



HEAL Initiative® Website User Testing Report

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User Testing Overview

Palladian Partners conducted user interviews and usability testing of the HEAL (Helping to End Addiction Long-term) Initiative® website to determine whether the website is meeting target audiences' user needs and to identify opportunities to enhance user experience. Testing was conducted in two phases. The first phase of testing was conducted with researchers in person at the HEAL Investigator Meeting held January 16–17, 2020, in Bethesda, Maryland. The second phase of testing was conducted remotely with NIH policy specialists and representatives of advocacy organizations affiliated with the HEAL Initiative January 31–February 7, 2020.

Test Method

A hybrid qualitative usability testing format was used to include both interview questions and task-based testing. This hybrid format allowed for qualitative attitudinal feedback from users as well as testing the usability of specific website features, including the funded projects database and a map prototype.

Given time restrictions at the HEAL Investigator Meeting, researcher participants were only asked to complete tasks in the funded projects database during the first phase of testing. During the second phase of testing, policy and advocacy participants were asked to complete tasks in the funded projects database and the map prototype. All participants were asked open-ended interview questions and were asked to think aloud while performing tasks to solicit feedback about website usage, interests, opportunities, and pain points.

Key Findings

Design

The overall design of the website was well received by all participant groups. Participants commented that it was “clean,” “not cluttered,” and “visually appealing.” Participants also demonstrated ease in navigating the website, although some commented that the navigation menu could stand out more. Some participants also commented that the homepage image they saw did not represent all people affected by the opioid crisis.

Interests and Top Tasks

User interests and top tasks were aligned as expected by audience group:

- Researchers expressed interest in the Research, Funding, and About sections. Their top tasks consisted of searching for new funding opportunities, reviewing existing research projects, and looking for collaboration opportunities.
- Policy specialists expressed interest in the About and Funding sections. Their top tasks consisted of finding funding and research project information by congressional district and IC, as well as talking points about the HEAL Initiative® for their stakeholders.
- Advocacy groups expressed interest in the About and Resources pages. Top tasks included learning about the program and finding resources, as well as news about research findings and impact.

Database

Users thought that the database was useful, particularly for researcher and policy groups. However, participants noted several points of confusion and opportunities for improvement. Many participants

used the search field when first prompted to use the database, and they only selected filters when asked about them specifically. Although this is not consistent with analytics reports that show more total searches are executed with the filters, filter use appeared to be more prevalent among participants who had used the website and funded projects page before, suggesting that superusers are more likely to use filters.

Feature Stories

All Phase Two participants expressed strong interest in feature stories and said they would share these with their stakeholders.

Map

All Phase Two participants found the map interesting and easy to use. Policy specialists in particular said it would be useful in providing information to their stakeholders.

Recommendations

Design

Participants in the first phase of user testing saw one homepage hero image with an African-American man and a baby. Then participants in the second phase of testing saw a different homepage hero image with an elderly patient and caregiver. During both phases of testing, participants commented that the images did not encompass the wide range of people affected by the opioid crisis. Therefore, Palladian recommends using a rotating set of diverse images in the homepage hero placement to represent different groups affected by the opioid crisis.

Feature Stories

Usability test findings support development of feature story content. Palladian recommends developing these in a combination of written and video formats, as requested. Palladian also recommends meeting user expectations by hosting these in the “News and Events” section, with crosslinks from relevant research pages and a featured spot on the homepage.

Map

Findings support development of the map. As mentioned, Palladian recommends moving the international links to the end of the list. Palladian also recommends adding the host research institution to the project previews.

Database

Palladian recommends the following enhancements to improve usability of the database:

Link Labels

- Change the “CSV” label to “Export Results” or “Download Results.”
- Change the “+” expander label to “+ Show Summary.”

Functionality

- Add a “Clear Filters” button. Google Analytics show that database users execute an average of 2 searches per visit, supporting this recommendation.

- Related to the “Export Results” or “Download Results” label change, correct the export functionality to export specific results rather than the full database.
- Open NIH RePORTER links in a new tab or window.
- Address the issue with change blindness and understanding why certain results appear by highlighting search terms within the results.
- To address the issue with long-tail and related keywords not producing relevant search results, pull “Project Terms” from NIH RePORTER to support search results.
- Replace the "Email Results" option with a "Save Results" option that copies the URL for the search result to the clipboard for easy re-use and sharing.

Layout

- To address users’ confusion about the Research Focus Areas, Research Programs, and other filters, create an “Advanced Search” section to hide these options until they are manually selected by the user.
- Move the “Show X per page” filter and consider increasing the default quantity.

Appendix I: Phase One User Testing: Researcher Group Results

This group consisted of nine participants.

