

STUDY SERIES
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**First-Round Usability Testing of the Redesigned
Census Information Centers (CIC) Web Site**

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The views expressed are those of the authors and not necessarily those of the U.S. Census Bureau

U S C E N S U S B U R E A U

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Date: Wednesday, February 4, 2009

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Subject: First-Round Usability Testing of the Redesigned Census Information Centers (CIC) Web Site

Human-Computer Interaction Memorandum Series Number 130

This report is released to inform interested parties of ongoing research and to encourage discussion of work in progress. The views expressed are those of the authors and not necessarily those of the U.S. Census Bureau.

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Executive Summary

This first round of low-fidelity usability testing was planned and conducted in collaboration with the Census Information Centers (CIC) team as part of the longer-term redesign of the CIC Web site. The CIC Web site is currently being redesigned and updated to make it easier for a wide variety of users to find information. Screen captures of the previous version of the CIC Web site and the semi-functional prototype used for this round of testing can be found in Appendices A and B.

Prior to testing, the Statistical Research Division (SRD) and the CIC Web redesign team collaborated to write a series of tasks for participants to complete in order to gauge how efficient, accurate, and satisfactory their interaction was with the Web site. Three participants were recruited from the CIC/SDC annual conference at Census HQ and completed the testing between October 8 and October 10, 2008.

The results for all three participants exceeded the pre-defined goals for efficiency, accuracy, and satisfaction. The overall Accuracy score was 80%, which was above the predefined goal set for this study of 70%. Overall, the participants completed the tasks in an average completion time (i.e., efficiency score) of 1 minute 9 seconds; both easy and hard tasks had average efficiency scores of under 1 minute, and these times met the goals for this testing. Likewise, the overall satisfaction score was 7.1, which is well above the predefined goal of a 5 or better.

Future rounds of testing are planned on more functional versions of the Web site.

1.0 Introduction

The Census Information Centers (CIC) Web site redesign team sought to incorporate the new Census Bureau-wide look and feel and to introduce a standardization of the Web sites to the industry norm. The redesign aimed to produce an organization for the Web site that is more helpful for users, as this Web site has a wide variety of users in terms of experience with using the Internet and expertise with Census data and organization. Overall, the goal of this project was to make it easier for users to find program information. This site's users include academics, community advocates, researchers, program participants, and other types of non-traditional data users.

The first round of usability testing on the new prototype version of the CIC Web page took place from October 8 to October 10, 2008. Testing with three participants recruited from the pool of attendees of the concurrent joint CIC–State Data Centers (SDC) conference occurred in the Usability Suite at Census Bureau Headquarters (Room 5K509 and associated test rooms).

The usability team conducted usability testing on the new CIC Web site using tasks that represent frequent uses of the Web site by the users. The tasks that were used in the first round of testing are provided in Appendix C. The tasks used in the subsequent rounds of testing should be as close to these tasks as possible in order to support a comparison of results across iterative rounds.

Previously, the usability team provided an expert review of the current CIC Web site (Ashenfelter, Trofimovsky, Malakhoff, Morgan, Beck, and Murphy, 2008), and a checklist of high-priority recommendations from that report is included in Appendix D in order to document the changes made to the new prototype site based on our recommendations.

1.1 Purpose

The general purpose of this first round of usability testing is to identify elements of the user-interface design that are problematic from the user's perspective and that lead to less than effective, efficient, and satisfying experiences for people using the prototypes.

This testing has three specific purposes, as defined by the team:

- To determine whether the users will find the information they are looking for;
- To determine whether the users will find the needed information in a reasonable amount of time; and
- To determine whether the users will be satisfied with their interaction with the prototype.

1.2 Usability Goals

The usability goals for this study were defined before testing began in three categories: user accuracy, efficiency (e.g., time taken to complete a task), and satisfaction.

Goal 1: To achieve a high level of accuracy in completing the given tasks using the CIC Web site. The user should be able to successfully complete 70% of the tasks given.

Goal 2: To achieve a high level of efficiency in using the CIC Web site. The test participants should be able to complete the tasks in an efficient manner taking no longer than three minutes for a harder task and one minute for an easier task.

Goal 3: For the user to experience a moderate to high level of satisfaction from their experience with the CIC Web site. A Questionnaire For User Interaction Satisfaction (QUIS) was given to the participants. The overall mean of the QUIS ratings should be well above the mean (at 5 or above on a nine-point scale, where 1 is the lowest rating and 9 is the highest rating). The same should be true for the individual QUIS items.

1.3 Scope

A specific set of user interactions with the low-fidelity prototype provided by the sponsor were within the scope of the usability evaluation. The low-fidelity prototype was a partially functional Web site presented to the participants on a computer screen.

1.4 Assumptions

- Participants had at least one year of prior Internet and computer experience
- Participants had prior knowledge of how to navigate a Web site.
- Participants for this round were recruited from the CIC/SDC conference in October, so they were assumed to have some prior knowledge of the CIC program.
- Participants had no known disabilities.

