Faceted Navigation

User Experience Research Findings

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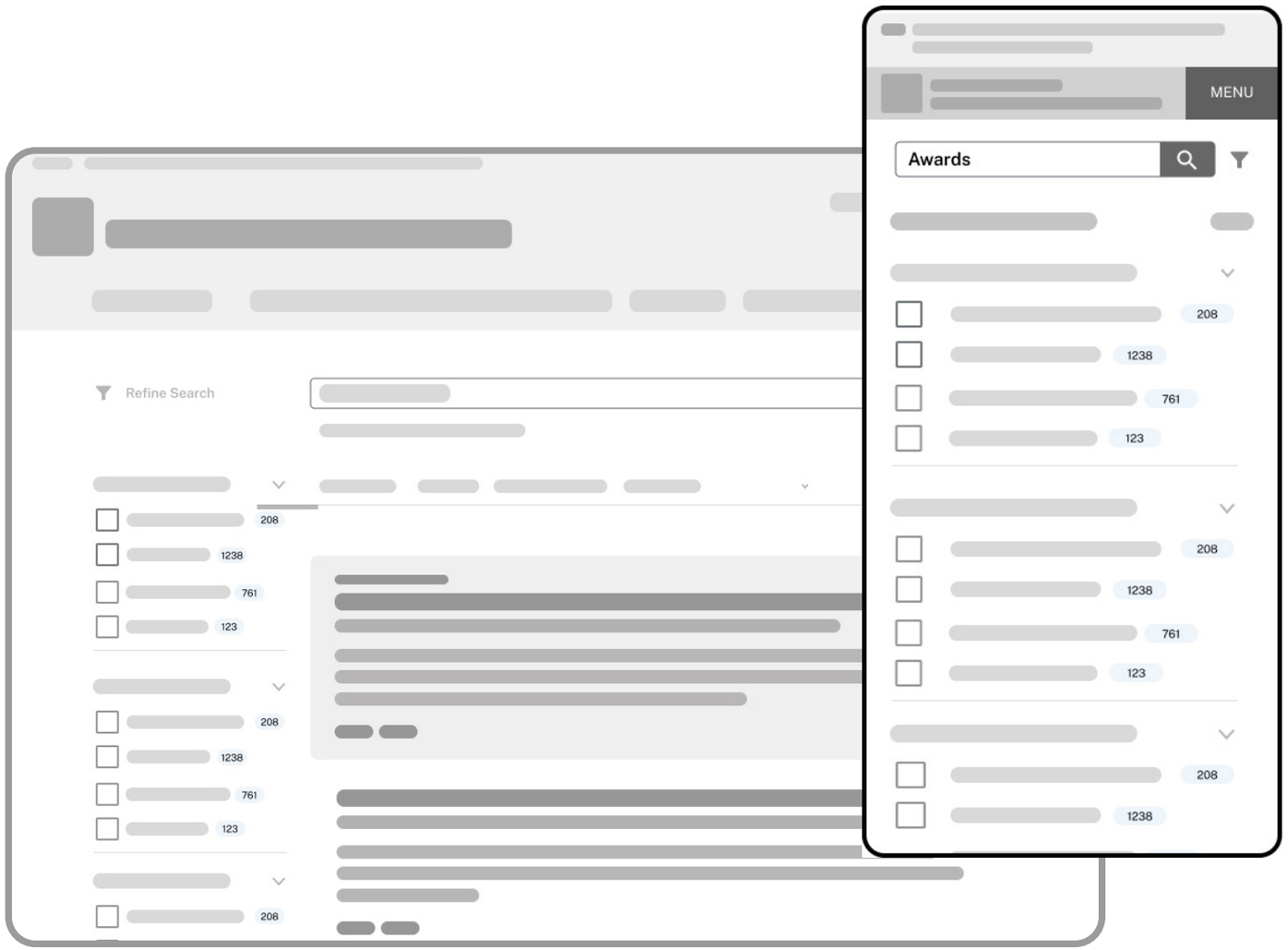


Table of Content

Summary

(Some thoughts from listening and observing the users)

Users are intimidated with facets, especially when they realize that they are not subject matter experts or frequent users to the site. However, this can be any user -- irrespective of their intellectual authority on the subject. This is not a judgement on the end user's ability to use the tool, but a problem with the design that makes the end user's feel: "... I am not qualified enough".

In our initial research, we observed users leaning clearly in favor of facets. However, we observed confusion, distraction, and disappointment when they interacted with them. We noted that despite its appeal, facets may be detrimental to the search experience. By ignoring the cognitive frictions and challenges experienced by the user during their interactions, facets can unnecessarily complicate the search experience. Some of these frictions emanate from:

Faceted Classifications.
Priority & order of the Facets.
Interaction Design and overall layout of the page.
Auto-refresh and page reload behaviour.