Interview Questions

1. How frequently, if ever, do you use the NIH HEAL Initiative® website?
Two participants said they had not visited the site before. Seven participants had visited the site prior to testing, with varied frequency. One said he visited the site once a week. Others visited the site most frequently during the launch and leading up to the HEAL Investigator Meeting.
<i>[If the participant has not used the website before]</i> 1a. Of everything you see on this page, including the menu options and page content below, what appeals to you the most, and why? Where would you click first? [Skip to question 4]
Both participants who had not used the site said the image at the top of the homepage was visually appealing. One participant said the website was less cluttered than other government websites. One participant said the first place he would click as a researcher would be Research Focus Areas. The other participant said she would click Funding in the top navigation.
2. What do you use the website for? Is it meeting your needs? Why or why not?
All participants said they used the website to look up information about the HEAL Investigator Meeting, to learn what other research projects others were working on that might present opportunities for collaboration, or both.
3. Which pages of the website do you visit? Please navigate to the page that is most important to you.
Five participants clicked on Research, and two participants clicked on Funding. Two participants also navigated to About.
4. What information on this page appeals to you the most? Why?
On Research pages, participants expressed interest in different research areas depending on their work. On Funding pages, participants were interested to see both funded projects and open funding opportunities. One participant mentioned two design features that confused her. She expected that a caret used as a bullet would be an expansive user interface design element. She also mentioned that a PDF icon appeared to be a button.
5. Is there anything you would change about this page?
On the Research landing page, one participant suggested a search bar for peer-reviewed literature. One participant asked for tabs across the top of the page instead of collapsible information further down.
6. Is there anything else you would change about the site?

Three participants suggested adding more content to the Resources and News and Events pages. One suggested organizing the Resources page by type of information rather than by source. He suggested adding information about clinical trials and organizing information by region. Another suggested adding information about data sharing and collaboration opportunities to the Resources page. When asked about a map feature, participants said it would be interesting to learn what other research was going on in their region and to look for collaboration opportunities.

On the Open Funding Opportunities page, two participants said they would like to see grant letters “(e.g., R01, R43, U01) listed in the filters, because they “think in terms of grant letters.”

One participant suggested adding a “Home” button to the navigation.

One participant suggested making the Funding link more prominent on the homepage and said that the top navigation does not stand out.

Tasks: Funded Projects Database

- 1. Have you used this page to search for projects before? If yes, please tell me how you have used it.**

Most participants said they had not used this page before. One participant said he had.

- 2. Please search for a project that is similar to yours, or show us how you would look for something that is similar to your area of research. Which search fields and filters would you use?**

Six participants used the general search field first. Three participants completed successful searches (“Markman,” “osteoarthritis,” and “neuropathic pain”). Three participants searched for keywords (“biosensor,” “validation of pain targets,” and “pediatric”) that produced zero results.

One participant began by downloading the CSV (comma-separated values) file and searching within the document.

One participant began by scrolling through the full set of results without using search fields or filters. One participant used the Grant Mechanism filter.

- 3. What do you think about the search fields and filter options that are provided in the dropdowns? Can you think of any other options that you would want to include? Or would you want to see fewer options?**

Three participants used either the Location search field or filter and said these were useful.

Six participants said that the Research Programs list was overwhelming and too long. Three of the six said they did not understand the difference between the Research Programs and the Research Focus Areas. Two of the six suggested consolidating these or renaming them with shorter, more general terms.

- 4. What do you think about the way these search fields are set up? Is there anything that you would change about the way these search fields or search results are organized?**

Participants expressed some confusion and difficulty with the interface functionality. Two participants asked whether NIH RePORTER links could open in a new tab or window. Two participants asked that the results default to more than five per page. One participant asked for a “clear filters” button. One said he wasn’t sure whether page results had loaded. Only one participant clicked the “+” link to expand the project summary.

Two participants said they would like more information on who is working on a particular project in addition to the principal investigator (PI) listed in the results. One of these participants said his project is part of a larger project, and he would like to be able to see all of the sites for that project. When asked whether he would like to see a map of funded projects, he said that would be helpful.

Appendix II: Phase Two User Testing: Policy Group Results

This group consisted of five participants.