1.5 Facilities and Equipment

Below is a detailed description of the usability lab facilities and equipment used throughout this usability study.

1.5.1 Testing Facilities

The test participant sat in a small room, facing a one-way glass mirror and a wall camera, in front of an LCD monitor equipped with eye-tracking capabilities placed on a table at standard desktop height. The test participant and test administrator were not in the same room. During the usability study, the test administrator was in the control room. The test administrator and the test participant communicated with microphones and speakers.

1.5.2 Computing Environment

The participant's workstation consisted of a Dell OptiPlex GX150 personal computer with a Pentium IV processor and 1 gigabyte (GB) of RAM, a Tobii LCD monitor equipped with cameras for eye-tracking, a standard 101/102 key quiet keyboard, and a PS2 IntelliMouse with a wheel. The operating system was Windows XP for all test participants.

1.5.3 Audio and Video Recording

Video of the application on the test participant's monitor was fed through a PC Video Hyperconverter Gold Scan Converter, mixed in a picture-in-picture format with the camera video, and recorded via a Sony DSR-20 digital Videocassette Recorder on 124-minute, Sony PDV metal-evaporated digital videocassette tape. Audio for the videotape was picked-up from one desk and one ceiling microphone near the test participant. The audio sources were mixed in a Shure audio system, eliminating feedback, and fed to the videocassette recorder.

1.6 Eye-Tracking Capabilities

Using a Tobii eye-tracking system and the ClearView 2.0 software program, participants' eye movements were recorded during their interactions with the interface. The software monitored the participants' eye movements and recorded eye gaze data. A unique feature to

the Tobii eye-tracking system is participant's heads are not restrained allowing for more naturalistic interactions with the interface. Eyes are tracked using two infrared cameras mounted inside the computer monitor display.

From the eye-tracking, we can report a range of information. The eye-tracking software allows us to see what the test participant is looking at, as well as how long the test participant focuses on different elements on the Web page. Using the different tools in the ClearView software, we were able to visualize the gazes of multiple test participants.

Data collected from the eye-tracking device includes eye gaze position, timing for each data point, eye position, and areas of interest. A gaze is described as the total number of fixations in a given area across all subjects. Gazes are thought to indicate which areas are getting the most attention and which areas users tend to neglect (Poole & Ball, 2005).

For the purpose of this evaluation, areas of high visual attention were referred to as hot spots. A hot spot is a point where people spend a few moments looking. The hot spots were collapsed across the participants and range in color from green (short amount of time) to red (long amount of time). Looking at the collapsed hotspot data, the test administrator determined whether the participants spent time looking at various areas of the screen.

1.7 Materials

The usability testing of the CIC site required the use of various testing materials. Testing materials used are provided in the appendices. This section provides a description of the usability materials used for the usability tests: the consent form, the questionnaire on computer use and Internet experience, the introduction to a testing session, the tailored QUIS, and the debriefing questions.

1.7.1 General Introduction

The test administrator read some background material and explained several key points about the session to the test participant. A major purpose of having the general introduction is to assure the participants that they were assisting in the development of a Web site, and not having their own abilities tested. A copy of the General Introduction is provided in Appendix E.

1.7.2 Consent Form

Prior to beginning the usability test, the test participants signed a general consent form supplied in Appendix F. The purpose of the form was to explain the rationale of the study and to obtain permission to videotape the session. All participants signed the consent form, and as a result, each usability session was videotaped.

1.7.3 Questionnaire on Computer Use and Internet Experience

Prior to the usability study, the test participant completed the questionnaire to gather information on the participant's computer use and Internet experience. A final version of the questionnaire is located in Appendix G.

1.7.4 Tasks

The participants answered ten pre-determined tasks (see Appendix C). An attempt was made at randomization to minimize the effect of risk of order effects where the outcome of one task affects the next. Several iterations of the tasks were vetted before a final version was drafted, based on the current availability of key features of the Web site when usability testing began on 10/8/08. For instance, during a dry run on 10/6/08, it was found that many of the intended answers and features were not yet available on the site, and the tasks were revised for a final time at that point.

1.7.5 Questionnaire for User Interaction Satisfaction (QUIS)

The original version of the QUIS includes dozens of items related to user satisfaction with a user interface (Chin, Diehl, and Norman, 1988). For the context of the CIC Web site and prototype, a tailored version of the QUIS was adapted to assess the user's satisfaction levels after completing the designated tasks on the CIC Web site (see Appendix H).

1.7.6 Debriefing Questions

After completing the tasks, the test participants answered debriefing questions about their overall experience using the prototype Web site (see Appendix I for debriefing questions). The test administrator was not limited to these questions. Other questions were asked based on the specific issues each test participant experienced during their evaluation of the CIC prototype.

1.8 Performance and Satisfaction Measurement Methods

This section explains the performance and satisfaction measurements used. For this evaluation, the test administrator measured user accuracy in terms of task completion, user satisfaction, and efficiency. Eye-tracking methodology was also used for evaluating this prototype.

