on the home page) or use the drop down menu and select the president that way. Every participant used the timeline tool and clicked on the “Early Life and Career” link to find the information they needed. Performance results for Task 1 are included in the table below.

The amount of clicks and time needed for participants to complete Specific Task 1

	Participant 1	Participant 2	Participant 3	Participant 4	Participant 5
Clicks	3	3	4	5	4
Time	1-5 sec.	5-10 sec.	5-10 sec.	5-10 sec.	5-10 sec.

When prompted to find information on an event (the Japanese attack on Pearl Harbor), the participants tended to use the search function in the upper right hand corner of each page. Although these participants were able to use the search function, they could not link directly to the results, so they either ended at the search results (Participants 2 and 4) or continued to browse the site until they found what they were looking for (Participants 1 and 5). The history teacher (Participant 3) did not use the search function and instead chose to use the timeline tool under FDR. Performance results for Task 2 are included in the table below.

The amount of clicks and time needed for participants to complete Specific Task 2

	Participant 1	Participant 2	Participant 3	Participant 4	Participant 5
Clicks	5*	3*	3	4*	5*
Time	10-15 sec.	5-10 sec.	5-10 sec.	5-10 sec.	10-15 sec.

*Used search field.

Open Ended Tasks

Participant 1

This participant chose the decision of the US to escalate military action in Vietnam as his topic to learn. He originally chose to search the Lyndon Johnson collection. After searching the Johnson timeline for a while, he was not able to find the information that he needed. So he used the search function to search for “Vietnam.” After finding a list of documents (which are not yet linked), he then re-searched the Johnson collection to find information on the Gulf of Tonkin.

Participant 2

The second participant (a science teacher) chose to create her own lesson plan. Instead of creating a history or social studies lesson, she chose to create a lesson that she could use in her class, picking “scientific innovation” as her topic. Specifically, she planned to have her students choose a president on the PTL and find documents related to that president’s impact on scientific innovation. For this lesson, her 8th Grade science students would spend a week working on the project in order to create a presentation. She noted that she would likely have to spend more time familiarizing herself with the Presidential Timeline in order to prepare to teach her students how to use the website.

Participant 3

The third participant (a history teacher) also chose to make a lesson plan of his own design that involved multiple presidents. For his lesson, his students would also directly use the PTL to search for documents. Their purpose would be to choose two presidents and justify the claim that one was a “hero” and one was a “villain” using documents from the PTL as supporting evidence. This lesson would be designed for high school government students. He noted that he would likely have to spend some time demonstrating the use of the PTL with his students, but assumed that his students would quickly catch on to the website tools and could likely browse and use the PTL with little or no assistance.

Participant 4

Participant four chose to learn about the decision of US to use the atomic bomb on the Japanese. Knowing that Harry Truman made this decision, the participant chose to view Truman’s timeline. As the atomic bomb decision occurred early in the Truman administration, the event was in plain view on the timeline, so the participant clicked on it to find the information he needed to learn about the event.

Participant 5

The final participant also chose to learn about the US decision to use the atomic bomb. He used the search function to search for “atom bomb” which yielded no results. He then changed his search to “atomic bomb” which provided him with results. Already knowing that these results would not be linked, he abandoned the search and instead started browsing the site. When scrolling over the “Exhibits” he moused over “Harry S. Truman” and saw that there was an exhibit entitled “The US Decision to Drop the Atomic Bombs,” so he clicked on that to find the information that he needed.

Post evaluation survey

Participant evaluation of the site was generally positive, with the exception of evaluation of search functions. The mean score of each survey item (scored from 1 to 5) is given in the table below.

1. It was easy to find the information I needed.	3.2
2. There was adequate material available on the site.	4.6
3. The material was neatly organized.	4.4
4. All labels and captions were accurate.	4.8
5. Pages were organized uniformly and predictably	4.6
6. While browsing, I could easily return to the home page.	4.8
7. The icons and navigational tools were clear and worked well.	4.2
8. The text on the website was easy to read.	4.0
9. The pages on the site were tidy (not cluttered).	4.6
10. Text and graphics were well-balanced.	4.8
11. Search functions and other forms worked well.	1.6
12. This site offers customizability. (this item was removed)	-
13. A user could use this site in multiple ways.	4.2
14. I could manipulate (zoom, change, download) files from the site.	3.8
15. I liked browsing this site.	4.4
16. I am satisfied with this site.	4.4
17. I would recommend this site to a colleague or friend interested in history.	4.8
18. I would use this site in my teaching.*	5.0*

**This item was only asked to the social studies teacher.*

In the open-ended response of the survey, each participant noted that the search results of the search function did not link to the resource they needed (this was still under construction at the time of the test). Additionally, two participants noted that there was missing content (referring to content on George W. Bush, which was not yet uploaded, and educational collection content, which was also in the process of being uploaded).