These introduce friction due to the user's inability to make an educated guess about which facet category is most suitable to get the results they need.

While the layout and interaction plays a very sensitive role with Faceted Navigation design, the bigger challenge here is the content model & information design. Many users found the labels very confusing, many thought that the classifications were not well thought out, and most could not understand why the disappearing of facets was a good idea. These are issues of design that works at much deeper user psych as compared to user interface and interaction design.

When asked about their last interaction with faceted navigation, most users who supported the concept of faceted search experience, found it difficult to recall when they actually used it. This can be explained by the phenomenon that searching & finding information is unlike many other cognitive activities which require active participation of lower order cognition, such as memorizing and comprehending [Ref. Blooms Taxonomy]. Users subconsciously deploy search strategies to reach their goal. When they find the path uneconomic (unproductive), they will naturally avoid that path. [Ref. Information Foraging Theory]. It is thus essential to help users develop cognition during their interaction which results in comprehension and recall.

If you're visiting the site for the first time, and you haven't really poked through a lot of those things before, it may be little confusing as to what kind of information, to find with each (facet) section.

Overwhelm, confusion and discomfort with design

... selecting those facet took other topics out but I don't really understand why.

Confusion and frustration

If facets has to be offered, it must be designed perfectly and function flawlessly.

User expectation

Objectives

We conducted user research to understand the user search journey and how facets can helps elevate the experience. Our objectives can be summariezed as following:

To understand use of ‘Facets’ and it’s usefulness as a search experience

To learn how different user archetype approach the use of Filters in order to distill the search results.

Quality of Facets classification to understand type of facets that help users meet their goals

To inform how well-defined faceted (classification & organization) helps users meet their goals.

Identifying friction in Faceted based Interfaces (UI anatomy, multiple facet selections, etc.)

To help understand the user’s needs and usage scenarios when using facets to inform design and development