1.8.1 Accuracy

The accuracy of a task was scaled on a rating between 0 and 1. A score of one on a task represented a task that was completed. A score of 0 showed that the participant did not complete task (e.g., the interface did not support the user in completing the task). Prior to the usability study, the sponsor and the usability lab set an overall accuracy goal of 70% across the participants.

1.8.2 Efficiency

For the purpose of the usability evaluations, efficiency is best described as the speed of task completion. Based on the level of difficulty, the sponsor in conjunction with the Usability Lab established a goal for the average time on task. For a task that was classified as easy, the ideal time on task was 1 minutes (60 seconds) and for a more challenging task the ideal time on task was set at three minutes (180 seconds). If the overall time on task average is more than the predicted time on task, then the Web site did not support the user in an efficient way.

Efficiency was calculated based on a review of the video-taped testing session. The usability team reviewed the video taped sessions to determine when the task began and when the task ended. Before the participant began a task, the participant read the task question aloud. When the participant finished reading the task, the task began. The task ended when the participant stated his/her final answer or, if the interface did not support the participant, the task ended when the test administrator ended the task.

1.8.3 Satisfaction

The subjective satisfaction score is computed from the participants' ratings on the QUIS survey. After completing all tasks in the usability session, the participants indicated their satisfaction with the Web site using the tailored nine-item QUIS survey. The QUIS is used to calculate the average Overall Satisfaction score from the 9-point Likert scale. Participants were asked to rate their overall reaction to the site by circling a number from 1 to 9, with one as the lowest possible rating and nine the highest possible rating. From the QUIS data, we report ranges and mean scale values for the various rated attributes of the Web site. We can

also identify below-mean values, which indicate that problems exist even when the overall mean is acceptable or better.

Goal 1: Accuracy

As mentioned in the efficiency section, some functionality necessary to correctly answer the tasks was not ready for this round of low-fidelity prototype testing. Answers given were scored as either correct or incorrect according to whether the participants either gave the correct answer or correct navigation to find the answer (see Appendix C for “correct” responses). As shown in Table 1, the overall Accuracy score was 80%, which is above the predefined goal set for this study of 70%.

Table 1. Accuracy scores for the CIC Web site prototype.

	Task 1	Task 2	Task 3	Task 4	Task 5	Task 6	Task 7	Task 8	Task 9	Task 10	Average Accuracy by Participant
Participant 1	1	1	1	1	0	1	1	1	1	1	0.9
Participant 2	1	0	1	1	0	0	1	1	1	1	0.7
Participant 3	1	1	0	1	1	0	1	1	1	1	0.8
Average Efficiency by Task	1 (N=3)	0.67 (N=3)	0.67 (N=3)	1 (N=3)	0.33 (N=3)	0.33 (N=3)	1 (N=3)	1 (N=3)	1 (N=3)	1 (N=3)	Overall Accuracy 0.80 (80%)

Goal 2: Efficiency

Since the Web site was lacking some of the functionality necessary to find the correct answer to some of the tasks, the tasks were marked as complete when the participant navigated to the most specific existing page. Time codes in minutes were recorded in seconds.

In accordance with the goals set with the sponsor before testing began, the goal for each participant was to complete easy tasks in under 1 minute and hard tasks in under three minutes. Tasks 1, 8, and 9 were considered easy, tasks 2-7 were considered to be of medium difficulty, and task 10 was considered hard.

Overall, the participants had an efficiency score of 1 minute 9 seconds, as shown in Table 2. This is very close to the expectation for an easy task (1 minute), so this shows that people were finding the answers to the tasks quickly. Individually, each easy task (i.e., tasks 1, 8, and 9) had an average efficiency of under 1 minute. Further evidence that the users were able to easily and quickly find answers on this Web site comes from the fact that the hard task (task 10) also had an average efficiency score of under 1 minute. Task 5, considered to be of medium difficulty, was associated with the longest average time for completion at 2 minutes and 33 seconds. Still, this score did not exceed the maximum allowance of 3 minutes.

Table 2. Efficiency scores (time in minutes and seconds) for the CIC Web site prototype.

	Task 1 Easy	Task 2 Med	Task 3 Med	Task 4 Med	Task 5 Med	Task 6 Med	Task 7 Med	Task 8 Easy	Task 9 Easy	Task 10 Hard	Average Efficiency by Participant
Participant 1	1m25s	34s	1m40s	48s	3m47s	2m29s	2m16s	23s	17s	36s	1m23s
Participant 2	1m7s	3m55s	55s	2m2s	3m4s	2m23s	51s	50s	34s	41s	1m38s
Participant 3	13s	25s	30s	22s	1m48s	33s	20s	20s	20s	12s	39s
Average Efficiency by Task	55s	1m38s	1m2s	1m4s	2m33s	1m48s	1m9s	31s	24s	30s	Overall Efficiency 1 min 9 sec

Goal 3: Satisfaction: Questionnaire for User Interface Satisfaction (QUIS)

The third usability goal for this round of testing was to obtain mean QUIS score of 5 or higher. As Table 3 shows, the overall mean is 7.1, which is well above the lower range of an acceptable score. The lowest scores by question were a score of 6 each for item 1 (Web site is wonderful) and item 4 (Information on the screens is adequate). The relatively low scores for these items could be related to the fact that some of the functionality was not ready for this round of testing, and there was some noticeable content missing from some of the screens. Also, the lowest overall score by a participant was from Participant 2, who only gave the site an overall score of 5.75. Because there were only 3 participants, this estimate brought the overall average down. We recommend running more participants for the next round of testing to allow for more conclusive results that will not be as greatly impacted by individual satisfaction scoring tendencies between participants.

