2013

Usability Test of National Collaborative on Childhood Obesity Research Catalogue of Surveillance Systems & Measures Registry

Final Report: Reference Number 12-4010 NCI

Conducted under Contract by User-Centered Design for
The National Cancer Institute
US Department of Health and Human Services
11/26/2013

Usability Test: National Collaborative on Childhood Obesity Research Catalogue of Surveillance Systems & Measures Registry

Final Report

August 2013

Submitted to:
The National Cancer Institute's
Applied Research Program

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EXECUTIVE SUMMARY

The National Cancer Institute's Applied Research Program led the development of two web-based tools that the National Collaborative on Childhood Obesity Research website provides: The Catalogue of Surveillance Systems (Catalogue) and the Measures Registry (Registry). These tools were launched in early 2011. Both tools had undergone a formative evaluation during development, but the final versions had not been evaluated for usability issues since their launch.

User-Centered Design, Inc. (UCD) was contracted to conduct an evaluation of the usability and website usage of both tools. UCD conducted an analysis of web analytics and performed a usability evaluation on both the Catalogue and the Registry. The goal of analyzing the web analytics was to provide feedback regarding initial users of the website and the extent to which dissemination activities over the last two years have been effective. The primary objectives of the usability evaluation was to obtain data on whether or not participants could easily navigate the website and tools, understand the various features, and form a clear conceptual model of how the website tools behave.

The web analytics seem to imply that the two tools may not be encouraging users to explore further on their first visit. A redesign of the landing pages may help with this. In addition, it may be worthwhile to look into dissemination of these tools for a broader audience.

From the data from the usability evaluation, it was concluded that there were no major critical issues found. Though participants did encounter issues, most of the issues participants encountered could be addressed through alternative formatting or other design changes. Participants also expressed satisfaction with both tools. Though they ran into some issues with various aspects of the interface, they liked the utility of the tools and were able to find content of interest. Though participants evaluated only one of the two tools, if time permitted participants were briefly shown the other tool. All participants expressed an interest in both.

Some of the key findings include:

- Participants often did not notice the additional pages on the main NCCOR website for each of the tools, and had difficulty navigating between the website and the tools themselves.
- Participants often misinterpreted the Boolean logic being implemented within filter categories. They assumed an "or" relationship instead of an "and" relationship.
- Participants' conceptual model of the Registry as a registry of unique measures did not match the actual implementation as a registry of studies, where there could be multiple studies using the same measure.
- Participants never noticed the compare feature on their own.
- The formatting of content on the various tabs on the detail pages could be altered in a variety of ways to make information more noticeable and understandable.

INTRODUCTION

The National Collaborative on Childhood Obesity Research (NCCOR) is collaboration between the National Cancer Institute (NCI) and other NIH Institutes & Centers (ICs), as well as the Centers for Disease Control and Prevention (CDC), the Robert Wood Johnson Foundation (RWJF), and the US Department of Agriculture (USDA). NCI's Applied Research Program (ARP) led the development of two web-based tools that the NCCOR website provides: The Catalogue of Surveillance Systems and the Measures Registry. These tools were launched in early 2011. Both tools had undergone a formative evaluation during development, but the final versions had not been evaluated for usability issues since their launch. User-Centered Design, Inc. (UCD) was contracted to conduct an evaluation of the usability and website usage of both tools after being in use for the last two years.

Product Description

The Catalogue of Surveillance Systems (Catalogue) is a searchable, online directory of over 100 surveillance systems relevant to obesity research including policies and environmental factors as well as trends in relevant health behaviors, outcomes, and determinants. Surveillance systems that were included are those that provide access to publicly available, raw data gathered in the US within the last ten years. The tool is intended to increase efficiency, effectiveness, and innovation in obesity research by providing one-stop access for users to review, sort, and compare surveillance systems. The tool launched in February 2011.

The Measures Registry (Registry) is a searchable online compilation of over 900 peer reviewed research papers that used measures related to diet and physical activity. It includes a variety of measure types such as questionnaires, diaries, logs, electronic devices, direct observation of people or environments, protocols, and analytic techniques. Each entry in the registry includes information about what the measure includes, the study design from the research paper, and how it was used in the research covered by the paper. Some entries in the registry include information on the measure's validity and reliability from the specific research study. In some cases, the measures themselves are available for direct download from the site. The registry is intended to promote the consistent use of common measures and research methods across childhood obesity research and prevention programs at the individual, community, and population levels. The tool launched in April 2011.

Both tools are accessible from the main NCCOR website. The tool itself is launched in a new window; however, they each have a set of pages on the main NCCOR website with additional related information. The tools allow the user to filter through the items in the database on a variety of facets, as well as conduct a search. Users can compare multiple results and view more details about each result.

Evaluation Objectives and Research Questions

The goal of analyzing the web traffic statistics (such as unique and returning visits, page views, duration of visits, search terms, etc.) was to provide feedback regarding initial users of the website and the extent to which dissemination activities over the last two years have been effective.

The primary objectives of the usability test focused on whether or not participants could easily navigate the website and tools, understand the various features, and form a clear conceptual model of how the website behaves.

Research questions included:

- Do users understand how to move between the content on the main NCCOR website and the tools themselves?
- Do users understand how to use the search and filters within the tools?
- Is the content within each tool presented in a way that works well for users?
- Do users recognize and understand how to use the compare feature within the tools?
- Do users notice the additional content that is available for each tool on the main NCCOR website?

USABILITY EVALUATION EQUPIMENT AND DESIGN

Method

The usability evaluation was conducted remotely using the online meeting software, GoToMeeting. This allowed participants to use their own computer and share their screen so that the facilitator and observers could see what the participant was doing. Sessions were conducted one-on-one with the participant and facilitator and lasted no more than one hour.

An interrupted task-based protocol was used for this evaluation. This approach allows for the exploration of issues without being overly disruptive when issues are not present. Participants were given specific tasks to do and the facilitator quietly observed the participant until something of interest happened. When the participant did something that indicated they were confused, did not understand something, had difficulty with something, or even particularly liked something, the facilitator interrupted (at an appropriate stopping point) and followed up with the participant to determine what happened and why. This allows for gathering feedback from the participant while the incident is still fresh in their mind without overly disrupting their natural behavior.

Participants

The ARP project team provided UCD with a list of potential participants and UCD followed up with the participants directly to schedule a time for their test. A total of thirty-five (35) people participated, representing four different user groups, as follows:

Measures Registry (19 participants)

- 5 Non Profits/Health Consultants
- 5 Grad Students/Post Docs

- 5 Researchers
- 4 Public Health

Catalogue of Surveillance Systems (16 participants)

- 6 Grad Students/Post Docs
- 6 Researchers
- 4 Public Health

Limitations of Research

The results of the research in the usability evaluation are qualitative in nature. In other words, the small number of participants included in this research, as well as the method of recruitment, precludes statistical analysis of the results. The findings and recommendations provided by the research team are an interpretation of participants' behaviors and comments, a comparison of the design to industry standards and best practices, and assumptions based on prior experience testing similar products. The results and recommendations are provided as input for decision-making.

Web Analytics

Unique Visits

Most visitors to the website are unique, meaning there are not a lot of repeat visits from those who come across the website. The Registry has slightly more repeat visitors than the Catalogue (1.6 visits/visitor vs. 1.17 visits/visitor).

Session Length

Users spend more time per session in the Registry than they do in the Catalogue. 50.4% of the Registry and 82.4% of the Catalogue visits last less than 30 seconds. About 30% of Registry users are spending 30 seconds – 15-minutes in the registry, while only 12% do so in the Catalogue. However, it is hard to tell why this is the case. It could be that users are more interested in the Registry than the Catalogue and therefore spend more time with it. It could be that users of the Catalogue find what they are looking for quickly and therefore they don't need to spend much time with it.

Entry/Exit Points

For both tools, the majority of the entry and exit points are on the landing pages for the tools, implying that most users probably do not get beyond the first page. If users are coming to the website via a search engine, they may look at the page briefly and decide it is not what they were looking for.

Search Terms

More people are specifically looking for the Registry than the Catalogue. For the Catalogue, the search terms used that bring users to the website are often for a particular surveillance system. For the registry, there are many more searches for "NCCOR" or "Measures Registry," as well as "24 hour dietary recall" and similar search terms. In fact, the top search phrases that bring users to the Registry are all related to "NCCOR" and "Measures Registry," which correlates with the higher return rate mentioned previously.

Conclusion

Looking at all the analytics data, it seems to imply that the two tools may not be encouraging users to explore further on their first visit. During the usability testing, several participants mentioned that because the website is branded specifically for Childhood Obesity, those doing work in different but related domains may not ever explore the tools even if they could be useful. It may be worthwhile to look into dissemination of these tools to a broader audience. Participants also indicated that the information on the landing pages could have been improved to better explain what the tools are and why someone should use them. Doing so may help encourage more people to explore further.

Usability Test Findings

The findings below are broken up into three sections: one section of common findings (findings common to both tools) and one section for findings specific to each tool.

Common Findings

NCCOR Primary Navigation

Due to the more dominant visual styling of the secondary navigation banner on the NCCOR website (see Figure 1), some participants had difficulty finding the primary navigation. They did not notice the primary navigation links (About, Projects, etc.) above the banner. Even fewer participants noticed the "Home" link in small, black text, inserted between the primary navigation and the banner.

Figure 1: The secondary navigation on the NCCOR website (outlined in red).

On lower resolution monitors, the "Projects" menu drops below the fold, making it impossible to see the Measures Registry in the menu (see Figure 2).

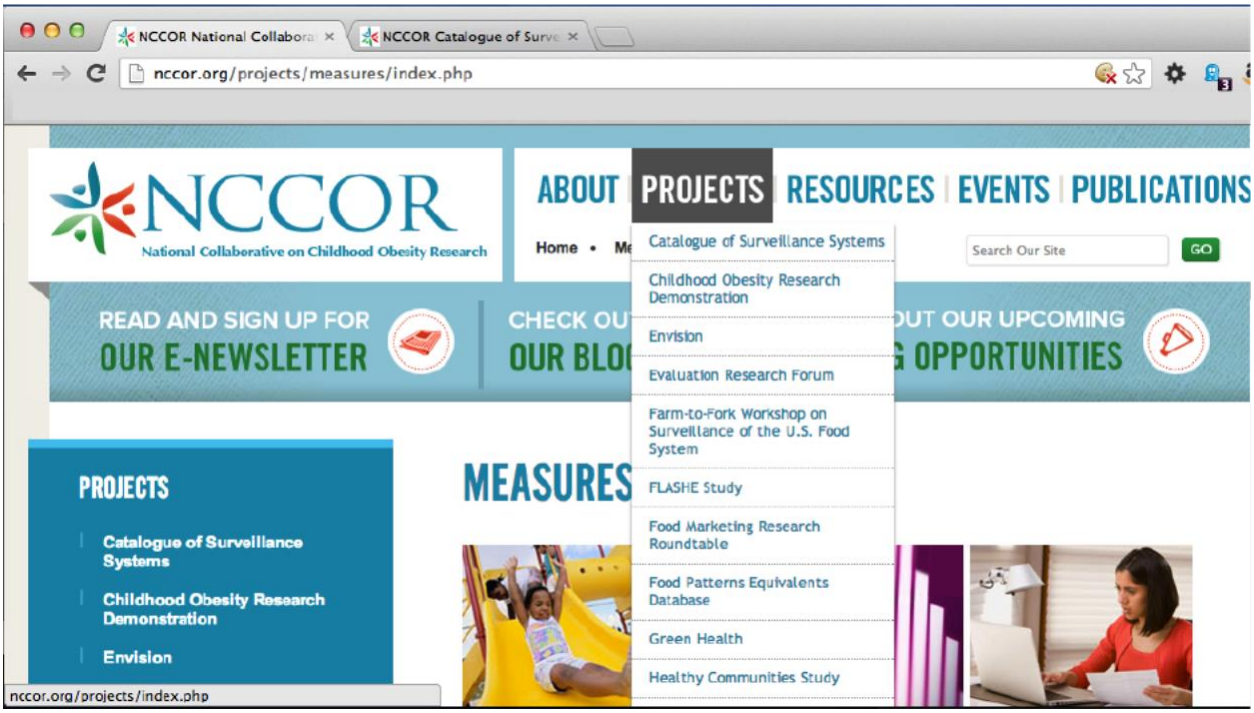

Figure 2: On lower resolution monitors, the Projects menu drops below the fold.

