The Portal to Texas History
Usability Test

Texas Tech University Usability Lab
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Report Overview

Team KuLAK designed and implemented usability testing for the Portal to Texas History website managed by the University of North Texas. This study looks at the navigation of the Portal website and recruited users that UNT sees as their target audience. Our testing took place at Texas Tech University’s Usability Lab on April 4, 2011, and April 11, 2011, with consent from the TTU Institutional Review Board. This report will cover the following areas of The Portal to Texas History Usability Test:

- Purpose of Usability Testing
- Test Environment
- Test Methodology
- Usability Scenario and Tasks
- User Profiles
- Findings and Analysis
- Recommendations
- Recommended Redesign
- Conclusion
Purpose of Usability Testing

Usability testing measures user experience with a given product. We use the following models to inform our research.
Purpose of Usability Testing

See

Say

Do

MEELS

Memorability

Errors

Efficiency

Learnability

Satisfaction
Test Goals

• Is the Portal to Texas History equally usable for all user groups?

• Can users easily navigate the website, particularly the collection, partner, and other navigational links that are meant to allow users to browse different collections?
Test Environment

• Test Recording
  o We used Morae recorder to capture testing sessions and Morae observer to send user surveys and mark initial observations.
  o One camera was used to record user behavior and vocalizations.
  o For eye tracking, we used the Eye Guide software and hardware to track users’ eye movements.

• Testing Team
  o The test manager greeted the user, organized the user’s paperwork, and implemented the retrospective recall questions.
  o The facilitator remained in the room with the user and facilitated the test.
  o Two observers remained in the observation room to mark obvious errors during testing and to create retrospective recall questions.
Test Methodology

**Eye-Tracking:** We used an eye-tracking device to measure how a user’s eyes seek out information on the website.

**Active Intervention:** We created questions in advance for the facilitator to ask all users. We performed active intervention after the user completed task one, task two, and task four.

**Retrospective Recall:** We used retrospective recall, at the end of the test, when an unexpected occurrence took place during testing.

**Measuring Mouse Clicks and Time Between Tasks:** We used this data to triangulate whether what users were saying was representative of what they were doing.

**Severity of Error:** We used the Morae default error scoring scale (severe, medium, and minor) to rate this.

**Pre-test and Post-test Surveys:** We administered pre-test surveys to collect demographic data from users and administered post-test surveys to measure user satisfaction of the website.
Usability Scenarios and Tasks

We had one scenario for each user group and all scenarios started with a link to a picture of Bonnie Parker’s funeral.

**Scenario 1:** You are a 9th-12th grade History teacher, and you are planning to present a lesson about Bonnie and Clyde, during which you plan to show photographs from the Portal website. Open your preferred browser to begin looking at photographs about the history surrounding Bonnie and Clyde.

**Scenario 2:** You are a college History professor, and you are planning to lecture to your students about the history surrounding Bonnie and Clyde, and you plan to show photographs from the Portal website. Open your preferred browser to begin looking at Bonnie and Clyde photographs.

**Scenario 3:** You are an undergraduate major in History and have begun learning about Bonnie and Clyde. You plan to teach your fellow students about Bonnie and Clyde, so you look for photographs on the Portal website. Open your preferred browser to begin looking for Bonnie and Clyde photographs.
Usability Scenario and Tasks

All users were asked to complete the following tasks:

• **Task #1:** From this photograph page, find three different items that you might also use from the same collection.

• **Task #2:** From this photograph page, find three different items from the same partner.

• **Task #3:** From this photograph page, find a more detailed description about this individual photograph.

• **Task #4:** From this photograph page, find the information you would need to cite this photograph.
User Profiles

We recruited seven users total:
• Two University Professors
• Two High School Teachers
• Three Undergraduate History Students.