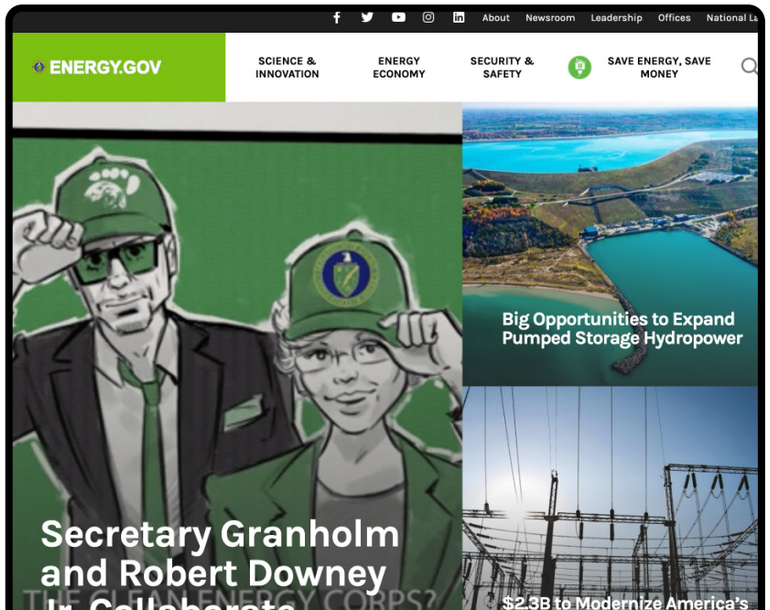
Research Methodology

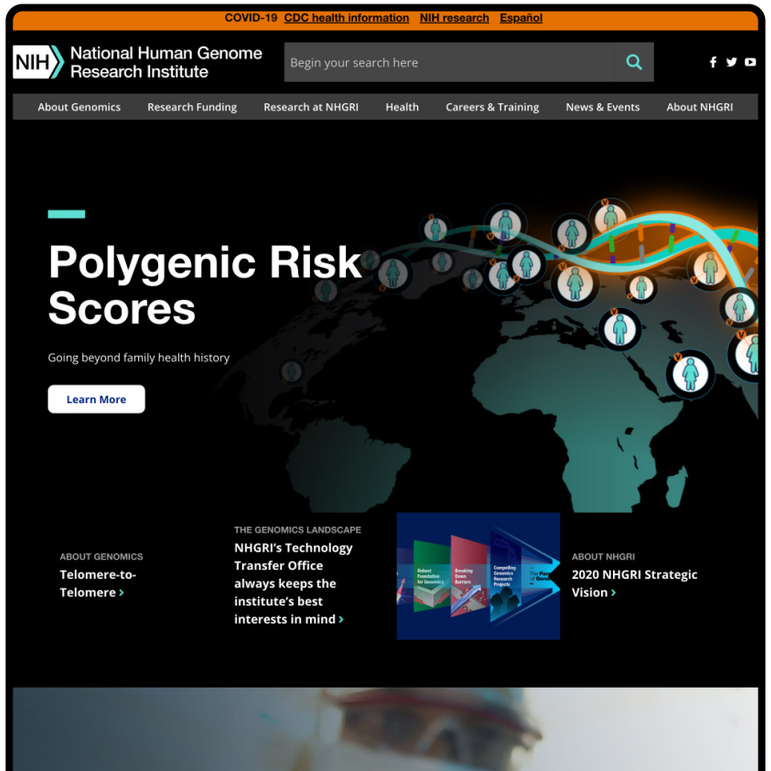
Select the representative samples of Faceted Search based Federal websites

Test facted search functions with users. Gather data which helps to build design guidelines for a faceted search.gov

Use the results to design new Search.gov facets. Test with users again and iterate design.

For our initial research, we selected three examples of .gov sites that users search with using Faceted Navigation. We selected the three examples due to their nuanced approach to implement facets, which includes -- location of facets, classification, content, search results, as well as overall layout and interactions. We used four participants to observe their interaction with these three sites on Desktop and four participants with Mobile.





We used these .gov sites for our user research by asking users to perform simple search tasks.

Task 1 Using the EPA.gov website, search for Clean Air Act. we asked users to: Become familiar with the law, search for the latest Government Press Releases as well as regulatory information.

2 Using the Energy.gov website, we asked users to: search for a story about 'Solar Panels', look for a video article about solar panels installed in the White House.

3 Using the genome.gov, we asked usres to: search for content that teaches DNA with the use of Origami and to use the facets to locate the video & PDF content.

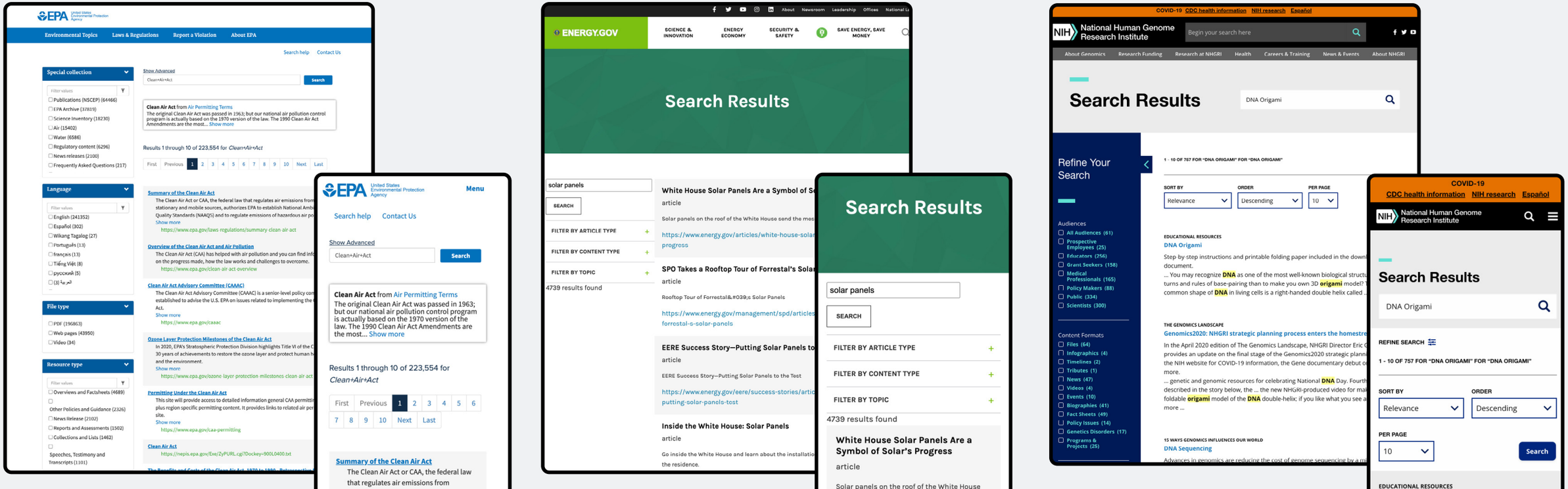
Based on the tasks, we focused our inquiry and observation to learn along these areas:

How the search/results helps users find the right content

How faceted search helps (or does not help) narrow down the results

When users select facets, do they expect the page to reload immediately

How do users interpret the facet classifications and content



Recruiting Users

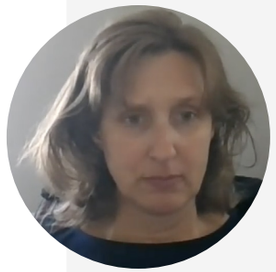
We selected users with demographically diverse age and gender. We also considered context of use (frequent vs. less frequent users of government information).