Interview Questions

1. How frequently, if ever, do you use the NIH HEAL Initiative® website?
Four participants said they had used the website “a few times,” “four or five times,” or “once every couple months.” One participant said he had used the website once.
<i>[If the participant has not used the website before]</i> 1a. Of everything you see on this page, including the menu options and page content below, what appeals to you the most, and why? Where would you click first? [Skip to question 4]
Not applicable
2. What do you use the website for? Is it meeting your needs? Why or why not?
All participants said they used the website to look up information for policymakers and other stakeholders. They said the website was meeting their needs fairly well for information about funding amounts in different states and congressional districts and new funding opportunities, as well as providing general information about the HEAL Initiative® to share with stakeholders.
3. Which pages of the website do you visit? Please navigate to the page that is most important to you.
Three participants chose the Open Funding Opportunities page, and one said she also checks to learn how funding was dispersed. Two participants said they visited the About section, specifically the Research Plan.
4. What information on this page appeals to you the most? Why?
Participants said the Open Funding Opportunities and Research Plan pages were well organized.
5. Is there anything you would change about this page? Or that you would expect to see but currently don't see, that might be useful to your stakeholders?
All participants said that their stakeholders would want to know how much funding is going to their district. One participant suggested a map where users could see what projects are happening in each state. One participant said she would like to see funding information organized by Institute or Center (IC) on the Open Funding Opportunities page. One participant said the budget page is hard to find and suggested that the budget be laid out in a table. One participant also said that policymakers would like to see what impact HEAL is having. One participant also said stakeholders might like to see events they could participate in somewhere on the website.
6. Would you and your stakeholders find it useful to see stories featuring different funded projects on the HEAL website?
All participants said these stories would be useful.

6a. [if yes] What format would you and your stakeholders be most likely to engage with (written, audio, video)?

All participants said there should be a combination of written and video formats. One participant said videos can be more impactful, but written stories may be easier to share.

6b. Would you use them in your work? How?

Participants said policymakers might share stories with their constituents to show the impact of the HEAL Initiative®. One participant said it would be helpful to be notified of new stories by email.

6c. Where would you expect to find them on the website?

Three participants said they would expect to find these stories under Research. One participant said it would be great to find these on research project pages, and one said they might fit best under Research Focus Areas.

Two participants said they would expect to find stories under News and Events.

7. Thinking about other websites you have used, are there any that you feel do a good job conveying complex information? Can you think of any web features that provide information in a particularly useful way?

Two participants said NIH RePORTER. One of the two also said she liked some Centers for Disease Control and Prevention pages, as well as the Mayo Clinic, American Heart Association, and PubMed websites. She added that there are some great data visualization tools on NIH RePORTER.

One participant said there was a Federation of American Societies for Experimental Biology website where users can find information by state, using a map.

One participant said he liked how Cancer.gov is laid out.

8. Is there anything else you would change about the site or other suggestions you have to improve the site?

One participant said the image on the homepage doesn't convey opioid addiction and makes it seem like an elder care issue.

One participant said she does not like pink and that it makes her think of breast cancer awareness, but overall she likes the clean layout of the site. She added that it is kept current and doesn't look dated.

One participant suggested adding more information to the News and Events page and asked whether there was a way to subscribe, just as people can subscribe to the NIH Director's Blog.

Tasks: Funded Projects Database

1. Have you used this page to search for projects before? If yes, please tell me how you have used it.

Four participants said they had used the page to search for projects taking place in different districts, look up which IC is providing funding for different projects, and look up the amount of funding and research focus for each project.

One participant said he had not used the page before.

2. Please search for a research area that is of interest to you or your stakeholders. Which search fields and filters would you use?

Three participants used the general search field first. One searched for an IC (“NHLBI”), and two searched for topics (“children” and “back pain”).
Two participants used the Research Focus Areas filter. One then changed “show 5 per page” to “show 10 per page.” She also asked, “What is a CSV?”

3. What do you think about the search fields and filter options that are provided in the dropdowns? Can you think of any other options that you would want to include? Or would you want to see fewer options?

Three participants said the location field and filter were most useful for their stakeholders. Two of the three asked for the ability to filter by congressional district.
Two participants also said they would like to be able to filter the results by IC.
Participants demonstrated some confusion as to whether they needed to reset the filters for each search. One participant asked for a “clear filters” button.

4. What do you think about the way these search fields are set up? Is there anything that you would change about the way these search fields or search results are organized?

One participant said he expected to see a summary for each project. He did not appear to notice the “+” link that expands to provide the project summary.
Two participants clicked the “+” link. One stated that he had not noticed it before and suggested making it more prominent or changing it to say “Show Summary.” He also suggested changing the “CSV” link label to “export results” or “download results” because he said not everyone knows what a CSV file is.
Two participants said they would like to see the funding amount listed for each project. One of the two noted that the information is available in NIH RePORTER.

Tasks: Map

5. Do you find this easy to use? Is there anything you would change about the way the map or the information is presented?

All participants said the map was easy to use.
One participant asked why the whole world was displayed on the map instead of just North America.
Another participant suggested moving the international links to the end of the list.
One participant asked whether the map could show congressional districts.