Another open-ended question asked the participants to suggest changes to the website that would make the Presidential Timeline more useful. Most remarked again about the search function not working correctly, but in addition, 2 participants suggested that the items that appear in the search results contain more metadata than just the title (such as collection, date, or other tags). Two participants made expressed confusion over thumbnails. It was not obvious to them the type of resource each thumbnail linked to (they all looked like images or documents), and one participant suggested the use of icons (e.g. speaker for audio) to easily differentiate between the types of resources represented by the thumbnails. One user also suggested that some links should be more visible (for example, in the Hoover Educational Collection, links change when hovered over, but are not obvious by reading or scanning). Finally, loading of the timeline feature varied at times. During one test, each timeline took too long to load and refresh, and the user noted the “clunky” behavior in his open-ended response.

Additional specific user suggestions for additional features included:

- “Highlighting related documents or events on the timeline when an even is selected.”
- “One all-encompassing timeline”

- “A thematic timeline” (across administrations centered on one topic)
- “Related standards or ideas for [subjects other than history].”
- “Ability to scroll through timeline with mouse scroll, not just click and drag.”

Discussion

As a whole, users were pleased with the experience of using the Presidential Timeline. Users reported being pleased with the site’s design and noted that they could use the site for education purposes and would recommend the site to colleagues or friends interested in learning about the presidents. This discussion outlines some themes from the findings that will be of interest to PTL stakeholders.

How do people navigate the site?

When first exploring the site, users tended to immediately begin clicking, suggesting that basic functions of the site were obvious. The most frequent first actions taken by users was to view the drop down menus or to click on the portrait of a president. For the participants of this study, the PTL offered controls that were intuitive. The search function is new to the redesign of the PTL, and is a beneficial addition, as every user instinctively used the search function when asked to complete a task. However, the search results were not yet complete, as they do not yet link to the specific document or file.

A feature that would likely be very helpful to users is the advanced search feature that is located in the “Gallery” section. This allows users to filter by president, time span, or resource type. Unfortunately, this powerful and helpful feature was largely over-looked. Only one participant remarked about it, and only after he had already completed his tasks. It is recommended that this function be highlighted in some fashion, such as a link directly to this feature labeled “Advanced Search.”

Using the PTL to educate

An interesting finding is that no one spent much time (if any) accessing the “Educators” section of the site. Although both of the teachers commented about the “Educators” label on the menu, neither visited it. Instead, when prompted to either create a lesson plan (teachers) or learn about an event (non-teachers), users preferred to immediately search for documents, images and other media. It seems that the appeal of the PTL to the participants of this usability study was the media itself, and how it was organized.

As the teachers who participated were experienced, they were more comfortable. Participant 3 (a high school teacher of 12 years) said when searching for resources on the web, he likes to first think of a lesson, and then find resources that help him with that lesson. Participant 2 (the science teacher) also chose to create her own lesson and then thought of a way that the PTL could assist with her educational goals. When explicitly asked by the moderator to review the “Educators” section, the teacher participants agreed that the educational collections would be helpful to “beginning teachers,” who would likely value the convenience of a laid out lesson plan and explanation of standards to which those lessons align. A future user study might incorporate beginning or pre-service teachers as potential participants.

Using the PTL on different devices

The PTL usability study was conducted on multiple devices. This provided the opportunity to view the website in a various resolutions. In most cases, the view was acceptable, however, for one user (who was using a PC connected to a projector), the resolution at which he viewed the site was relatively low, which caused some confusion. While the width of the site was never cut off due to resolution

restraints, the area contained “below the fold” (the area a user must scroll down to see) varies between resolutions. This was problematic when browsing timelines, as the relevant thumbnails appeared below the fold. The resolution also became an issue when viewing documents, as the pop up was too tall to completely fit in the viewable frame.

For the most part, the Presidential Timeline Website worked well on the devices. While viewing the timelines on the iPad worked with touch functions, the user was not able to download documents from the resource view frame. This is likely due to the build of the Apple device, and not the PTL. However, it is likely that the tablet of choice of the person using the PTL will be the iPad, so it might be necessary to make provisions for its particular nature.