Four females and four males were used for the studies. Males and females were also selected across Desktop and Mobile devices (with 2 from each) to learn about user expectations across different context of use.

Each individual was also screened based on 2 criteria using self-assessment ratings from 1 to 5.

1. Search Need: How frequently do you use a ‘Search’ tool to do your job?
2. Visit Frequency: How often do you visit .gov sites to find information?

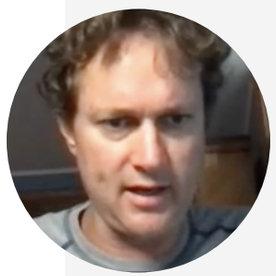
Angela Crumb, F 51



Occupation	High School teacher & librarian
Industry	Education
Income (HH)	$100,000 - $124,999
Machine	Laptop (Leneva), Windows, Chrome

DESKTOP	5	4
Context of Use	Seacrh Need	Visit Frequency

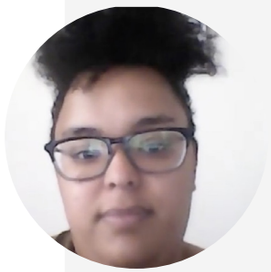
Brent Miller, M 45



Occupation	Research, Insurance
Industry	Operations
Income (HH)	$100,000 - $124,999
Machine	Mobile (Samsung S20 Plus)

DESKTOP	4	3
Context of Use	Seacrh Need	Visit Frequency

Gwen S, F 26



Occupation	Not Employed, Marketing
Industry	Leisure, Travel & Tourism
Income (HH)	$40,000 - $59,999
Machine	Laptop (HP), Windows, Chrome

DESKTOP Context of Use

5 Seacrh Need

2 Visit Frequency

Benjamin Dahrooge, F 37

Occupation	Software Engg. Intern, GSA Contractor
Industry	Government Contractor
Income (HH)	NA
Machine	Mobile (iPhone 12)

MOBILE Context of Use

4 Seacrh Need

3 Visit Frequency

Testy, F 41

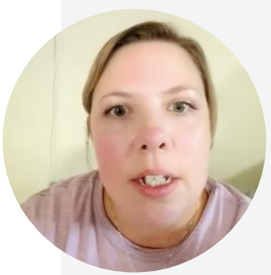
Occupation	Director, Fund Raising
Industry	Media and communications
Income (HH)	$60,000 - $79,999
Machine	Mobile (iPhone 8)

MOBILE Context of Use

5 Seacrh Need

4 Visit Frequency

Amber, F 37



Occupation	Homemaker/stay-at-home parent
Industry	Operations
Income (HH)	$100,000 - $124,999
Machine	Mobile (Samsung S20, Android)

MOBILE Context of Use

4 Seacrh Need

3 Visit Frequency

Drew Frazier, M 41

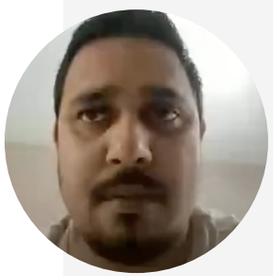
Occupation	Media and communications
Industry	Operations
Income (HH)	$60,000 - $79,999
Machine	Desktop

MOBILE Context of Use

5 Seacrh Need

4 Visit Frequency

Yogesh D, M 31



Occupation	Software Engineering, GSA Contractor
Industry	Technology
Income (HH)	NA
Machine	Mobile (iPhone 8)

MOBILE Context of Use

5 Seacrh Need

1 Visit Frequency

Observations

How the search/results helps users find the right content

Most of the users (less-frequent, non-experts) scan the search results on the first page, click on the *closest result* before they take note of search tools, such as facets and filters.

User's find the search results with *highlights* from the search term very useful. They also find the meta data, or tags for the search results helpful.

Most of the users on Mobile, found the *placement of Faceted Navigation*, at the bottom to be unintuitive and confusing.

Most of the users paid attenion to the *URL string* to determine content type (i.e. videos, articles, etc.). However, this was only in the absense of metadata 'tags' on search results.