Table 3. Satisfaction scores for the CIC Web site prototype.

	Item 1	Item 2	Item 3	Item 4	Item 5	Item 6	Item 7	Item 8	Item 9	Average by Participant
Participant 1	7	8	9	8	8	9	7	9	8	8.11
Participant 2	5	6	6	5	6	6	6	NA	6	5.75
Participant 3	6	8	9	5	5	7	8	8	7	7
Average by Question	6	7.3	8	6	6.3	7.3	7	8.5	7	Overall Average 7.1

- Item 1 = Web site is wonderful
- Item 2 = Screen layouts are clear
- Item 3 = Terminology is consistent
- Item 4 = Information on the screens is adequate
- Item 5 = Information on the screen is logical
- Item 6 = Tasks can always be performed in a straightforward manner
- Item 7 = Organization of information on site is clear
- Item 8 = Forward navigation is easy
- Item 9 = Overall experience of finding information is easy

1.8.4 Eye-Tracking Findings

Eye-tracking data were also collected to examine where the participants were looking on the Web site while performing the tasks. The hot spot data indicate areas where participants spent some time looking. Figure 1 shows the heat map for all participants across all tasks. The reds and the oranges indicate longer fixation times, while the green indicates shorter fixation times. As can be seen, no important piece of information on the Main page of the Web site was overlooked. For more detailed results, heat maps for each task can be found in Appendix J.

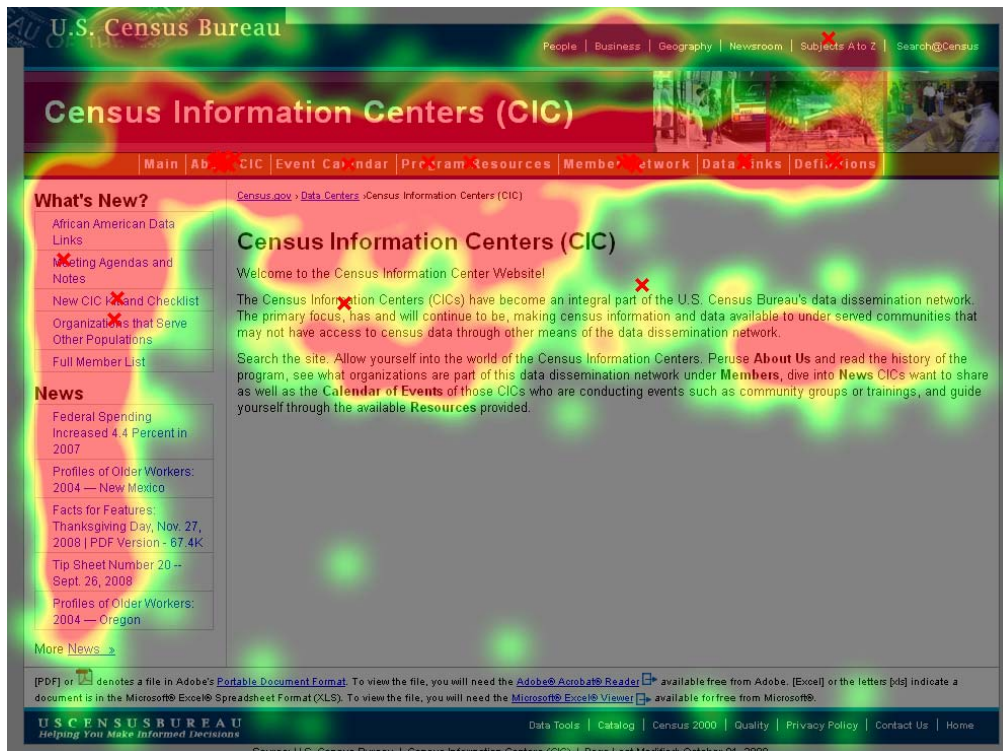


Figure 1. Heat Map for All Three Participants Across All Ten Tasks.

2.0 Successes

1. TOP NAVIGATION

Each participant commented that he or she liked the top navigation or mentioned that it should be one of the features that is kept the same (see debriefing questions in Appendix I).

2. OVERALL LOOK AND FEEL

Participants commented that this Web site appeared more modern and updated than the old one (e.g., the CIC Web site that had been in use for years as compared to the “new” prototype they were using during the testing).