(Update: at the time of writing this, it seems that attention has been paid to this issue and the “download” function will now open the item in a new browser window if viewed on an iPad)

Conclusion

It is obvious that a lot of thought went into the redesign of the Presidential Timeline website. When compared with the older version of the site, the new Presidential Timeline is much more refined in terms of function for the modern Internet and availability of tools. Some technical issues did come up during the evaluation that led to user frustration (namely, the missing content and non-linked search results). However, these issues are likely already known to the designers of the PTL, and in the process of being built or fixed. Other than completing the construction, there seem to be no major flaws inhibiting the successful use of this site. However, minor tweaks can be made to make the site more usable as a whole. Fortunately, the tweaks are mostly in terms of making users aware of the available tools on the site rather than adding or improving those tools.

References

- Nielsen, J., Snyder, C., Molich, R., and Farrell, S. (2000). *E-Commerce User Experience: Methodology*. Nielsen Norman Group. [Online] Available <http://www.nngroup.com/reports/ecommerce>
- Rubin, J. and Chisnell, D. (2008). *Handbook of Usability Testing: How to Plan, Design, and Conduct Effective Tests (2nd ed.)*. Indianapolis, IN: John and Wiley & Sons.

Exploratory Task

Please jot down your first impressions of this web site in the space provided below. Please be honest in your responses, your objective opinion will only support the purpose of this study.

1. What is the purpose of this website?

2. Who do you think is its target audience?

3. What are your first impressions about this site?

4. At a first glance, do you think this web site could provide you with any information of your interest? If you find something interesting on this site, please describe it.

5. Do you find this site to be credible? Explain.

Specific tasks

You would like to know about Ronald Reagan before he was President. Use the site to:
Find one fact about Reagan's life before his presidency.

Path:

Clicks:

Time:

Notes:

You would like to learn about the Japanese attack on Pearl Harbor.
Find a document related to Pearl Harbor.

Path:

Clicks:

Time:

Notes:

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Scenario Task (non Teacher)

Between TV Shows about wilderness people and junk dealers, you managed to stumble upon a History Channel program about actual history. This program focused on conspiracy theories about historic events, and you were hoping to learn more about that event. Using the Presidential Timeline website, choose **one** of the following topics to learn about:

- The US decision to enter into World War Two
- The decision to use the Atomic Bomb on the Japanese
- The decision for military escalation in Vietnam

Discuss with the moderator what you have learned.

Notes:

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Scenario Task (Teacher)

You need to plan a social studies lesson that you could realistically teach in your classroom. Choose a topic related to the information available from the Presidential Timeline. Find some documents, videos, transcripts or other files and some contextual information about that topic that you could use to make a lesson. If you don't care to choose your own topic to plan a lesson for, you may choose one of the following topics:

[Civil Rights]

[The Vietnam War]

[The New Deal]

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Lesson Plan Task Template (for lesson plan scenario)

Topic:

Grade Level or Subject:

Total Time:

Essential Questions or Purpose of Lesson:

Student Activities:

Materials (include specific items from Presidential Timeline):

Assessment or final product:

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Post-evaluation Survey

To what extent do you agree with the following? If you didn't use a feature, leave the response blank.

1. It was easy to find the information I needed.	1	2	3	4	5
2. There was adequate material available on the site. (Please note if you thought there was too little or too much)	1	2	3	4	5
3. The material was neatly organized.	1	2	3	4	5
4. All labels and captions were accurate.	1	2	3	4	5
5. Pages were organized uniformly and predictably	1	2	3	4	5
6. While browsing, I could easily return to the home page.	1	2	3	4	5
7. The icons and navigational tools were clear and worked well.	1	2	3	4	5
8. The text on the website was easy to read.	1	2	3	4	5
9. The pages on the site were tidy (not cluttered).	1	2	3	4	5
10. Text and graphics were well-balanced.	1	2	3	4	5
11. Search functions and other forms worked well.	1	2	3	4	5
12. This site offers customizability.	1	2	3	4	5
13. A user could use this site in multiple ways.	1	2	3	4	5
14. I could manipulate (zoom, change, download) files from the site.	1	2	3	4	5
15. I liked browsing this site.	1	2	3	4	5
16. I am satisfied with this site.	1	2	3	4	5
17. I would use this site in my teaching.*	1	2	3	4	5
18. I would recommend this site to a colleague or friend interested in history.	1	2	3	4	5

Describe something specific from this site you could realistically use in your class.*

Describe something from this site that you would unlikely be able to use in your class.*

19. If you are not satisfied with the website, please describe the reasons for your dissatisfaction below.

20. What changes would make the website easier to use?

**Only asked to the history teacher*