Accessing the Tools

The Registry and Catalogue can be accessed from two locations in the menu – under Projects and in a cascading menu under Resources. Participants were split between looking for them under Projects and looking for them under the Resources menu, with a slight preference for Resources. However, many participants did not actually find the tools under Resources because it requires hovering over "NCCOR Resources" to display the cascading sub-menu. There is no visual indicator, such as an arrowhead, to suggest that doing this will invoke a sub-menu (see Figure 3).

Figure 3: There is no indication that NCCOR Resources is a cascading menu.

In addition, the lack of a delay on loss of mouse-over for the cascading menu resulted in participants having to re-access the menu several times to get to the sub-menu, particularly when trying to access the Registry. The natural action is to move the mouse along the shortest path from one menu item to the next (see Figure 4). Doing so results in the sub-menu disappearing; the user must instead move the

mouse horizontally onto the sub-menu first, and then down to the Registry. The resultant loss of menu while trying to access the submenu is frustrating and difficult for people to do.

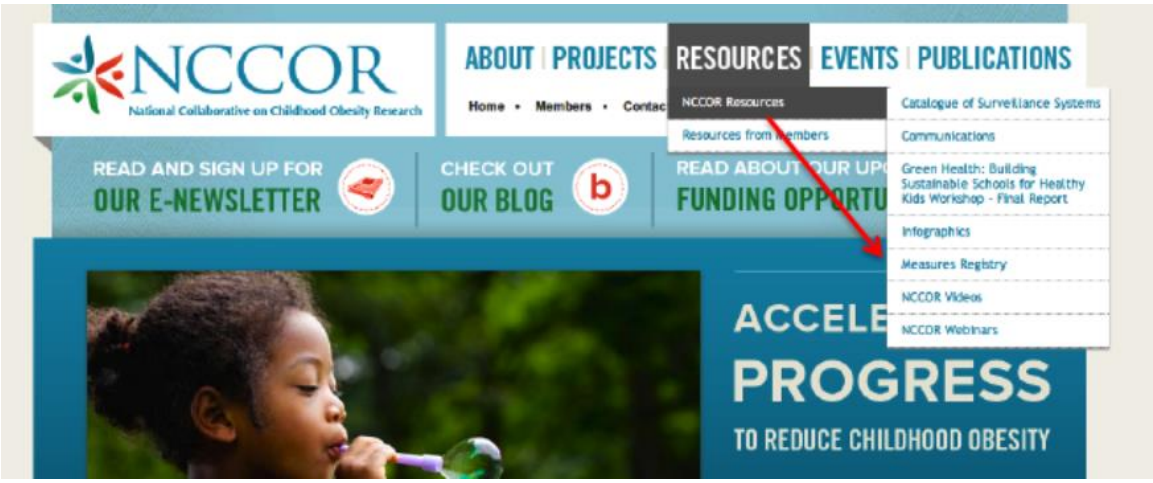

Figure 4: The shortest path to the cascading sub-menu (as indicated by the arrow) results in a loss of the menu.

Regardless of which menu a participant used to get to a tool, the Registry and Catalogue are both located under Projects, as indicated by the left navigation (see Figure 5). This confused participants who accessed the tools from the Resources menu, as doing so jumped them to a different section of the website.

Figure 5: The Catalogue and Registry are always located under Projects, even though they're listed under Resources as well.

Positional Feedback

The primary navigation does not have any positional feedback (visual indicator) showing which section a user is in once they drill down into a section. Positional feedback is very beneficial and can help reinforce users' understand of where they are in the site. However, since selecting some items under Resources takes the user to the Projects section, the positional feedback will be hard to implement consistently.

In addition, positional feedback in the left side menu does not exist and can only be inferred by the expanded menu (see Figure 6), which none of the participants noticed. The menu for the Registry is far down the page, which makes it less likely to be seen. However, even the Catalogue sub-menu went unnoticed by most participants. Even if users notice the menu, all it indicates is which section they are in, not the specific page they are on.

Figure 6: The only indication of which project the user is on is the expanded menu.

Landing Pages

The main landing pages for both tools are very long and only a small portion appeared "above the fold" on most participants' screens (see Figure 7). This means that to see the additional content, including the links to the other pages in the section and the video, users have to scroll. Most participants did not think to scroll down the page since the "Search the Registry/Catalogue" button is so prominent. They tended to go straight into the tools without exploring the page.

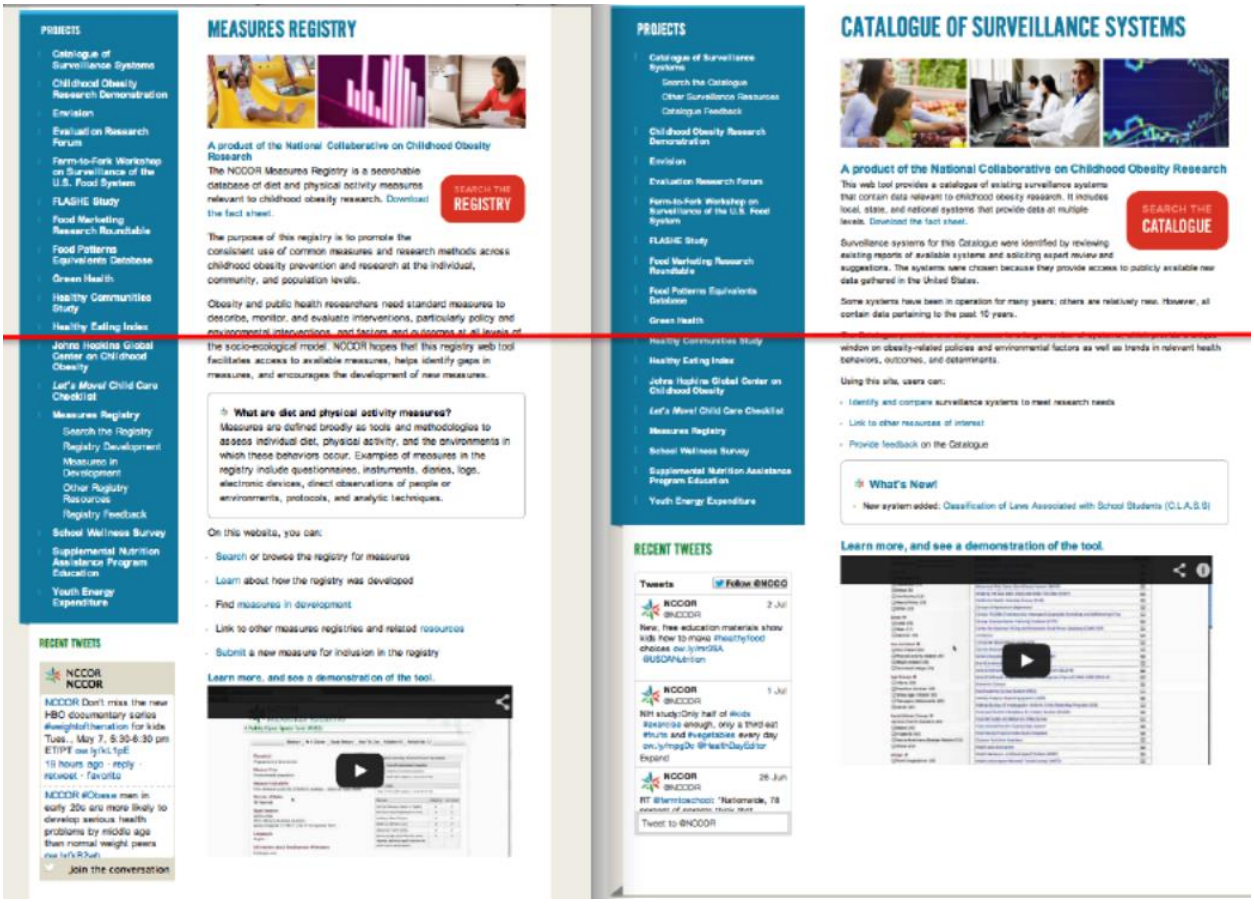

Figure 7: Red line indicating approximately where "the fold" fell for many of the participants.

When the other pages in the section were pointed out to participants, they noted that the link labels in the left column and those on the landing pages are not consistent with each other. The wording differences confused many participants. Though the wording is similar, many participants were unsure if the various links all led to the same location. For example, in one case the link to "Search the Catalogue" is called "Identify and Compare" in the bulleted list on the landing page (see Figure 8).

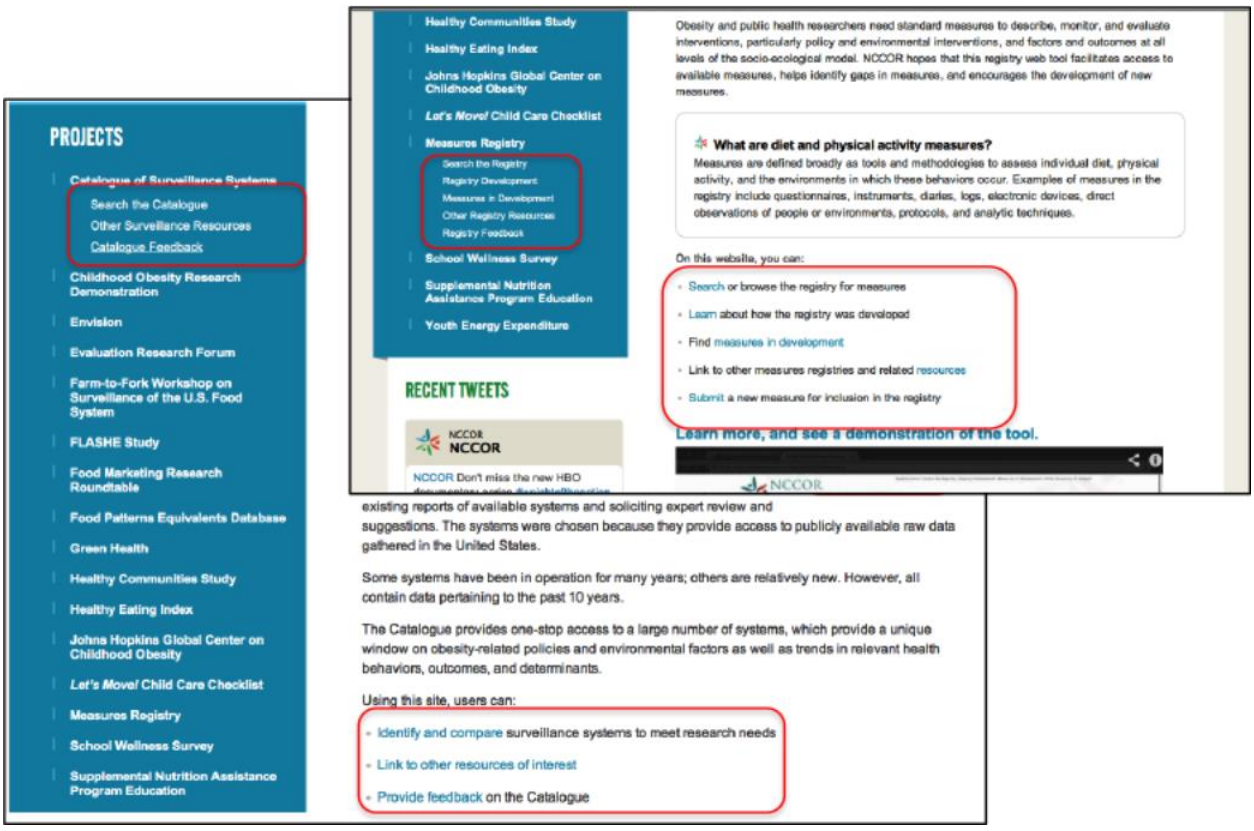

Figure 8: The link labels on the landing pages and in the left column do not match.