3. ALL USABILITY GOALS MET

Efficiency, accuracy, and satisfaction scores were all within the acceptable score ranges set before testing began.

3.0 High-Priority Findings and Recommendations

1. LOCATION OF DIRECTIONS TO CENSUS HQ

Observations: Task 7 asked participants to use the CIC Web site to find directions to the Suitland Census Headquarters building for the CIC/SDC conference using the Metro. The information was located under the main top navigation tab “About CIC,” and more than one participant commented that it did not belong there. Although two of the participants were still able to find the information in less than one minute, one participant spent 3 minutes examining the site before finding the information. This exceeds the amount of time for this task, which was predetermined by the sponsor and the lead usability contact to be of Medium difficulty and should take no longer than 2 minutes. Also, Participant 3 explicitly mentioned during debriefing that Visitor Directions “did not fit” under “About CIC.”

Potential Usability Issues: Users may navigate away from the CIC Web site (e.g., to Google or to the Metro Web site at www.WMATA.com) to find the information. For this task, one person could not find the information in under 2 minutes.

Recommendation: Move the “Visitor Directions” information from “About CIC” to another more intuitive place on the Web page. This information does not warrant its own top navigation tab, and at least one participant looked for the information under “Program Resources” first. We recommend moving the directions to Census HQ under the “Program Resources” tab for the next round of testing.

2. “ABOUT CIC” TAB

Observation: This issue is related to number 3, below. Participants expressed uncertainty as to what content to expect under this tab. As mentioned above, the participants did not think that the Visitor Information link should be included under this tab. One participant suggested that this tab be renamed “About the Program.”

Potential Usability Issue: Participants may get frustrated when the information under this tab is not what they expected (e.g., information about individual CIC organizations) and leave the page. Also, they may become confused as to the difference between this tab and the “Member Network” tab.

Recommendation: We recommend renaming this tab to “About the Program” for one version of the prototype to see whether it leads to better efficiency, accuracy, and satisfaction scores.

3. “MEMBER NETWORK” TAB

Observation: Participants expressed some confusion over what content would be included under this tab. Participant 1 mentioned that the word “member” makes her think of people and not organizations. Participant 3 made similar comments and suggested during debriefing that this tab should be called “CICs.” Additionally, participants commented that it was cumbersome to have to scroll through the whole long list of members to find the information for which they were looking.

Potential Usability Issue: Users may not want to scroll through whole list and may instead give up and look for a site with a search engine or easier-to-use jump links.

Recommendations: We recommend testing a version of the Web site that uses “CICs” instead of “Member Network.” Additionally, the usability team acknowledges that jump links and a clickable map are planned for the Web site but were unavailable for this first-round, low-fidelity testing.

4. MISSING STEERING COMMITTEE INFORMATION (TASK 5)

Observation: The correct answer for task 5 was not available on the Web site anywhere during this round of testing.

Recommendation: We recommend adding this information before the next round of testing to ensure that this functionality is evaluated before the external site goes live.

4.0 Summary

In general, the prototype participants completed the tasks according to the usability goals of accuracy (over 70 % overall), efficiency (tasks completed in a reasonable amount of time), and satisfaction (average score of over 5 out of 9). Participants expressed positive feedback about the more modernized look and feel of the site. They expressed a concern about the location of Visitor Directions under the “About CICs” tab.

5.0 References

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Appendix A: Screen Capture of Current Main CIC Web Page

U.S. Census Bureau

Census Information Centers



[Main](#) | [About Us](#) | [Calendar of Events](#) | [Members](#) | [News](#) | [Resources](#) | [The American Community Survey](#) | [The Census in 2010](#)

NEW ON THE SITE

- [Census 2010 Census "Kickoff" Conference](#)
- [Presentations from the 2007 Annual Conference](#)
- [Steering Committee Conference Call Notes - 1/17/08](#)
- [February 2008 CIC Steering Committee Agenda](#)
- [February 2008 Steering Committee Agenda and Presentations](#)

MEMBER OF THE MONTH



Beahy Dita Cruz
Asian Pacific American
Community Development Data
Center, University of California
Los Angeles

Welcome to the Census Information Center Website!

The Census Information Centers (CICs) have become an integral part of the U.S. Census Bureau's data dissemination network. The primary focus, has and will continue to be, making census information and data available to underserved communities that may not have access to census data through other means of the data dissemination network.

Search the site. Allow yourself into the world of the Census Information Centers. Peruse **About Us** and read the history of the program, see what organizations are part of this data dissemination network under **Members**, dive into **News** CICs want to share as well as the **Calendar of Events** of those CICs who are conducting events such as community groups or trainings, and guide yourself through the available **Resources** provided.

Upcoming CIC Events:

- October 10, 2007 Dear Conference Participants: We welcome you to the 2007 Annual...
- The Census Information Center Steering Committee will next meet at Census HQ in...
- The CIC network will kick off 2010 efforts on April 14-16, 2008 in...

See [Events](#) for complete list.