• 50% users were female; 50% male
• Users were between 25-34 years of age
• Most users had 4-year degrees or higher
• Users perform web searches anywhere from once a day to once per month
• 5 out of 7 users have never used the portal
Study Limitations

• One student user was an outlier due to misunderstanding of the tasks and instructions. We removed this user’s data from the analysis.

• We used heat map eye-tracking analysis, but we were able to use only four out the six users’ data due to technical complications.
Optimal User Performance

Optimal Mouse Clicks Per Task

Tasks 1 & 2: We determined that success in terms of optimal mouse clicks would measure 4 clicks per task.

Tasks 3 & 4: We determined that success in terms of optimal mouse clicks would measure 1 click per task.

Optimal Time on Task

Tasks 1 & 2: to find “Collection” and “Partner” links, along with 3 items from each, we determined that the optimal completion time is 17 seconds per task.

Tasks 3 & 4: to navigate to “Full Record” and to “Citation,” the optimal completion time is 3 seconds per task.
Results & Analysis: Performance

- **Task 1** took an average of 24 mouse clicks.
- **Task 2** took an average of 7 mouse clicks.
- **Task 3** took an average of 5 mouse clicks.
- **Task 4** took an average of 4 mouse clicks.
Results & Analysis: Performance

Task 1: The average time on task for all users was 240 seconds, or 4 minutes.

Task 2: The average time on task for all users was 68 seconds, or just over 1 minute.

Task 3: The average time on task was 55 seconds.

Task 4: The average time on task was 21 seconds.
User Group Performance, Time on Task

Time on task for professor and teacher groups was lower than non-professionals (students). Judging by task time, learnability of site is high across all user groups.
User Group Performance, Mouse Clicks Per Task

Mouse clicks decreasing across user groups demonstrates learnability of the Portal.

<table>
<thead>
<tr>
<th>Task</th>
<th>Professors</th>
<th>Teachers</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task 1</td>
<td>50.50</td>
<td>13.50</td>
<td>22.50</td>
</tr>
<tr>
<td>Task 2</td>
<td>11.00</td>
<td>6.00</td>
<td>8.50</td>
</tr>
<tr>
<td>Task 3</td>
<td>7.50</td>
<td>5.50</td>
<td>4.50</td>
</tr>
<tr>
<td>Task 4</td>
<td>2.00</td>
<td>2.00</td>
<td>3.00</td>
</tr>
</tbody>
</table>
Task 1 showed the most severe problems—related to locating items from the same collection. Often markers that were ranked “Severe” indicated failure to complete the task.

Task 2 showed the least number of markers, indicative of users learning how to navigate the page after having performed the first task.

Task 3 noted few severe problems, but there were several medium and minor errors which generally indicated users clicking on incorrect links to find the “more detailed description” requested in this task.

Task 4 again showed few severe problems, as well as few problems ranked “medium,” but it did show several minor errors which generally referred to users equating the citation information below the photograph with the “Citation” link; while this information indeed is the same, Task 4 was written to determine usability of the “Citation” link itself.
Task 1 Question: In this context, what do you think ‘collection’ is referring to?

- “I'm guessing it’s a collection of Bonnie and Clyde documents.”
- “Like an article, not an article. Like a database almost.”
- “The documents and images related to Bonnie and Clyde and connected to the history and criminal justice of Texas.”
- “History or cases referring to Bonnie and Clyde.”
Task 2 Question: In this context, what do you think ‘partner’ is referring to?

- “The creator--the person who made the collection.”
- “Someone who partners with the Portal to Texas History or something.”
- “Another archive that shares their items with this site.”
- “In a database they have certain publishers that publish stuff.”
Task 4 Question: How might you use this citation information?

- “If you use this picture you would put it on your works cited page.”
- “For a reference page.”
- “Use it to cite a source in a paper about Bonnie and Clyde.”
- “I would plug information into the specific format site I need.”

(User then also goes to “citation guide” in the Portal.)
Retrospective Recall Samples

• Question to Professor #1: On task 1, you immediately began searching instead of using the links on the page. Why?
  • A: “‘Google generation’ more likely to start with a search feature rather than the ‘collection’ term.”