The order of the information on the landing pages was a topic of comment for many participants. Most felt that the list of links to other pages should appear first, or higher up on the page. Other information, such as the background information could be on a separate page. The introductory information should be brief but engaging enough to draw new users in and descriptive enough so that people understand what the tool does.

Most participants launched the tools by clicking on the large orange "Search" button on the landing page (see Figure 9). However, this obvious affordance acts as a "trap door" away from the page, making it easy to start searching the Registry or Catalogue but hard to notice the other content on the page. Some participants suggested giving a similar visual treatment to the other links and moving them up higher on the page.

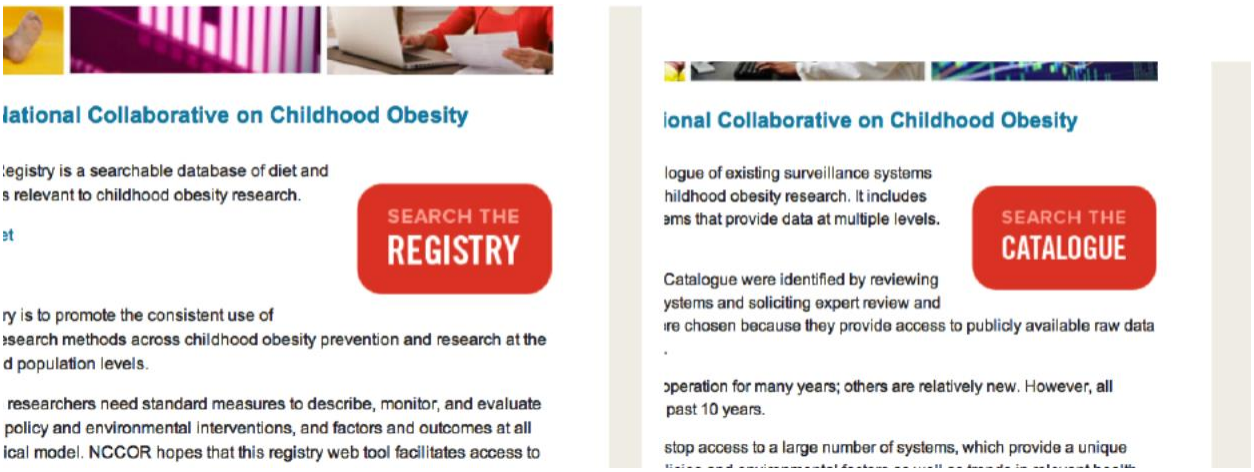

Figure 9: The orange search buttons launch the tools.

Searching

Once in the Registry or Catalogue, participants seemed comfortable using the faceted search approach to locate items of interest. Only a very small number attempted to use the search box (see Figure 10). However, many of the participants stated that they understood the search worked in conjunction with the facets. There was one participant, however, who did not realize this.

Upon selecting filters, the option to "clear filter" appears in the upper right corner of the column (see Figure 10). Participants did not notice this option and instead just deselected the checkboxes as necessary. They did not seem to have a problem with this, as there are not so many checkboxes that it becomes cumbersome.

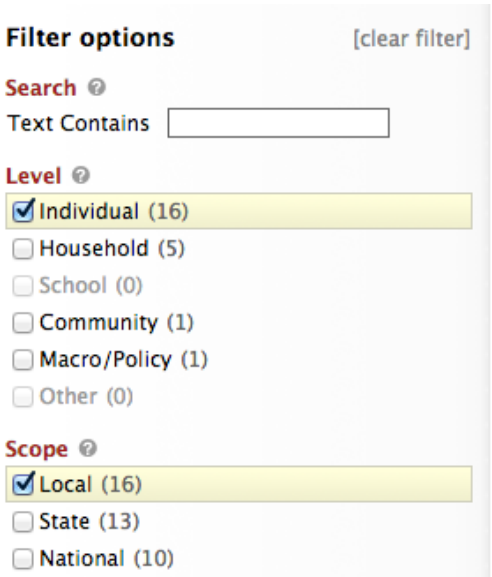

Figure 10: Search consists of a search box at the top and filters below, with the ability to clear all filters.

Most participants had no expressed concerns with the categories and did not feel that they were missing additional major categories or subcategories. Some participants expressed a desire for the availability of reliability and validity data to be included at this level, but even those participants reconsidered whether it was important as an initial selection criterion, as opposed to seeing it once they view an item.

None of the participants used the help icon (question mark) next to filter category labels without prompting. Some participants said they had not noticed it. Others noticed it but did not feel like they needed to use it, even when they had questions about what a particular option in a category meant. Upon looking at the help text, they saw that it describes the category label but not each of the items within that category (see Figure 11). This was not thought to be particularly informative. If participants had questions, it was about the options within the category and not the category itself.

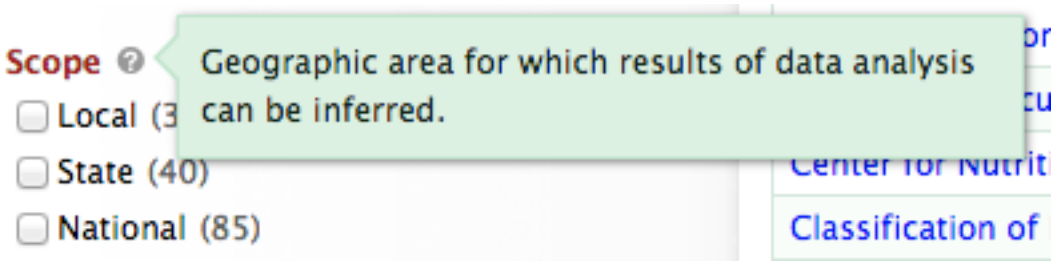

Figure 11: Example of a search category help text.

Most participants believed that the Boolean logic for facets was an “and” relationship between major categories and an “or” relationship within categories. This expectation was powerful enough that the change in numbering next to each filter option (which does indicate the actual “and” relationship within categories) was insufficient for most of the participants to recognize the implemented logic. Due to this expectation, participants often narrowed their results too far and excluded results that would have been relevant to their search.

Visited Link Color

The Catalogue uses a visited link color to indicate systems the user has viewed, whereas the Registry does not (see Figure 12). The visited link color helped participants in the Catalogue, and would be useful in the Registry as well.

Figure 12: The Catalogue (right) uses visited link colors, while the Registry (left) does not.

Compare Feature

Only a small number of participants noticed the ability to compare measures or systems (see Figure 13), and they only discovered it after the moderator prompted participants for the capability. It is likely that participants were focused so much on the names of the results that the checkboxes were too far off to the side for them to be aware of the feature. In addition, when people don't expect a feature to exist, they are less likely to notice it.

Figure 13: Both tools have a "Compare" feature in the right column of the results.

Upon selecting the first item to compare, a new column appears on the right side of the page, indicating which items have been selected (see Figure 14). The appearance of this column changed the size of the results table and disoriented participants when trying to make a subsequent selection. They usually had to search for, and possibly scroll, to get back to the next item they wanted to select.

Once participants had all of the items selected that they wanted to compare, they often looked for an affordance at the top or bottom of the page to do the comparison. Most of them did find the compare button, but only after some searching. They initially viewed it as a header, rather than a button. Some participants, however, had to be told it was the button they were looking for.

Figure 14: A third column (highlighted in red) is added when an item is selected to compare. It includes a button to view the comparison and the list of items to be compared.

In the comparison table (see Figure 15), it is not clear for some of the filters how they should be interpreted (e.g., Age, Race/Ethnicity, Context etc.). For example, does a checkmark next to an age range mean it has been validated for that group, that it was used in that group for this particular study, or that it is intended for those groups regardless of whether or not they were included in this study?

It was also unclear what it meant when an entire block had no checkmarks. For example, in Figure 15, the second result has no checkmarks under Language, though it obviously had to have been conducted in a language. In some cases, it is unclear if a lack of checkmarks means that the data is not applicable or if it is not available. Regardless of what the reason is, telling users why a block is empty would avoid forcing them to try to figure out what it means, or worse, having them make the wrong assumption.

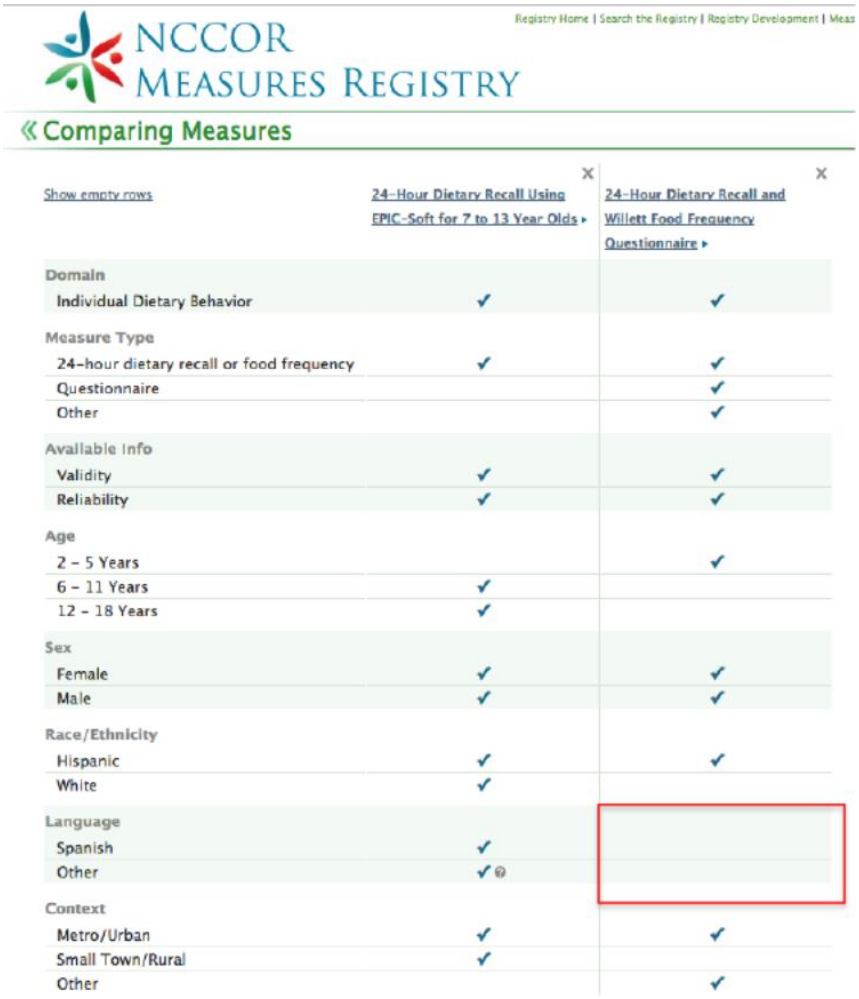

Figure 15: Example of a comparison table. In some cases an entire block had no checkmarks (highlighted in red).