Census Bureau Links: [Home](#) • [Search](#) • [Subjects A-Z](#) • [FAQs](#) • [Data Tools](#) • [Catalog](#) • [Census 2000](#) • [Quality](#) • [Privacy Policy](#) • [Contact Us](#)

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Appendix B: Screen Capture of Revised Prototypical Main CIC Web Page

Census Information Centers (CIC)

[Main](#) [About CIC](#) [Event Calendar](#) [Program Resources](#) [Member Network](#) [Data Links](#) [Definitions](#)

What's New?

- [Organizations that Serve Asian Americans](#)
- [Organizations that Serve American Indians and Alaska Natives](#)
- [Organizations that Serve Native Hawaiians and Other Pacific Islanders](#)
- [Organizations that Serve Children](#)
- [Organizations that Serve Rural Populations](#)

News

- [Media Advisory -- Census Bureau Reaffirms Commitment to Working With American Indians and Alaska Natives](#)
- [Facts for Features: American Indian and Alaska Native](#)

[Census.gov](#) > [Data Centers](#) > Census Information Centers (CIC)

Census Information Centers (CIC)

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Note: There are more links in the screen capture in the left navigation than were present for the usability testing; this screen cap was taken after the testing was complete for the purposes of this report.

Appendix C: Tasks Used for Current Round of Usability Testing

1. You are browsing the CIC website and see the acronym FDCA. Using the website, what does FDCA stand for?

Intended Path: Definitions, scroll down to phrases starting with “F”. [There are currently no definitions on this page.]
[Terms, Definitions]

Difficulty: Easy
Time: 30 seconds

2. You are a new CIC contact trying to get up to speed. Where should you go to find startup information?

Intended Path: Program Resources, New CIC Kit/Checklist.

Difficulty: Medium
Time: 2 minutes

3. You are a CIC contact person, and you hear the CIC Non-Governmental program has a new branch chief. Using the website, how do you find the new chief’s name?

Intended Path: About, Staff Directory, Gary Chappell

Difficulty: Medium
Time: 1 minute

4. You work for a Hispanic/Latino-serving CIC. The CIC wants to expand its mission to include Asian Americans because of similar issues with language barriers. Where would you gather demographic information about Asian Americans?

Intended Path: Data Links, Asian American related links

Difficulty: Medium
Time: 3 minutes

5. You are a long-serving CIC contact who is interested in joining the steering committee. Where can you find information on when the next election will be held and how many seats will be open?

Intended Path: Members, Steering Committee List [Is this in the Calendar section now?]

Difficulty: Medium
Time: 1 minute

6. You work for a tribal government and want to contact a CIC that focuses on American Indian and Alaska Native issues. Using the website, where do you find information on CICs that focus on American Indians and Alaska Natives?

Intended Path: Member Network, American Indian and Alaska Native serving CICs.

Difficulty: Medium

Time: 1 minute

7. You are a CIC contact who slept in and missed the bus from your hotel to Census Bureau Headquarters. You need to take the Metro to the building. Using the CIC website, where do you find directions?

Intended Path: About, Visitor Directions to Headquarters]

Difficulty: Medium

Time: 2 minutes

8. You want to find contact information for Spelman College. Where do you go to find this information?

Intended path: Members, Member List

Difficulty: Easy

Time: 1 minute

9. You are a reporter who just heard about the CIC program and may want to work with the CIC staff on gathering data for a story. First, you want to find out more about the history of the CIC program. Using the website, where do you start?

Intended Path: About, Description of Program

Alternate path: About, History of Program

Difficulty: Easy

Time: 30 seconds.

10. You attend the SDC 30th anniversary dinner, which gets you interested in the history of your own network. Using the website, where do you find information about the program?

Intended Path: About, History of Program

Difficulty: High

Time: 1 minute

Appendix D: Checklist of High-Priority Recommendations from Expert Review
(Ashenfelter, K.T., Trofimovsky, A., Malakhoff, L., Morgan, A., Beck, J., and Murphy, E. D.,
Usability Expert Review for Census Information Centers (CIC) Web sites – Final Report,
June 16, 2008)

Usability Issues to Resolve:

High Priority

 X 1. Dense Paragraphs

Recommendation: Reduce the amount of text on the screen, and make key information readily available. For instance, change the paragraphs into bulleted lists, which are easier for users to scan through and decrease the amount of material the user must examine.

Action: Text was reduced substantially and written for the Web

 X 2. “Upcoming CIC Events” Section [not updated frequently enough]

Recommendation: Keep the “Upcoming Events” section updated and remove events after they have passed. The same recommendation applies to the secondary “Calendar of Events” page. It might be a good idea to include a link to the secondary page, and keep that page updated so the main page will not have to be altered every time an event is updated. If the number of events increases as the 2010 Census approaches, a search function may help users find events of interest more easily (Figure 4). Also, the main content should be prominently displayed in the middle of the page, not set off to the left side.