• Question to Professor #2: “Now that you’ve completed the test, could you tell us now what you think a partner is?”
  • A: “I just didn’t understand the context of the question.”
Retrospective Recall Samples

• Q: On task 3, when we asked you about a more detailed description, what did you expect to find?
  • I expected to find something that describes the photograph, the date, and the reason why it was taken.
• Q: On task 3, when you were supposed to find a description what did you expect to see?
  • A: “A more detailed description...like a paragraph or something.”
• Q: On task 3, when you were asked to find a more detailed description, why did you click on the photograph?
  • A: “I already saw a description on top of the page and knew it wouldn't take me anywhere, so I clicked on the photograph in 'hopes' that it would show that.”
• Q: On task 3, when you were asked to find a more detailed description, what did you think “description” referred to?
  • “I thought you wanted specific information about the item.”
Post Test Survey: User Satisfaction

For the following survey, we asked users to rate their feelings about the software and tasks. We used a Likert scale to measure the data: a rating of 1 represented “strongly disagree” and a rating of 5 indicated “strongly agree.” The following values are derived from average user response scores.
# Post Test Survey: User Satisfaction

<table>
<thead>
<tr>
<th>Survey Statement</th>
<th>Average Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>The software was easy to use.</td>
<td>4.00</td>
</tr>
<tr>
<td>I am familiar with websites of this sort.</td>
<td>4.33</td>
</tr>
<tr>
<td>Familiarity helped me perform the tasks quickly.</td>
<td>3.50</td>
</tr>
<tr>
<td>I could find the information because I am used to the website design.</td>
<td>2.83</td>
</tr>
<tr>
<td>I am not familiar with website browsing and therefore I couldn’t perform the tasks as quickly as I wished to.</td>
<td>1.33</td>
</tr>
<tr>
<td>I often carry out tasks like the ones I was asked to carry out in this test.</td>
<td>3.50</td>
</tr>
<tr>
<td>I can see myself carrying out tasks like the ones in the test.</td>
<td>4.16</td>
</tr>
</tbody>
</table>
Findings: Post Test Survey

• The users felt the software was easy to use.
• However, users indicated that their previous experience using websites like the Portal did not help them navigate the site.
Findings: “Collection”

• Although most users found the “Collection” link, they often did not think the collection was relevant to the photograph they were looking at.

• Eye tracking analysis shows that users often did not fixate below the “Partner” link.
Video Clips Task 1

Find three items from the same collection
[Bonnie Parker's Funeral - Dallas, Texas]

Brief Record Full Record Statistics

Description: Photograph of a large crowd outside of the McKamy Campbell Funeral Home present for Bonnie Parker's funeral.

Creator: Dallas (Tex.) Police Dept.

Location: United States - Texas - Dallas County - Dallas

Creation Date: Unknown

Partner(s): Dallas Municipal Archives

Collection(s): Rescuing Texas History, 2009

Citation

Metadata

Share

More Options

All Pages

Resources for Educators

We offer teaching materials that connect your students with primary source historical documents to dramatically improve understanding. If you're interested, you can download these resources.
[Bonnie Parker's Funeral - Dallas, Texas]
Heat Map
Findings: Partners

After successfully completing task 1, users did not have a problem finding the “Partner” link and selecting three items from the partners of the starting image.
Findings: Full Record

• Users rarely understood that the full record would provide more detail about the photograph.
• They often clicked on the image itself.
• When they did find the full record tab, it was after they had clicked on the photograph and hovered over the description.
• Our eye tracking data shows that users were fixating on “text heavy areas.” The tabs were often overlooked because of this.
Video Clip: Task 3

“More detail”
### Bonnie Parker's Funeral - Dallas, Texas

<table>
<thead>
<tr>
<th>Brief Record</th>
<th>Full Record</th>
<th>Statistics</th>
</tr>
</thead>
</table>

#### Description:
Photograph of a large crowd outside of the McKamy Campbell Funeral Home present for Bonnie Parker's funeral.