In the Catalogue, all rows within the table are expanded. In the Registry, only rows that contain checkmarks are visible and the user must click a link to “show empty rows” (see Figure 16). In the Registry, none of the participants realized that rows were hidden. They felt it would be better to show the empty rows by default, with the ability to hide empty rows if the user desires. Seeing the rows that are empty can be just as important as seeing the rows that are checked as it provides more context.

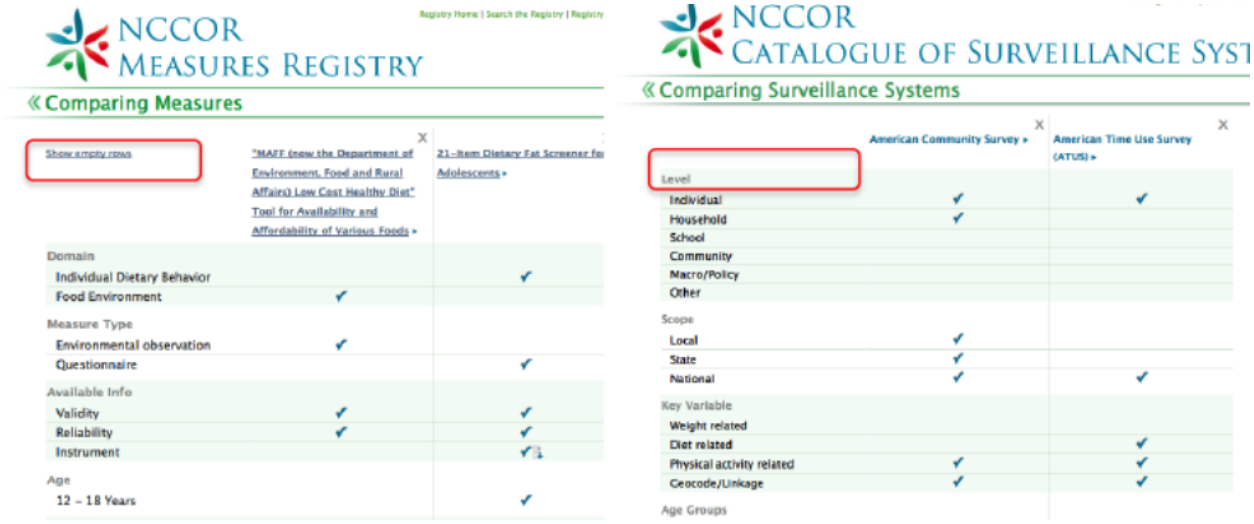

Figure 16: The Registry (left) hides rows with no checkmarks by default. The Catalogue (right) shows all rows by default.

Participants correctly identified that clicking on a measure title in the Registry would take them to the detail page for the measure. However, the equivalent capability in the Catalogue was less obvious since the links are not underlined (see Figure 17).

Figure 17: The links to the result detail page are underlined in the Registry (left) but not in the Catalogue (right).

One participant commented that it would be nice to have the titles of the items beings compared always visible as the user scrolls down the page (see Figure 18). However, a feature like that would have to be carefully designed so as not to be disruptive or confusing.

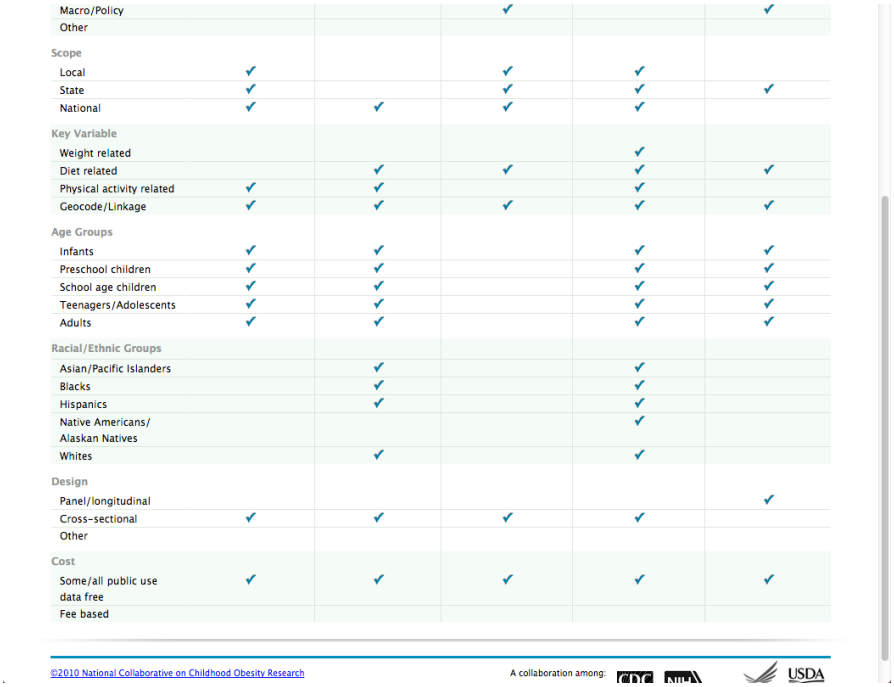

Figure 18: As the user scrolls down, the titles of items being compared are no longer visible.

Navigating Back

Only one participant noticed the ability to move back to the Registry or Catalogue results using the double arrowhead in front of the page title (see Figure 19).

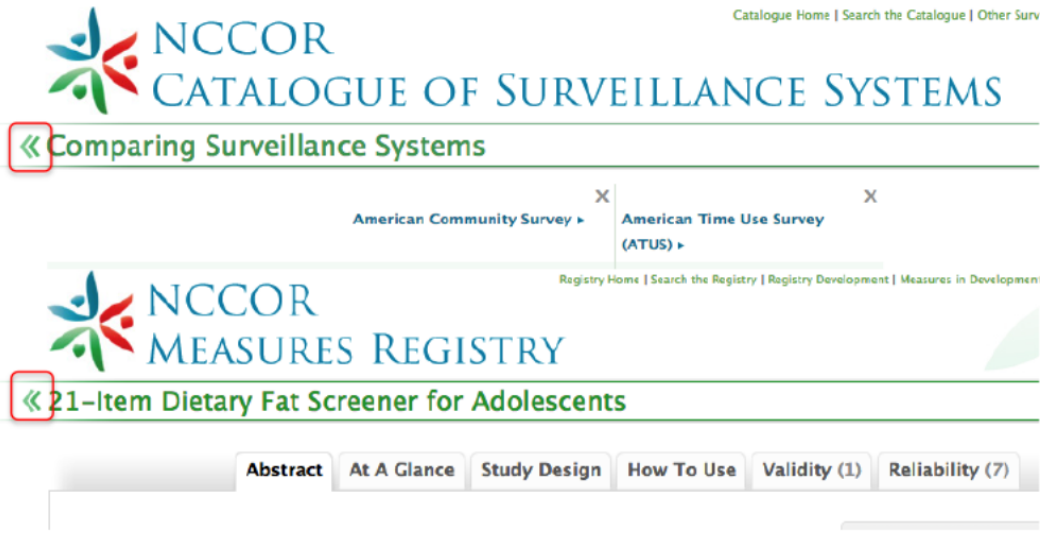

Figure 19: Clicking the double arrowhead before a page title takes the user back to the results list.

Some participants saw the arrowhead and thought the entire title would be linked. When that did not work, they figured the arrows were just decorative; they did not try clicking directly on the arrows. One participant who had used the website before used the double arrowhead to go back once, but later forgot that it was available and resorted to the back button. When the affordance was shown to participants, they suggested the entire line be clickable. However, this recommendation would also require a label change since the line is both a page title and a back link.

It should also be noted that the double arrowhead affordance is inconsistent with the navigation model of the site. When on the detail page of a result, clicking the arrows takes the user back to the search results page, regardless of how the user got to the details page. In other words, if the user compared several results and clicked on a title to view more information, it would be expected that clicking the back arrows would return the user to the comparison table. Instead it goes to the full search results list, which is not expected and disruptive if the user's goal is to a evaluate several items in the list.

Formatting of Detail Pages

Some participants did not notice the tabs for navigating the detailed content at first, likely due to the soft gray formatting (see Figure 20). However, once they did notice them, participants were comfortable navigating the tabs.

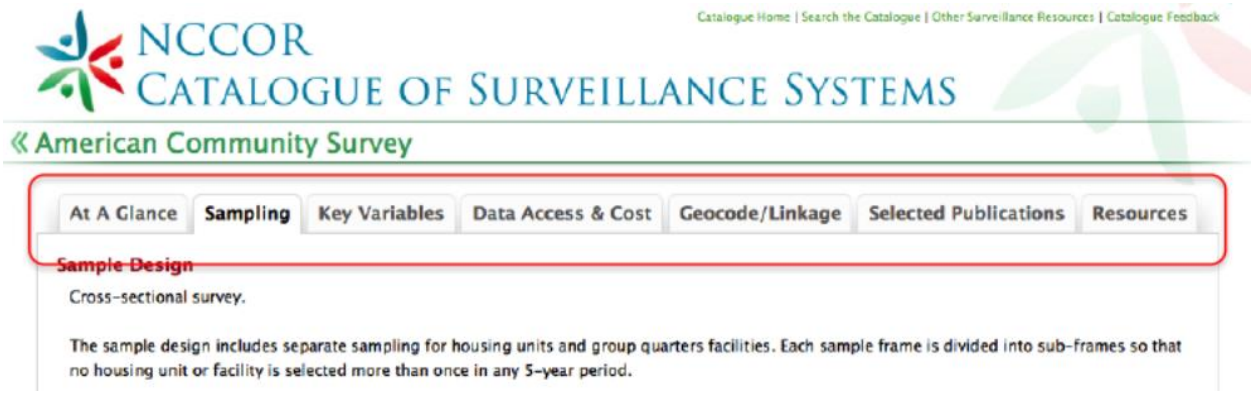

Figure 20: Tabs are used to navigate between pages of details for a result.

The use of large, red, bold headers in the tabs of the detail pages draws the eye to the labels and away from the content itself, making it more difficult to quickly pick out the important information (see Figure 21). Some differentiation between the labels and the content is advisable, but too much can be distracting, causing the eye to unintentionally look back to the label while trying to read the content.

Figure 21: Headers are distinguished from content on three dimensions, size, color, and font weight.

Conceptual Model

The conceptual model of the website's information architecture is compromised by the navigation within the tools back to the main site (see Figure 22). From the main website, clicking the "Search the Registry/Catalogue" button opens the tool in a new window. Conceptually this implies it is a stand-alone tool. However, navigating back to the main website proved to be difficult for nearly all participants. Most participants clicked on the logo, expecting it to return to the main website – instead it goes to the main search results page of the tool. When that didn't work, some participants noticed the small green navigation links in the upper right corner of the page. However, by providing links back to the main website which open in the current window, a "hall of mirrors" effect occurs where more tabs will be opened as the user navigates back and forth between the main website and the tool (which opens a new window every time the user clicks the search button). Some participants ended up with multiple versions of the site open and did not realize it.