Action: A New “Calendar” Tab was added to keep new events updated. The “Upcoming Events” feature as it was displayed on the current page was removed. At the time of the current low-fidelity testing, the calendar function was not operational. However, navigation to this page for a task requiring the use of the calendar was associated with a correct score.

 X 3. Member Search [scrolling through extremely long alphabetically organized list required]

Recommendations: Since the member search is a main function of the page, it might be a good idea to move this information to a page that requires only one link from the main page, and that link should be prominently displayed on the main page. The following suggestions for organization were also given: **a.** Add an alphabetic index with “jump links” to the first entry that begins with that letter; **b.** Provide multiple ways of accessing the same information (e.g., clickable map). Redundancy allows users to follow the strategy that is most familiar to them; **c.** Provide a search function to allow users to quickly find the information they are looking for. A simple search like the one below in Figure 8 may be helpful to users; **d.** A helpful extension to the search functionally is a predictive text feature; **e.** Consider a search filter and sort and organize the list; **f.** Group contacts according to region or organization type. **g.** It may be easier for users to scan the list of CICs if the page were split into two columns; and **h.** It is possible to facilitate rapid scrolling while reading by increasing the text size and bold headings. We recommend usability testing of a prototype to ensure users are able to use the new search functionality.

Action: A “Member List” tab was added to main CIC page. Although the map and jump links, organized according to region/organization type were not functional for

the low-fidelity testing, they CIC team is currently planning to add these features.

___X___4. Overall “Look and Feel”

Although this Web site’s banner reflects the new Bureau “Look and Feel”, certain areas of the Web site do not.

Recommendation: This page should adopt the new Census Bureau “look and feel” that includes left-pane navigation. Move some of the links provided in the content of the Main page into the navigation bars.

a. There should be an obvious structure to the links placed on the left with a border or line as a visual indicator for the user that this information should be considered as separate from the main content of the page.

b. Move important links and headers to the middle or left side of the page so that users are much more likely to see them.

Actions: The CIC Team collaborated with the SSD contact (Carollynn Hammersmith) to create a new banner and organization more consistent with the new Census “Look and Feel”.

Appendix E: General Introduction

Thank you for your time today. My name is <Name>, and I will be working with you today. We will be evaluating a new design of CIC Web site by having you work on several tasks. Your experience with the site is an essential part of our work. We are going to use your comments to give feedback to the developers of the site. Your comments and thoughts will help the developers make changes to improve the site. I did not create the site, so please do not feel like you have to hold back on your thoughts to be polite. Please share both your positive and negative reactions to the site. And remember, there is no right or wrong answer. We are not evaluating you or your skills, but rather you are helping us see how well the site works.

First, I would like to ask you to read and sign this consent form. It explains the purpose of the session and informs you that we would like to videotape the session, with your permission. Only those of us connected with the project will review the tape. We will use it mainly as a memory aid. We may also use clips from the tape to illustrate key points about the design of the Web pages.

[Hand consent form; give time to read and sign; sign own name and date.]

[Start the tape when the participant signs the form.]

So today, you will be helping us test the usability of a new version of the CIC Web site. Your feedback is valuable, and we appreciate your help. We are going to do some eye tracking as well as have you work on some task scenarios that I will give you.

Before we get started, please take a moment to complete this computer usage and internet experience questionnaire. I am going to leave you here in the test room, but we will still be able to communicate through a series of microphones and speakers. Do you have any questions?

[Hand computer experience form, and go into control room.]

PRACTICE WITH THINKING ALOUD

Now that we have your eyes calibrated, we are ready to begin. For the next 60 minutes, I will ask you to work on 10 tasks. I would like you to tell me your impressions and thoughts about the Web site as you work through the tasks. I would like you to “think aloud” and talk to me about your decisions. So if you expect something to happen, tell me what you expect. If you expect to see some piece of information, tell me about what you expect. This means that as you work on a task, talk to me about what you are doing, what you are going to do, and why. Talk to me about why you clicked on a link or where you expect the link to take you.

Finally, during the session, I will remind you to talk to me if you get quiet, not to interrupt your thought process simply to remind you to talk to me. Please focus on verbalizing what you are thinking and expecting to happen. We are interested in the reasoning behind your actions, not just what you are doing.

I ask that each time you start a task, please read the task out loud, and once you have found the information you are looking for please state your answer aloud. For example, say, “My answer is ---” or “This is my final answer.” After each task, I will return you to the CIC main page where you can begin the next task.

Please remember to begin each task by reading the task question aloud as well as stating the final answer. As you work, please remember to think aloud.

Now I am going to calibrate your eyes for the eye-tracking. I am going to have you position yourself in front of the screen so that you can see your nose in the reflection at the bottom of the monitor. To calibrate your eyes, please follow the blue dot across the screen with your eyes.

[Do Calibration]

Appendix F: Consent Form



For Individual Subjects

Consent Form

Usability Study of the CIC Web site

Each year the Census Bureau conducts many different usability evaluations. For example, the Census Bureau routinely tests the wording, layout and behavior of products, such as Web sites and online surveys, in order to obtain the best information possible.