One critical difference between Desktop & Mobile search experience is the placement of the '*pagination*' tool. Mobile users do not like the fully expanded pagination. User acknowledged 'prev', 'next' minimum pagination to be sufficient.

Most of the users on the mobile device were fine with *long scrolls on search page*. They want the search elements to be prioritized without compressing content in visible view port to compete for attention.

Most of the users, including those on mobile, acknowledges very positively about the *promoted search results* when it matched their search term.

How faceted search helps (or does not help) narrow down the results.

Most of the users rate the use of facets during search as very important. And they expected to *select multiple* -- two or more facets values.

Some of the users expected the facet classifications to *not eliminate* the elements after previous selections.

A few users pointed out that when the facet classification changes, due to user selection, it makes them think '*something is broken'*. A few users do mentioned that they can 'accept' this behaviour, but they found is less ideal and more a compromised solution derived from systemic complexity (i.e. content model).

User do take note of '*result counts*' next to facets. They also observed the change in count with the selection of other facets. Few users suggested that they will like the facets with count '0' (or disabled) to be more intutive than to remove them entirely.

Few users liked the fact that 'result counts' changed when the user interacted with the facets. They justified this behaviour as a good system *response to their interactions*.

Users expect the facets to be *organized and prioritized* as per user's search need. This means that the facets that are more commonly used should be positioned higher on the page.

When users select facets, do you expect the page to reload immediately

Most of the users (6 of 8) expected for the page to *reload* when they applied their facet selection.

Some of the users on mobile have different expeactions about the auto refresh. They suggested that user should be provided with the control "*Apply*" or "Submit" before the refresh.

A few of the users desired a refresh that did not cause *page reload*. One of the users pointed out that this is technically possible. If this is posible this may improve user experience across mobile and desktop users.

On Mobile, users like faceted navigation to open in overlay *Model*. A combination of refresh (without page reload) may eliminate for user expectaion for 'Apply' button.

How do users interpret the facet classifications and facet content

Most of the users expressed confusion when they were presented with 1. a vague label, or 2. labels that are not distinctive from each other (e.g. Content Type & Article Type). Users found the *poorly labeled Facets* and their contents to be confusing and unintuitive.

Users finds the *association between Facets and Tags* on Search Result content to be very helpful. For example, when a user is searching for 'Video' content, and they see the 'Video' tagged search result, that helps them associate.

Users expressed the need to *quickly see the list of filters that they have applied* to the page. This is especially more challanging on mobile due to the smaller view port, and less navigational controls.

The confusion with poor and unclear labels has a detrimental effect on the adoption of facet navigation. To overcome this, one of the users suggested we provide a tooltip when the labels can't be simplified further for non-expert users.

Elements of User Experience

Besides that functional design of Facets, users also expressed their feedback on the overall design of the Search Result Page.

Interactions. Users expected facets to remain open on the page when they initially arrive to be clearly reminded about them as a search aid. They also responded positively to minimizing them so they can focus on the search results.

Interactions. When the list of facets and their content becomes lengthy, users expect them to collapse so they can view all of them at a glance before taking action.

Interactions. Most of the users are fine with page auto-refresh when they interact with the facets, however, it is extremely painful and disorienting to them because after refresh they have to locate the facets on the page all over again. Users would expect the page to refresh without changing the locations of the facets on the page.

Interactions. Users liked the control to minimize the whole facet panels. This helps them to create more room and focus on the search results. They also like the feature to collapse the facet groups, so help quickly reachout to the ones at the bottom.

Responsive. Users took note of design changes on mobile especially the layout of the widgets presentation. Some observed the 'search' widget to not be responsive on several .gov sites.

Ref. energy.gov layout and search bar

Responsive. Users pointed out that pagination on Mobile SERP should be simple and should not be as elaborated as the one on desktop.

Ref. genome.gov pagination.

Layout. Users pointed out that user interface design of epa.gov and energy.gov as distraction to achieve their task. These issues involve -- large size of UI elements, poor use & waste of space, shape & form of page elements, typography, and use of colors as detrimental to user experience.

Layout. Users pointed out that result Count is very close to the facet's labels and needs some extra margin.

Ref. energy.gov pagination.

Contrast. Users liked the background contrast between the search results and facets.

Ref. genome.gov pagination.

Layout. Users on Mobile, liked the faceted navigation in overlay/modal window. They also pointed out that the icon that opens the modal was a bit small to get due attention.

Ref. genome.gov pagination.

Interactions. Users suggested that instead of completely removing the facets up on interaction, a good design will be maintain them on the screen with either count with zero, or disabling them.

Thanks.