Figure 22: The logo goes to the main page of the tool, while the links in the upper right corner return to the main NCCOR website.

Video

Each of the landing pages for these tools included a video introducing the tool. Participants were asked about their use of video on the web. As expected, some said they would never watch a video (mostly because of the enforced pace), some said they would watch it if it was short and concise, and some said they would only watch a training video after trying the tool and getting stuck. Though the videos are each under 6 minutes long, this is still fairly long for an intro video on the web. In addition, the videos are a mix of basic background information on the domain and tool as well as multiple training elements on how to use various features of the tool. While users less familiar with the domain may like to see the basic information in the video, it is unlikely to be of interest to more advanced researchers. Researchers were aware of the background information and want training on the tool. They may not sit through the background information and wait for the training elements to appear. Finally, the training goes through several features of the tool, but users may not know if features will be covered or when, making a video far less useful in the way the participants suggested they might consider using it.

Measures Registry Findings

Conceptual Model: A Registry of Papers vs. a Registry of Measures

Participants initially perceived the Registry as a registry of unique measures in which there were papers that describe the measure and provide validity and reliability data. For these participants, they expected to see multiple papers supporting, or providing additional information about the measure itself. Their conceptual model of the Registry was measure focused rather than paper focused.

Many of the participants identified specific papers that they were familiar with when selecting measures to look at. The emphasis on a single paper for a measure and the placement of the abstract as the first tab on the detail page made many participants question why that particular paper was included. Some presumed it must have been the initial study that defined the measure, but several examples were noted where this was not the case. Participants also did not seem to realize that there might be multiple listings in the Registry that used the same measure.

"Measure Available" Icon

Most participants did not notice the icon in the results table that indicates when the measure is available (see Figure 23).

Figure 23: An icon in the left column of the results indicates when a measure is available.

The lack of a column title and the light gray used in the icon cause it to visually recede. When the icon was pointed out to participants, they sometimes did not understand its purpose. Once participants did finally notice and understand the icon, they felt it was useful information to have. Some participants suggested including the availability as a filter option, though this is not recommended since so many of the results do not have the measure available on the site even though the measure is freely available.

Compare All

One participant commented that it would be helpful to have a "Compare All" link/button at the bottom of the compare column, though this has to be carefully designed if it is included. The Registry does have this feature (and was used by one participant), however, all of its results are displayed on a single page.

Pagination

Most of the time, participants filtered the search results down to a list that fit on a single page. However, in a few instances they did not. It did not seem apparent to these participants that there were additional pages of results. None of them used or commented on the links at the top of the page to go to the next page or show all results (see Figure 24).

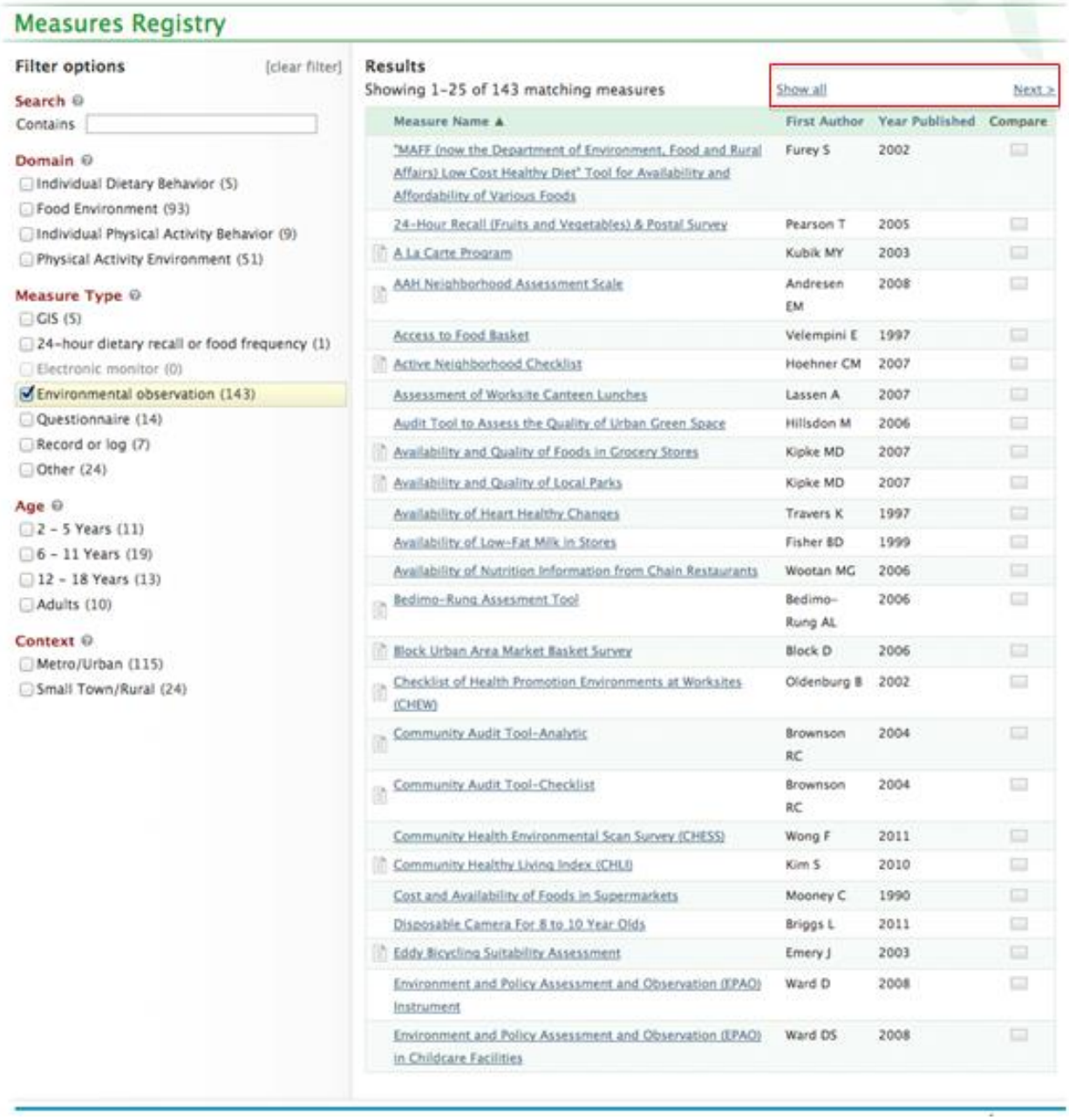

Figure 24: Only 25 results are displayed per page. Controls for viewing more results are at the top of the page.

Order of Detail Tabs

Though there was some variation in the desired order of the tabs for a measure, none of the participants felt strongly that the current tab order (see Figure 25) needed to be modified. The exception being that some felt the "At A Glance" tab may be better preceding the "Abstract" tab. However, this change is predicated on the participants' perception of the registry. Most participants were not thinking of the registry in terms of studies that used a measure; they were more concerned with the details of the measure itself. If expectations are set up front that this is a registry containing studies that used measures, having the abstract first would likely make more sense.

Figure 25: Tabs available on the detail page of a measure.

Access Buttons

Most participants failed to notice the options available on the right side of the Abstract tab (see Figure 26) that allow the user to access the paper and measure (when available).

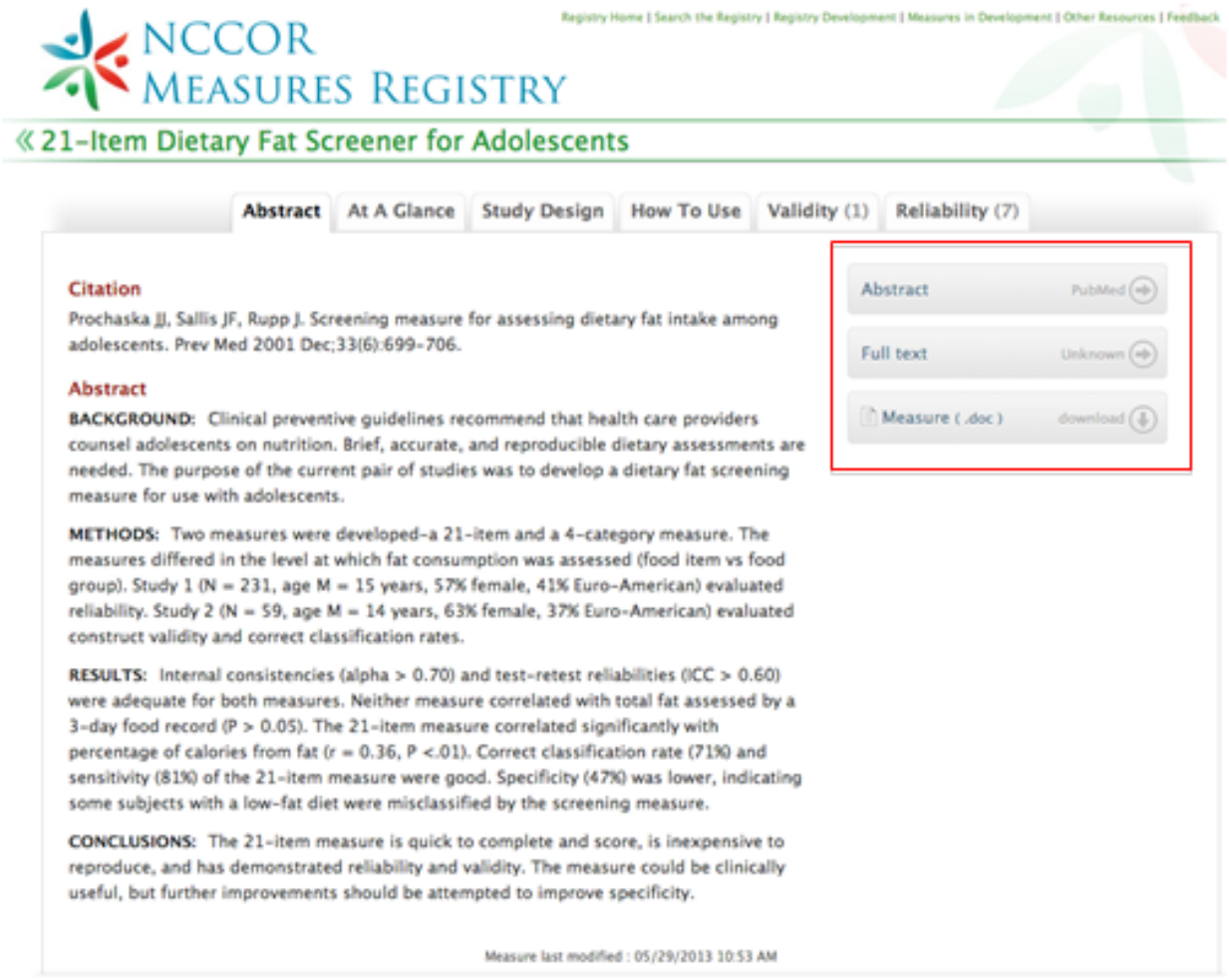

Figure 26: Abstract tab of the detail page with the buttons for accessing the study and measure (highlighted).

