Heuristic Evaluation Report

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Executive Summary

This report details a usability evaluation completed for the MTA (Metropolitan Transportation Authority), North America's largest transportation network, serving a population of 15.1 million people in the 5,000-square-mile area fanning out from New York City through Long Island, southeastern New York State, and Connecticut. The website provides schedules, fares and tolls, maps, service changes, and more for NYC subways and buses, the Long Island Railroad, the Metro-North Railroad, and the Staten Island Railway, as well as bridges and tunnels throughout NYC.

To gain insight into the usability of the current website, a team of evaluators from Pratt Institute’s School of Library and Information Science conducted a heuristic evaluation. The conclusive findings were analyzed and then used to support a series of actionable recommendations that diminish user experience limitations and solidify the MTA website as a trusted travel resource.

These recommendations are supplemented with evaluator feedback and visual mockups, and organized around four main interface areas: the Landing Page, the Schedules & Fares page, and the Metro-North Railroad Schedule Page.

To facilitate improved display and access to current content, the evaluators suggest a reorganization and streamlining of the Landing Page, clearer labeling on the Schedules & Fares page, and the addition of further visuals to aid the user in their selection process.
Introduction

The MTA website houses a tremendous amount of information. While the current organization and display is functional and works well considering the scope of this site, there is room for improvement in terms of the information architecture and navigation. The main issues evaluators found centered around a need for more clarity through a reorganization of content and a more aesthetic and minimalist design.

Methodology

The Heuristic Method is a means to identify usability problems in a user interface design so they can be attended to as part of an iterative design process (Nielsen and Molich, 1990; Nielsen 1994). This method is effective in producing useful feedback when working with a limited time frame or budget. A group of usability evaluators from Pratt’s School of Library and Information Sciences analyzed New York City’s MTA website using Jakob Nielsen’s Heuristics as working guidelines (see Appendix A).

H1 - Visibility of system status
H2 - Match between system and real world
H3 - User control and freedom
H4 - Consistency and standards
H5 - Error prevention
H6 - Recognition rather than recall
H7 - Flexibility and efficiency of use
H8 - Aesthetic and minimalist design
H9 - Help users recognize, diagnose, and recover from errors
H10 - Help and documentation

The team relied on these accepted principles to analyze the site based on a set of outlined tasks:

- Find the schedule for all trains from Grand Central Terminal to Wassaic station on October 15th.
- Are there any service changes that are going to affect the Long Island Railroad this weekend?
- Find the the cost difference between buying a monthly subway pass versus buying four weekly subway passes.
These tasks were chosen to cover both what a novice user may attempt on the site as well as a returning user. Working from a standardized form, each expert individually completed each task multiple times, noting all usability issues including where they occur and assigning a severity rating (1 being a cosmetic issue and 4 a critical problem). A primary evaluator then compiled all the reports, synthesizing feedback, sorting, and prioritizing. The recommendations provided here are based on this compiled list of usability opportunities.
Findings and Recommendations

At the completion of the individual evaluations, the team was left with 10 identified usability issues which the lead evaluator then compiled and consolidated into 7 main issues (see Appendix B).

This report chose to focus on those usability problems that were major issues and recommendations that might serve to correct multiple issues.

Landing Page
http://www.mta.info/
Usability Issue: Density of content on landing page may lead to confusion
Recommendation: Remove unnecessary content and consolidate remaining content

The MTA website contains a large amount of information relating to not only the NYC subway system but also the Long Island Railroad, the Metro-North Railroad, the Staten Island Railroad, as well as a large number of bridges and tunnels. While the website organizes this disparate information well considering the scope, the landing page attempts to convey too much at once. All evaluators expressed confusion over the text density and chose to go straight from the top navigation bar, rather than interact with the links on the page itself.

Recommendations:

1. Remove the carousel and choose one image to display more prominently at the top of page. This image could change when the page is refreshed for added interest.


3. Remove all content that can be reorganized within the top navigation categories. (See Figure 1.1)

4. Alter the bottom navigation bar to organize all extra content, increasing its prominence and change categories to better suit organizational needs. (See Figure 1.2)

5. The social media category could be removed and instead display the icons along the bottom below the navigation bar.
Figure 1.1

<table>
<thead>
<tr>
<th>Content Item</th>
<th>Move To This Top Navigation Category</th>
<th>New Bottom Navigation Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Special Service Notices</td>
<td>Planned Service Changes</td>
<td></td>
</tr>
<tr>
<td>FASTRACK</td>
<td>MTA Info</td>
<td></td>
</tr>
<tr>
<td>Improper Sexual Conduct</td>
<td>MTA Info</td>
<td></td>
</tr>
<tr>
<td>Cashless Tolling</td>
<td>Fares &amp; Tolls</td>
<td></td>
</tr>
<tr>
<td>Envisioning Tomorrow’s MTA</td>
<td>MTA Info</td>
<td></td>
</tr>
<tr>
<td>We Want to Hear From You</td>
<td></td>
<td>Your Feedback!</td>
</tr>
<tr>
<td>Travel Time</td>
<td></td>
<td>Connect With Us</td>
</tr>
<tr>
<td>Advertise With Us</td>
<td></td>
<td>Doing Business With Us</td>
</tr>
<tr>
<td>Take the Train to the Game</td>
<td></td>
<td>MTA Info</td>
</tr>
<tr>
<td>Building for the Future</td>
<td></td>
<td>MTA Info</td>
</tr>
<tr>
<td>App Center</td>
<td></td>
<td>Connect With Us</td>
</tr>
<tr>
<td>Ways to Save</td>
<td></td>
<td>Fares &amp; Tolls</td>
</tr>
<tr>
<td>MTA Diversity and Civil Rights</td>
<td></td>
<td>Transparency</td>
</tr>
</tbody>
</table>