#### Creator:
Dallas (Tex.) Police Dept.

#### Location:
United States - Texas - Dallas County - Dallas

#### Creation Date:
Unknown

#### Partner(s):
Dallas Municipal Archives

#### Collection(s):
- Rescuing Texas History, 2009
- Dallas Police Department Historical Records/Case Files
### [Bonnie Parker’s Funeral - Dallas, Texas](#)

**Description:** Photograph of a large crowd outside of the McKamy Campbell Funeral Home present for Bonnie Parker’s funeral.

**Creator:** Dallas (Tex.). Police Dept.

**Location:** United States - Texas - Dallas County - Dallas

**Creation Date:** Unknown

**Partner(s):**
- Dallas Municipal Archives
  - About | Browse this Partner

**Collection(s):**
- Rescuing Texas History, 2009
  - About | Browse this Collection
- Dallas Police Department Historical Records/Case Files
  - About | Browse this Collection
- Clyde Barrow Gang Collection
  - About | Browse this Collection

**Usage**
- Total Uses: 2,021
- Past 30 days: 93
- Yesterday: 5
Heat Map
Findings: Citation

Users often used citation information that was provided in the caption of the enlarged image rather than selecting the citation link.
Video Clip: Task 4

“Citation”
### Bonnie Parker's Funeral - Dallas, Texas

**Brief Record**

<table>
<thead>
<tr>
<th>Description</th>
<th>Photograph of a large crowd outside of the McKamy Campbell Funeral Home present for Bonnie Parker's funeral.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creator</td>
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</tr>
<tr>
<td>Location</td>
<td>United States - Texas - Dallas County - Dallas</td>
</tr>
<tr>
<td>Creation Date</td>
<td>Unknown</td>
</tr>
<tr>
<td>Partner(s)</td>
<td>Dallas Municipal Archives</td>
</tr>
<tr>
<td>Collection(s)</td>
<td>Rescuing Texas History, 2009</td>
</tr>
</tbody>
</table>

**View this Photograph**

- Return to Search Results
- Citation
- Metadata
- Share
- More Options

**Resources for Educators**

- We offer teaching materials that connect your students with primary source historical documents to scholarly research and learning. See all resources.
Recommendations

• Because you expressed desire to have users using the partner and collection taxonomy more, move “Partner” and “Collection” links up higher where users are looking, as shown in the heatmaps and video clips.
Recommendations

• Give “Full Record” a name that is more reflective of being associated with that photograph.

• Create link to “Full Record” from the extant, briefer “Description” section.
  • Users often looked at the middle, all-text column in the center of the page for description, and as seen in the Task 3 video clip example, most users did what this user did in hovering over “Description” to determine if a linked existed. Rearrange navigation links.
  • Description link should be listed first next to picture, followed by “Partner” and “Collection.” This achieves your goal of information being readily available where users are looking.
Recommendations

• We also propose moving the “Citation” link out of the advanced tools area on the right and directly underneath “Collection,” since these are the links that users will most often use. This corresponds to Fitt’s Law, which states that the time required to rapidly move to a target area is a function of the distance to and the size of the target.

• We move “Statistics” over to the right-hand advanced tools area because, while this is a required element, it does not have to be immediately navigable for users to comprehend the site.
Recommended Redesign

• In the next slide, we include a redesign that incorporates all the recommendations we make to you.
• Based on other usability studies, users’ eyes form an “F” pattern while looking at websites. Combining this information with our heatmap data and mouse track data, we have created a design that works with this information. Note: the grey-shaded pattern represents this “F.”
Recommended Redesign
Conclusion

We believe in usability testing as part of an iterative design. Therefore, we recommend that after you implement these changes to the Portal website, you consider undergoing another round of usability testing to confirm that the adjustments are user friendly.