This behavior appears to be classic "banner blindness" where users ignore content that is placed off to the side and presented in a special format style. Users may come to notice these options after some experience with the website. However, as primary functionality, the participants' lack of awareness of these features may be a concern. Several participants questioned why the citation itself was not a link to the paper, indicating that providing the links to the abstract, full text, and measure directly in the main content area would likely make them more visible.

In addition, it is unclear why a link to the abstract is provided as a separate button when the abstract itself is already presented on the page.

In cases where there was no measure available, the button for opening the measure is disabled, turning it light gray (see Figure 27). The button is so light that some participants failed to notice it was present on the page, even when looking at the other active buttons.

Figure 27: The "Measure" button is inactive when the measure is not available online.

At A Glance Tab

Participants liked the information provided on the "At A Glance" tab. However, one participant mentioned that a brief summary (about three sentences) of what the measure is used for, in plain language, would be helpful. Many of the details are broken up across tabs and under different headers within a tab, making it difficult to get a quick and clear synopsis of the measure and/or study.

In addition, participants had some difficulty understanding some of the information on the "At A Glance" tab. For example, in Figure 28, the number of items is "not applicable." Participants were not sure how a measure could not have items associated with it. If an item truly is "not applicable," it would be beneficial to tell users why that is the case.

Figure 28: Some of the information (highlighted) under At A Glance was unclear.

Most participants failed to notice the “Food Environment Variables” table (see Figure 29). When they were prompted to look at it, they were often confused by the information it displayed. They were not sure what the number of types of environment/institutions indicated. They often thought this number represented the number of questions on the measure related to that type of environment. Participants were trying to equate the information in the table to the measure itself and not the study.

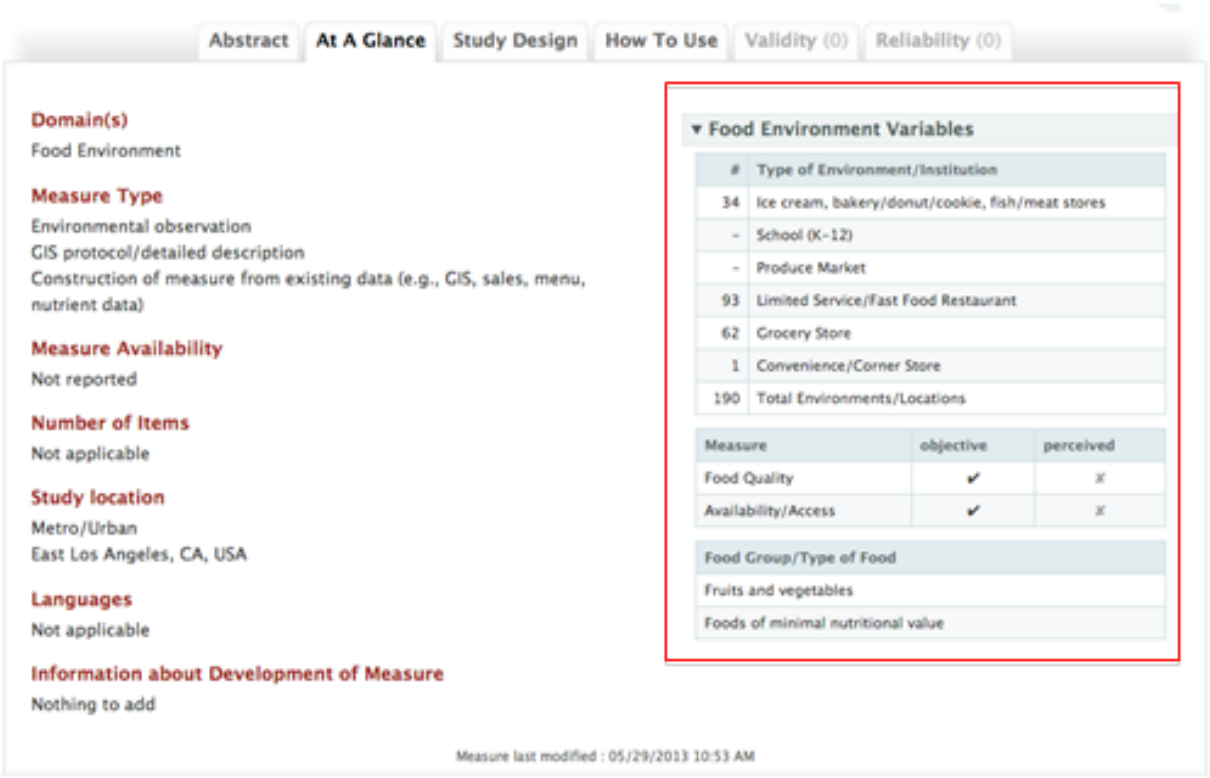

Figure 29: Food Environment Variables table (highlighted).

Participants understood and liked the part of the table indicating whether the data gathered was objective or perceived.

Registry Development Page

Many participants accessed the "Registry Development" page (once they discovered its existence) and found the information to be useful (see Figure 30). The number of participants who wanted to go to the link suggests it might have been valuable information to have before accessing the Registry. However, many of the participants stated they would have liked to see the actual selection criteria for measures stated here. In addition, many participants missed the last comment about the Registry being updated regularly, which is a specific question some participants had.

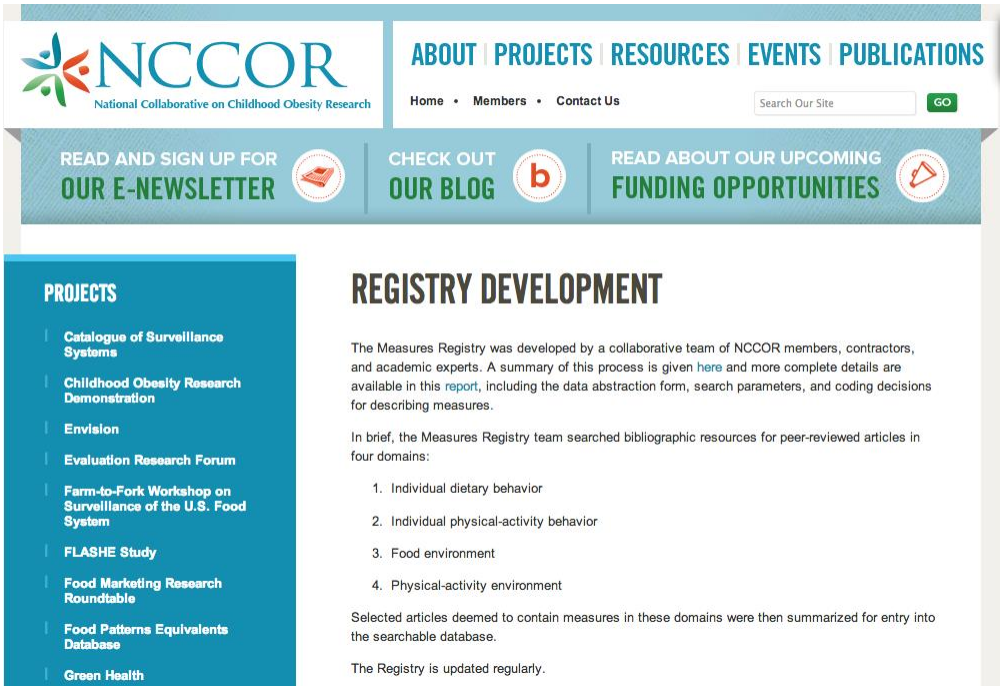

Figure 30: Registry Development page in the Measures Registry section.

The first paragraph on the page includes the link labels "here" and "report," which are not descriptive. When scanning the page, this makes it very difficult to know what the links go to without reading the surrounding text.

Measures In Development Page

Many participants were unclear about the relationship between measures in development and those in the Registry. Some participants felt they should both be in the Registry, with an indication for those in development. Some participants also noted that there are published papers for some of the items listed as "in development," but the top of the page clearly states that these are items for which peer-reviewed publications are not available. Participants also noted that it was more difficult to look through the list of measures in development because there were no filters like there are in the Registry.

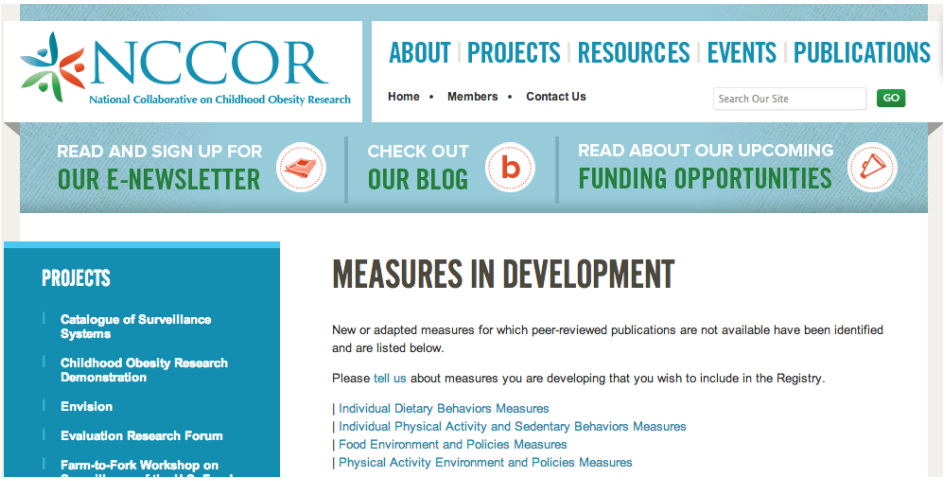

Figure 31: Measures in Development Page.

Other Registry Resources Page

Most participants had some difficulty understanding what content was on the "Other Registry Resources" page (see Figure 32).

Figure 32: Other Registry Resources Page.

Some participants interpreted the page title as “other registries.” Others perceived it as registry related resources. Some participants thought it was both. There is no explanatory text at the top of the page so users are forced to determine the context by the content found.

Registry Feedback Page

When participants were asked what they would do if they wanted to submit a measure for inclusion in the Registry, some noticed the link to “please tell us about measures you are developing” on the “Measures in Development” page or the “submit a new measure for inclusion” link on the main landing page. However, most failed to notice either of these links (or the Registry Feedback page in the left navigation). Instead, they looked for (and usually found) the main website “Contact Us” link. When participants did access the “Registry Feedback” page, they were a bit confused by the page title. The two aforementioned links to this page suggest a dedicated page to suggest inclusions into the Registry. Instead, it is a multi-purpose contact form for providing feedback. In order to suggest a measure, the user must select that option from a drop-down menu (see Figure 33), but there is no indication that this option is even possible without first opening the menu. Therefore, users not expecting to be able to suggest a measure for inclusion may never realize the feature exists.