Figure 1.2

<table>
<thead>
<tr>
<th>Current Bottom Navigation Categories</th>
<th>New Navigation Categories Could Include</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment</td>
<td>Employment</td>
</tr>
<tr>
<td>Shop Transit</td>
<td>Shop &amp; Museum</td>
</tr>
<tr>
<td>Transit Museum</td>
<td>MTA Poetry Art &amp; Design</td>
</tr>
<tr>
<td>Poetry in Motion</td>
<td>Your Feedback!</td>
</tr>
<tr>
<td>Arts &amp; Design</td>
<td>Connect With Us</td>
</tr>
<tr>
<td>Social Media</td>
<td></td>
</tr>
</tbody>
</table>

Figure 1.3 and 1.4 show the current homepage and a mockup of the homepage with the suggestions outlined above.
Figure 1.3 Current MTA landing page

Figure 1.4 Mockup of
proposed changes to landing page
Metro-North Railroad Schedules Page
http://web.mta.info/mnr/html/planning/schedules/
Usability Issue: Lack of labeling may lead to navigational mistakes
Recommendation: Add option to see the full map

Evaluators who had never interacted with the Metro-North interface before found this page frustrating. The novice user must click through before discovering whether they have chosen the right page. (See Figure 2.1)

Figure 2.1

Recommendation: Adding an option to see the full map that lists all the stations would easily remedy this issue. (See Figure 2.2)
The same map should appear on the page the user enters once they choose “All Train Schedules” from the Schedules & Fares page.

**Schedules & Fares Page**

Usability Issue: *The results show only a portion of the day and other options are not clearly labeled*

Recommendation: *Either display all trains automatically or display button more prominently*

Once evaluators chose a date and time from the Schedules & Fares page, they expressed initial confusion over the small number of trains listed for that day. The novice user may not notice the small “All Trains” button displayed at the bottom of the page along with several other options, causing confusion. (See Figure 3.1)
Recommendation: Either display all trains automatically or display the button more prominently.

Figure 3.1

Figure 3.2
Conclusion

This report details a usability evaluation completed for the MTA (Metropolitan Transportation Authority), North America's largest transportation network. Emerging usability specialists from Pratt’s School of Information and Library Science administered the evaluation relying on the Heuristic Method, a method for evaluating a site based on Jakob Nielsen’s Heuristics. The conclusive findings were analyzed and then used to support a series of actionable recommendations that diminish user experience limitations and solidify the MTA website as a trusted travel resource.
Appendix A
Nelson’s Ten Usability Heuristics

Visibility of system status
The system should always keep users informed about what is going on, through appropriate feedback within reasonable time

Match between system and the real world
The system should speak the users’ language, with words, phrases and concepts familiar to the user, rather than system-oriented terms. Follow real-world conventions, making information appear in a natural and logical order.

User control and freedom
Users often choose system functions by mistake and will need a clearly marked "emergency exit" to leave the unwanted state without having to go through an extended dialogue. Support undo and redo.

Consistency and standards
Users should not have to wonder whether different words, situations, or actions mean the same thing. Follow platform conventions.

Error prevention
Even better than good error messages is a careful design which prevents a problem from occurring in the first place. Either eliminate error-prone conditions or check for them and present users with a confirmation option before they commit to the action.

Recognition rather than recall
Minimize the user's memory load by making objects, actions, and options visible. The user should not have to remember information from one part of the dialogue to another. Instructions for use of the system should be visible or easily retrievable whenever appropriate.

Flexibility and efficiency of use
Accelerators -- unseen by the novice user -- may often speed up the interaction for the expert user such that the system can cater to both inexperienced and experienced users. Allow users to tailor frequent actions.

Aesthetic and minimalist design
Dialogues should not contain information which is irrelevant or rarely needed. Every extra unit of information in a dialogue competes with the relevant units of information and diminishes their relative visibility.

Help users recognize, diagnose, and recover from errors
Error messages should be expressed in plain language (no codes), precisely indicate the problem, and constructively suggest a solution.

Help and documentation
Even though it is better if the system can be used without documentation, it may be necessary to provide help and documentation. Any such information should be easy to search, focused on the user's task, list concrete steps to be carried out, and not be too large.
## Appendix B

<table>
<thead>
<tr>
<th>Problem</th>
<th>Heuristic(s)</th>
<th>Eval 1</th>
<th>Eval 2</th>
<th>Final Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>The homepage is cluttered and creates an information overload</td>
<td>2, 5, 6, 8</td>
<td></td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>On the schedules and fares pages for Metro-North selecting “All Train Schedules” brings you to a page that lacks clear labeling</td>
<td>3, 6, 10</td>
<td>2</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>On the schedules and fares page once you select a time and destination, the results show only a portion of the day based on the time you entered or the default time = potentially misleading</td>
<td>1, 2, 6</td>
<td>2</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Lacking labeling on Metro-North main schedules page</td>
<td>6, 10</td>
<td>2</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>On the planned service changes pages the posting titles are too wordy and not immediately informative</td>
<td>2, 6</td>
<td>2</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>The MTA info page attempts to display too much information at once</td>
<td>2, 4, 5, 6, 8</td>
<td>2</td>
<td></td>
<td>2</td>
</tr>
</tbody>
</table>
References