6. Would you or your stakeholders find this feature useful? What would you use it for?

All participants said their stakeholders would find this map useful and would use it to search for projects in their districts.

7. What information would you want to see shown about each project?

One participant said she would like to see the public health impact statement, summary, PI, PI contact information, and research institution. She then added that this information could be found in NIH RePORTER if not on the map.
Two participants suggested adding the research institution and PI’s name for each project. One of the two also suggested adding the funding amount and summary in the pop-up feature.

8. What other types of data would you want to see shown on an interactive map like this? Thinking about similar maps you may have seen on other websites, were there any features or information that you would want to see here?

One participant suggested adding information about clinical trial locations.
One participant suggested linking back to feature stories or to videos of researchers explaining their projects.

Appendix III: Phase Two User Testing: Advocacy Group Results

This group consisted of four participants.

Interview Questions

1. How frequently, if ever, do you use the NIH HEAL Initiative® website?

Two participants said they had seen the website twice or a couple times.
Two participants said they had not seen the website.

[If the participant has not used the website before]

1a. Of everything you see on this page, including the menu options and page content below, what appeals to you the most, and why? Where would you click first? *[Skip to question 4]*

Participants noted that they liked the design of the website and that it felt clean and not overwhelming.
One participant navigated to the About page first.
One participant navigated to the Resources page first.

2. What do you use the website for? Is it meeting your needs? Why or why not?

Both participants said they had checked the website for updates about the program and to learn whether there was information to share with their networks.

3. Which pages of the website do you visit? Please navigate to the page that is most important to you.

One participant said she has visited the Research pages and would like to follow along with projects as they produce findings.
One participant said she has looked at the Resources page and the About page to learn more about the Initiative®.

4. What information on this page appeals to you the most? Why?

One participant said he liked that the About section explains who is involved.
One participant said he liked that there are resources but that they should be grouped by category or topic area.
One participant said she liked that she could sign up for updates.
One participant said the descriptions on the research project pages are helpful.

5. Is there anything you would change about this page? Or that you would expect to see but currently don't see, that might be useful to your organization and advocacy work? Is there any information that you might expect to see on the site overall that you don't see?

Three participants said that the Resources page should be organized differently. They all suggested that the resources be organized by topic or intended audience (such as "For Practitioners") rather than by source.

6. Would you and your organization find it useful to see stories featuring different funded projects on the HEAL website?
All participants expressed interest in seeing these stories on the HEAL website.
6a. [if yes] What format would you be most likely to engage with (written, audio, video)?
All participants said they would like to see a combination of both written and video formats.
6b. Would you use them in your work? How?
Participants said they would share stories with their networks, particularly through email and social media.
6c. Where would you expect to find them on the website?
Two participants said News and Events. One participant said News and Events or on Research pages. One participant said Research or Resources.
7. Is there anything else you would change about the site or other suggestions you have to improve the site?
One participant said the image on the homepage does not seem to represent the people who are really struggling.

Tasks: Funded Projects Database

1. Have you used this page to search for projects before? If yes, please tell me how you have used it.
Three of the participants said no. One participant said he was not sure but that it looked familiar.
2. Please search for a research area that is of interest to your organization. Which search fields and filters would you use?
All participants searched for keywords with the main search field. Three participants conducted successful searches on the first attempt. One participant searched for "MAT in jails," which produced zero results.
3. What do you think about the search fields and filter options that are provided in the dropdowns? Can you think of any other options that you would want to include? Or would you want to see fewer options?
Participants only looked at the filters after they were prompted with this question. Two participants said the Grant Mechanism filter was "for researchers." Three participants said the Research Focus Areas filter was good but that the Research Programs list was too long.
4. What do you think about the way these search fields are set up? Is there anything that you would change about the way these search fields or search results are organized?
All participants said that the setup was good, but they showed less interest in interacting with the database than the policy or researcher groups did. Participants expressed confusion about whether results had loaded. One participant said it would be helpful to show more than five results per page.

Tasks: Map

5. Do you find this easy to use? Is there anything you would change about the way the map or the information is presented?

All participants expressed interest in the map and said it was easy to use.

6. Would you or your stakeholders find this feature useful? What would you use it for?

One participant said it was interesting to learn where the different projects were taking place. Another participant said she would use the map to learn what projects were taking place in her state.

7. What information would you want to see shown about each project?

One participant said she would add the research institution or organization leading the project. One participant said she would like to see an icon on each project to indicate which of the Research Focus Areas it belongs to.

8. What other types of data would you want to see shown on an interactive map like this? Thinking about similar maps you may have seen on other websites, were there any features or information that you would want to see here?

One participant said it could be useful to see opioid use data by state. One participant suggested adding clinical trial locations.