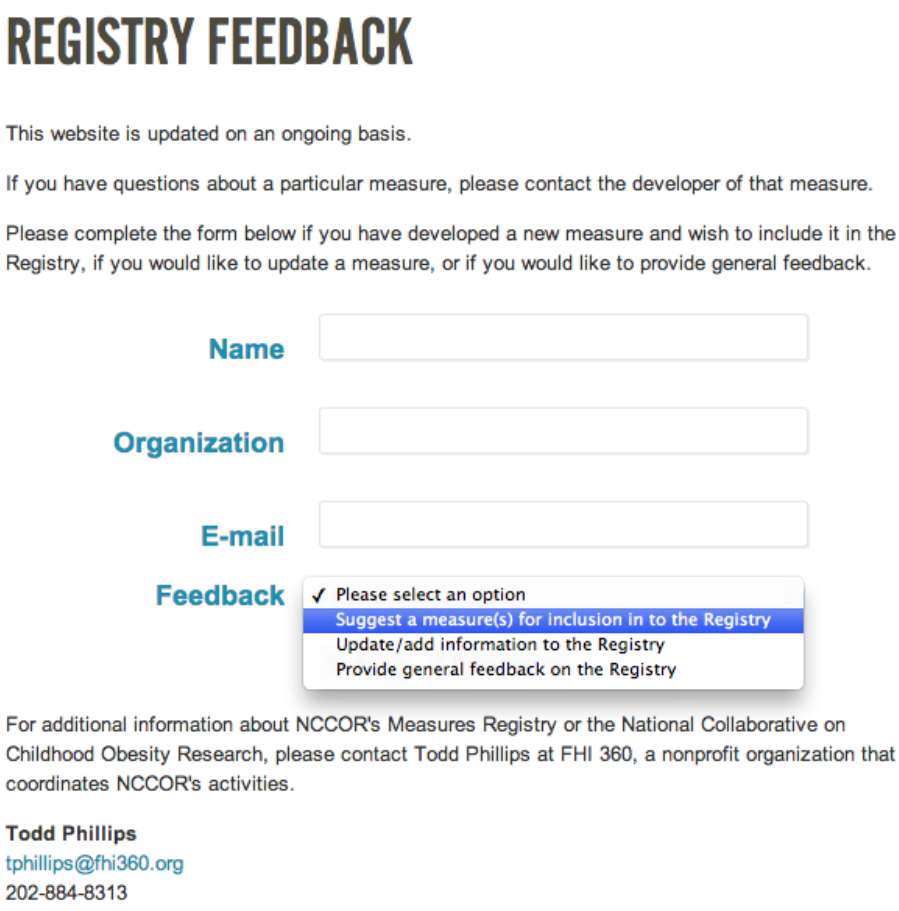

Figure 33: Registry Feedback page. The user must select from a menu to specify if they want to suggest a measure for inclusion.

Catalogue of Surveillance Systems Findings

What is a Surveillance System?

It wasn't completely clear to some participants (primarily the "Public Health" user group) what a surveillance system is. One participant assumed surveillance meant watching people or tracking people through video. Some participants thought they would be getting the data itself from the Catalogue, rather than being told about and directed to separate websites where they could obtain the data.

Background Information

The landing page of the Catalogue mentions in the second paragraph (see Figure 34) why systems were chosen to be included (they provide access to publicly available raw data gathered in the US), but participants did not seem to notice this. The part about these being systems that provide *raw data* is particularly important to understanding what a surveillance system is. Participants who were not familiar with the term Surveillance System would have benefitted from knowing this, but they did not notice it in its current format and location.

Figure 34: Background information on the Catalogue, which many participants did not read.

Age Groups

One participant mentioned that the “Age Groups” filter was a little ambiguous (see Figure 35).

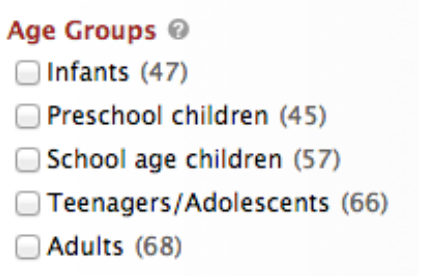

Figure 35: Options for the "Age Groups" filter in the Catalogue.

It was unclear what specific ages a group would represent – particularly “school age children.” In the Registry, the ages are indicated by actual years (i.e., 2-5 years, 6-11 years, 12-18 years, adult). However, during the briefing, it was mentioned by the project team that not every surveillance system applies the exact same age ranges to the listed age groups, so it may not be possible to include a range.

Years Covered

When doing a comparison between multiple systems, one participant mentioned that it would be helpful to include the survey years covered by the surveillance system in the resulting table.

Noteworthy Characteristics & Special Notes

Most participants did not notice the “Noteworthy Characteristics” box due to its placement off on the side of the page. They were more likely to notice the special notes, but some people even missed that. Often websites will put content in a box with a different background color in an effort to highlight it, but more often than not this only encourages users to ignore it. It is perceived as secondary content. This is a well-documented phenomenon known as “banner blindness.”

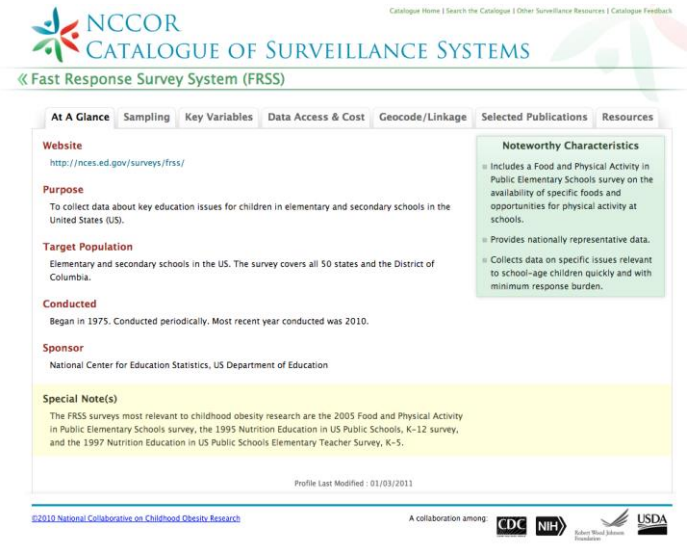

Figure 36: Noteworthy Characteristics and Special Notes are set aside from the main content in colored boxes.

Expanding Key Variables

On the Key Variables tab, very few participants noticed the ability to show more rows in each of the tables (see Figure 37). When it was pointed out to participants, they felt it contained information that would have been good to know.

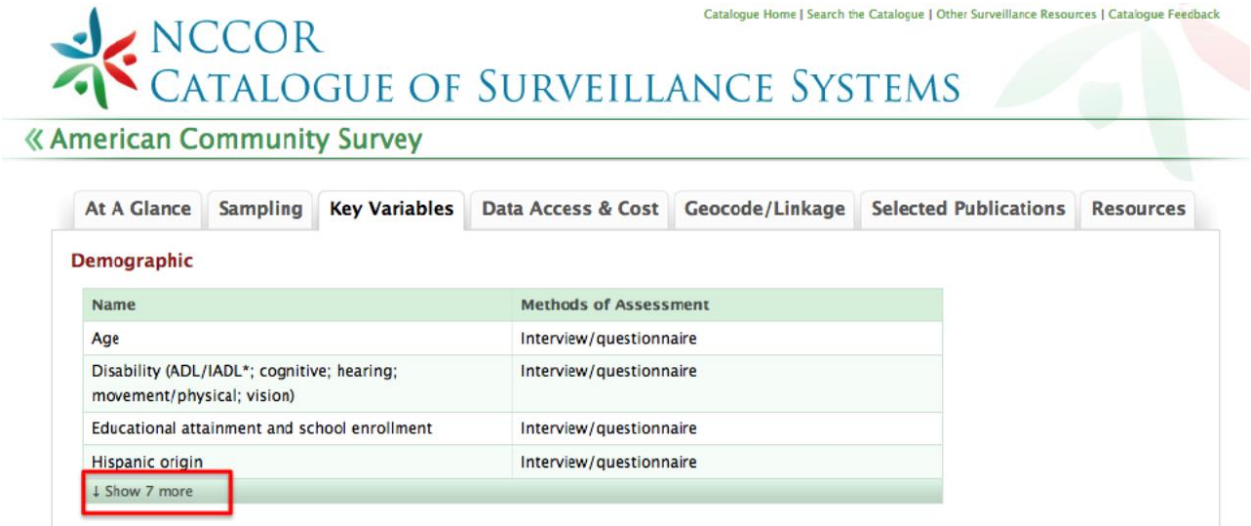

Figure 37: The tables under Key Variables show a few rows by default and give the user the ability to show the rest (highlighted in red).

Data Access & Cost

Some participants believed the cost and access information should be located in the "At A Glance" tab since the website URL (which provides access) is located under At A Glance. Others felt it made sense to have a separate tab for that content. Regardless, it seems unintuitive to have the link to the website separate from the "Data Access" information.

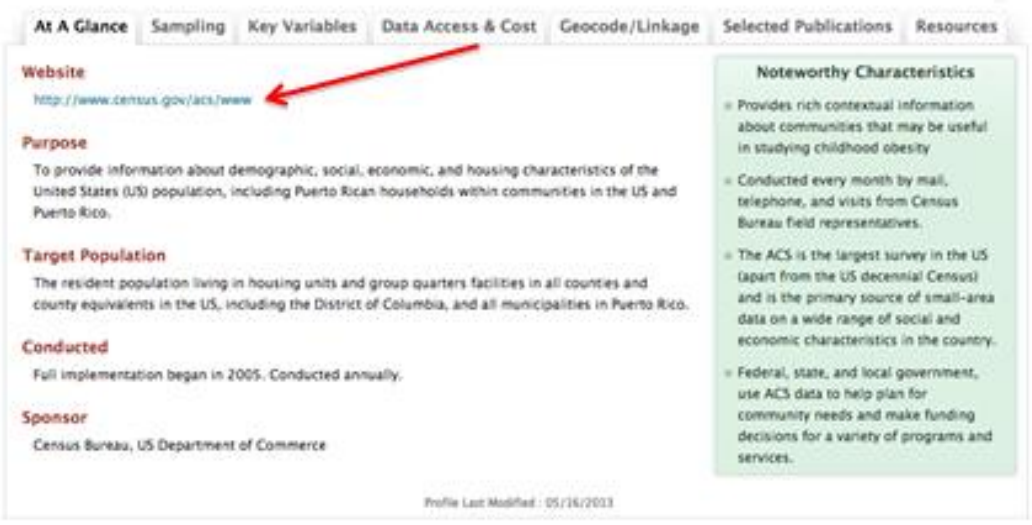

Figure 38: The "data access" information is separate from the link to the website.

How Are Publications Selected

Participants liked the list of selected publications. However, some wondered how those particular publications were selected and why. Explaining why the publications were chosen would help users understand why it might be important to read them.

Figure 39: Selected Publications tab.

Resources

Some participants were unsure what "Resources" meant. Others recognized what they were but did not know why some of them would be listed if they are already available through the surveillance system's website.

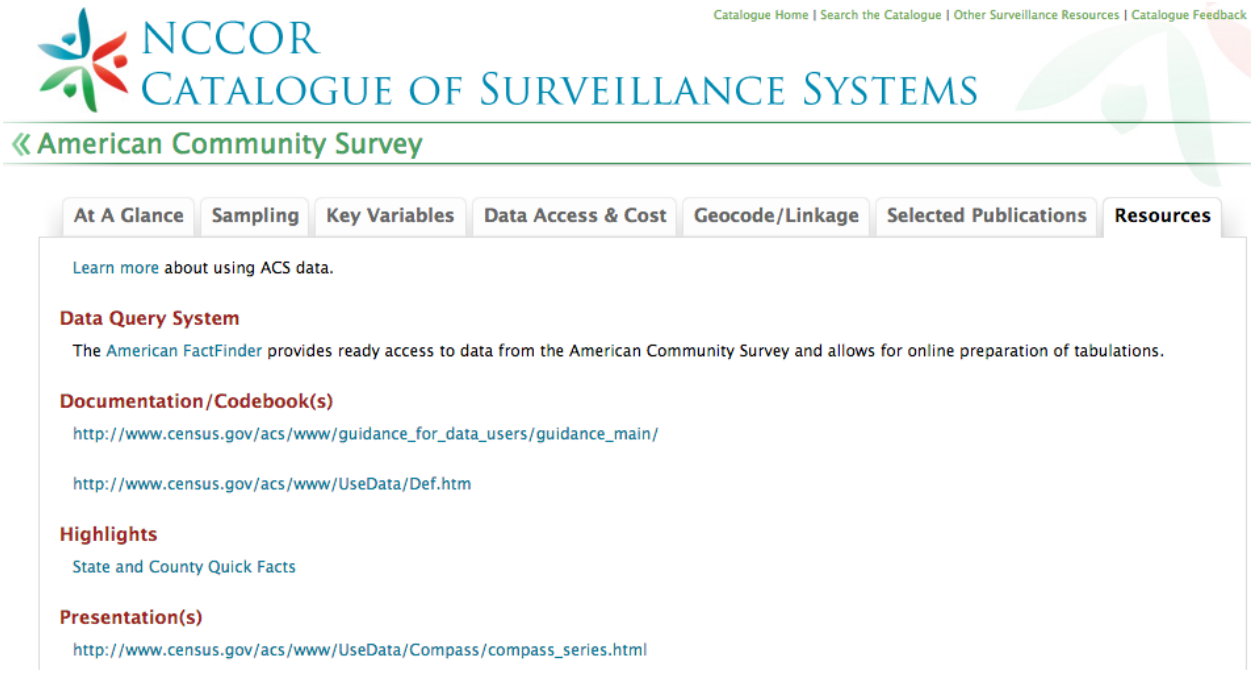

Figure 40: Resources tab.

Other Surveillance Resources

Participants were unclear on what differentiated the "Other Surveillance Resources" (see Figure 41) from the content in the Catalogue. While the introductory paragraph does mention the type of content this page includes (summary statistics, nutrition program information, and obesity-related legislation), many participants missed this.

Figure 41: Other Surveillance Resources page.

Conclusion

Overall, participants liked both tools. Though they ran into some issues with various aspects of the interface, they liked the utility of the tools and were able to find content of interest. Participants evaluated only one of the two tools. However, at the end of the test, if time permitted, participants were briefly shown the other tool. All participants expressed an interest in both tools.

There were no major show-stopping issues. Most of the issues participants encountered resulted in users not noticing a function that might help them or becoming confused. However, participants were able to find at least some data of interest. The most significant interface design issue related to performing Boolean operations. The error induced by the design would result in users failing to find some information of interest if they did not notice the error. All of these issues could be addressed through alternative formatting and other redesign efforts.

Appendix A: Facilitator's Guide for the Catalogue of Surveillance Systems

[Note: The purpose of this document is to guide the moderator. The questions and tasks contained herein may not be asked as written. The facilitator often draws on participant comments and the natural flow of the testing process to determine the flow of the session. While the facilitator will try to follow the order of the guide, many times tasks will come up ahead of time or in different order. The facilitator may allow the order of the tasks to change in order to let the process flow naturally.]

OMB No. XXXX-XXXX

Expiry Date: XX/XX/XXXX

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Public reporting burden for this collection of information is estimated to average 60 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. **An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.** Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to: NIH, Project Clearance Branch, 6705 Rockledge Drive, MSC 7974, Bethesda, MD 20892-7974, ATTN: PRA (0925-0589-06). Do not return the completed form to this address.

Pre-Test

[Administer the informed consent and video release form.]

Introduction

Thank you for agreeing to participate in this study. Do you have any questions for me before we get started?

We're going to be looking at a website today that was developed by the National Collaborative on Childhood Obesity Research, or NCCOR. I'm going to ask you to explore the website and try to do some

tasks with the site. Then I'd like to get your opinion about it. You and I will work on this together for about an hour. As we are working, some other people in another room may watch your monitor screen and help me out by taking notes on our work session.

There are two important things you should keep in mind while you work with this website:

- First, I did not design the website so don't worry about hurting my feelings with your comments. If there are problems with the website or design, I would like to discuss them with you to find out how we can find ways to make the website better.
- Second, we are evaluating the website and not you, so you cannot make any mistakes. We want the website to be intuitive and easy to use. If it isn't, that's a problem with the website – not with you.

Any comments you have, either positive or negative, will help make the product better so feel free to tell me your honest opinions and comments. After we finish the tasks, I'll ask you a few questions and then give you some time to provide your own comments or ask me questions. Do you have any questions for me before we get started?

One more thing before we get started, I'd like to let you know that as you're using the site, if you have questions as we go along, feel free to ask. I may not answer your questions right away in order to see how well you can figure out things for yourself, but it is valuable to know if you do have questions about the site.

Background Information

We have invited people with different backgrounds to participate in this activity so I'd like you to tell me where you work and what your role is. Do you conduct research in childhood obesity? If so, which of the following do you consider your primary research area?

- Diet
- Physical activity
- Geography
- Disease Outcomes, e.g., diabetes, cardiovascular disease, cancer
- Obesity-related policy
- Other (details provided by recipient)

Tasks

[Facilitator should ask about specific webpages and website sections as they are encountered. If users explore areas listed as a task below, the facilitator should get the feedback during their exploration. Areas of the site that seem to be of interest and then are dropped should be asked about.]

[Start Participant on landing page for the Catalogue of Surveillance Systems tool – nccor.org/projects/catalogue/index.php]

1. Have you used the Catalogue before?

    a. [IF YES] When did you first access it? When did you last access it? How often do you use the site?

    b. What did you use it for? Did you find what you were looking for?

    c. [IF NO] Take a moment to look around and tell me what you think you, personally, might use this for.

2. Go ahead and use this tool to try to find a surveillance system (SS) or multiple surveillance systems that might be relevant to your work.

3. [Follow-up questions on how to choose a SS after participant has narrowed the list]

    a. How would you decide which surveillance system(s) to look at?

    b. Did you notice the "Compare" feature? How would you use it?

4. Let's take a look at one of the surveillance systems more closely

    a. What information would you need to know to help you decide whether or not the surveillance system would be useful to you?

    b. Go ahead and take a look at the different tabs and tell me if it's clear what it's showing you.

    c. How would you get to the actual surveillance system?

SPECIFIC TASKS TO GIVE USERS IF THEY HAVEN'T EXPLORED THE FILTERS

5. How would you determine whether there are any surveillance systems that collect physical activity data on 2-4 year olds at the city or county level?
   Goal: Generate list of SS with multiple given characteristics

FOLLOW-UP QUESTIONS ON SPECIFIC FEATURES

6. [Follow-up questions on the filters]
    a. What do you think about the specific filters that are used here?
    b. Is it clear what they all mean? *(If any of the labels are unclear, see if participant notices the question mark icon)*
    c. Are there any that you would remove?
    d. Are there any that you would add?
    e. What do you think about the way the filters work?
    f. If you had several filters selected, how would you remove them all to start fresh?

7. [Follow-up questions on the search box]
    a. When would you use the search box, as opposed to the filters?
    b. What do you think is searched when you add in a search term? *(e.g., the surveillance system name, the information about it, specific fields, etc.)*
    c. [If a previous user] Have you used the search before, and if so, how well did it work?

8. Are there any additional features that would be useful to include in this tool?

Follow-up Questions

Next, I have a few more questions about your experience with the website.

1. What was your overall impression of the Catalogue?
2. What did you <u>like</u> most about the way the site looks and works?
3. What did you <u>dislike</u> about the way the site looks and works?
4. Was there anything about the website that was unexpected or was initially confusing to you?
5. Do you have any other comments, questions or suggestions for improving the website?

Wrap-up

This concludes the usability test. Thank you for your participation.

Appendix B: Facilitator's Guide for the Measures Registry

[Note: The purpose of this document is to guide the moderator. The questions and tasks contained herein may not be asked as written. The facilitator often draws on participant comments and the natural flow of the testing process to determine the flow of the session. While the facilitator will try to follow the order of the guide, many times tasks will come up ahead of time or in different order. The facilitator may allow the order of the tasks to change in order to let the process flow naturally.]

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Pre-Test

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Introduction

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- Second, we are evaluating the website and not you, so you cannot make any mistakes. We want the website to be intuitive and easy to use. If it isn't, that's a problem with the website – not with you.

Any comments you have, either positive or negative, will help make the product better so feel free to tell me your honest opinions and comments. After we finish the tasks, I'll ask you a few questions and then give you some time to provide your own comments or ask me questions. Do you have any questions for me before we get started?

One more thing before we get started, I'd like to let you know that as you're using the site, if you have questions as we go along, feel free to ask. I may not answer your questions right away in order to see how well you can figure out things for yourself, but it is valuable to know if you do have questions about the site.

Background Information

We have invited people with different backgrounds to participate in this activity so I'd like you to tell me where you work and what your role is. Do you conduct research in childhood obesity? If so, which of the following do you consider your primary research area?

- Diet
- Physical activity
- Geography
- Disease Outcomes, e.g., diabetes, cardiovascular disease, cancer
- Obesity-related policy
- Other (details provided by recipient)

Tasks

[Facilitator should ask about specific pages and sections as they are encountered. If users explore areas listed as a task below, the facilitator should get the feedback during their exploration. Areas of the site that seem to be of interest and then are dropped should be asked about.]

[Start participant on landing page for the tool – http://nccor.org/projects/measures/index.php]

1. Have you used the Measures Registry before?
    a. [IF YES] What did you use it for?
        i. How often do you use the tool?

    b. [IF NO] Take a moment to look around and tell me what you think you, personally, might use this for.

2. How would you go about finding out what measures are included in this Registry that relate to your particular work?
    a. How would you decide which measures to look at?

    b. Did you notice the "Compare" feature? How would you use it?

3. Let's take a look at one of the measures more closely
    a. What information would you need to know to help you decide whether or not this measure would be useful to you?

    b. Go ahead and take a look at each of the tabs and tell me if it's clear what it's showing you.

    c. If you decided you wanted to use this measure, what would you do next?

4. How would you decide whether or not to use an already existing measure versus creating your own or adapting one to fit your particular needs?

5. If there were multiple measures available that could work for you, how would you decide between them?
    a. Is there anything that would be helpful to include that would help you make that decision?

FOLLOW-UP QUESTIONS ON SPECIFIC FEATURES

6. [Follow-up questions on the filters]
    a. What do you think about the specific filters that are used here?
    b. Is it clear what they all mean? *(If any of the labels are unclear, see if participant notices the question mark icon)*
    c. Are there any that you would remove?
    d. Are there any that you would add?
    e. What do you think about the way the filters work?
    f. If you had several filters selected, how would you remove them all to start fresh?

7. [Follow-up questions on the search box]
    a. When would you use the search box, as opposed to the filters?
    b. What do you think is searched when you add in a search term? *(e.g., the measure names, the information about a measure, specific fields, etc.)*

c. [If a previous user] Have you used the search before, and if so, how well did it work?

8. Are there any additional features that would be useful to include in this tool? For example…
    a. Tool Kits containing recommended measures
    b. Interactive 'how to' guides
    c. Scores or rankings for all measures
    d. Opportunities to comment on measures

Post Test Interview Questions

Next, I have a few specific questions about your experiences with the website.

6. What was your overall impression of the Catalogue?
7. What did you <u>like</u> most about the way the site looks and works?
8. What did you <u>dislike</u> about the way the site looks and works?
9. Was there anything about the website that was unexpected or was initially confusing to you?
10. Do you have any other comments, questions or suggestions for improving the website?

Wrap-up

This concludes the usability test. Thank you for your participation.