You have volunteered to take part in a study to improve the usability of the Census Information Centers (CIC) Web site. In order to have a complete record of your comments, your usability session will be videotaped. We plan to use the tapes to improve the design of the product. Staff directly involved in the usable design research project will have access to the tapes. Your participation is voluntary and your answers will remain strictly confidential.

This usability study is being conducted under the authority of Title 13 USC. The OMB control number for this study is 0607-0725. This valid approval number legally certifies this information collection.

I have volunteered to participate in this Census Bureau usability study, and I give permission for my tapes to be used for the purposes stated above.

Participant's Name: _____

Participant's Signature: _____ Date: _____

Researcher's Name: _____

Researcher's Signature: _____ Date: _____

Appendix G: Questionnaire on Computer Use and Internet Experience

1. Do you use a computer at home or at work or both?

(Check all that apply.)

- Home
- Work
- Somewhere else, such as school, library, etc.

2. If you have a computer at home,

a. What kind of modem do you use at home?

- Dial-up
- Cable
- DSL
- Wireless (Wi-Fi)
- Other _____
- Don't know _____

b. Which browser do you typically use at home? Please indicate the version if you can recall it.

- Firefox
- Internet Explorer
- Netscape
- Other _____
- Don't know _____

c. What operating system does your home computer run in?

- MAC OS
- Windows 95
- Windows 2000
- Windows XP
- Windows Vista
- Other _____
- Don't know _____

3. On average, about how many hours do you spend on the Internet per day?

- 0 hours
- 1-3 hours
- 4-6 hours
- 7 or more hours

4. Please rate your overall experience with the following:

Circle one number.

	No experience					Very experienced			
Computers	1	2	3	4	5	6	7	8	9
Internet	1	2	4	5	5	6	7	8	9

5. What computer applications do you use?

Mark (X) for all that apply

- E-mail
- Internet
- Word processing (MS-Word, WordPerfect, etc.)
- Spreadsheets (Excel, Lotus, Quattro, etc.)
- Accounting or tax software

___ Engineering, scientific, or statistical software
 ___ Other applications, please specify _____

For the following questions, please circle one number.

	Not Comfortable					Comfortable
	1	2	3	4	5	
6. How <i>comfortable</i> are you in learning to navigate new Web sites?						
7. Computer windows can minimize, resized, and scrolled through. How <i>comfortable</i> are you in manipulating a window?						
8. How <i>comfortable</i> are you using, and navigating through the Internet?						
	Never			Very Often		
9. How <i>often</i> do you work with any type of data through a computer?	1	2	3	4	5	
10. How <i>often</i> do you perform complex analyses of data through a computer?	1	2	3	4	5	
11. How <i>often</i> do you use the Internet or Web sites to find information? (e.g., printed reports, news articles, data tables, blogs, etc.)	1	2	3	4	5	
	Not familiar			Very familiar		
12. How <i>familiar</i> are you with the Census (terms, data, etc)?	1	2	3	4	5	
13. How <i>familiar</i> are you with the current Census Information Centers site (terms, data, etc.)?	1	2	3	4	5	

Appendix H: Questionnaire for User Interaction Satisfaction (QUIS)

Please circle the numbers that most appropriately reflect your impressions about using this Web -based instrument.

- | | | | | | | | | | | | | |
|---|--------------|---|---|---|---|---|---|---|---|---|------------|----------------|
| 1. Overall reaction to the Web site: | terrible | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | wonderful | not applicable |
| 2. Screen layouts: | confusing | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | clear | not applicable |
| 3. Use of terminology throughout the Web site: | inconsistent | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | consistent | not applicable |
| 4. Information displayed on the screens: | inadequate | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | adequate | not applicable |
| 5. Arrangement of information on the screen: | illogical | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | logical | not applicable |
| 6. Tasks can be performed in a straight-forward manner: | never | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | always | not applicable |
| 7. Organization of information on the site: | confusing | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | clear | not applicable |
| 8. Forward navigation: | impossible | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | easy | not applicable |
| 9. Overall experience of finding information: | difficult | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | easy | not applicable |
| 10. Additional Comments: | | | | | | | | | | | | |

Appendix I: Debriefing Questions

Note: Not all Debriefing Questions were asked for every participant.

1. Can you walk me through your thinking on why you marked (a particular QUIS item) especially low/high? (Do this for several low/high QUIS ratings).
2. What do you think of the basic screen layout?
 - a. Overall?
3. What do you think of the navigational methods?
4. Do you think the CIC Web site helped you find accurate answers?
5. Do you think the CIC Web site helped you to find information quickly ?
6. How satisfied are you with your experiences using the CIC Web site?
7. What did you like best about the Web site/tool?
8. What did you like least about the Web site/tool?
9. What is something that you feel should be changed?
10. What is something that you feel should stay the same?
11. How easy or difficult do you feel it was to complete the tasks? What made a task easy or difficult?
12. Is there anything you'd like to mention that we haven't talked about?

Appendix J: Heat Maps For Each Task

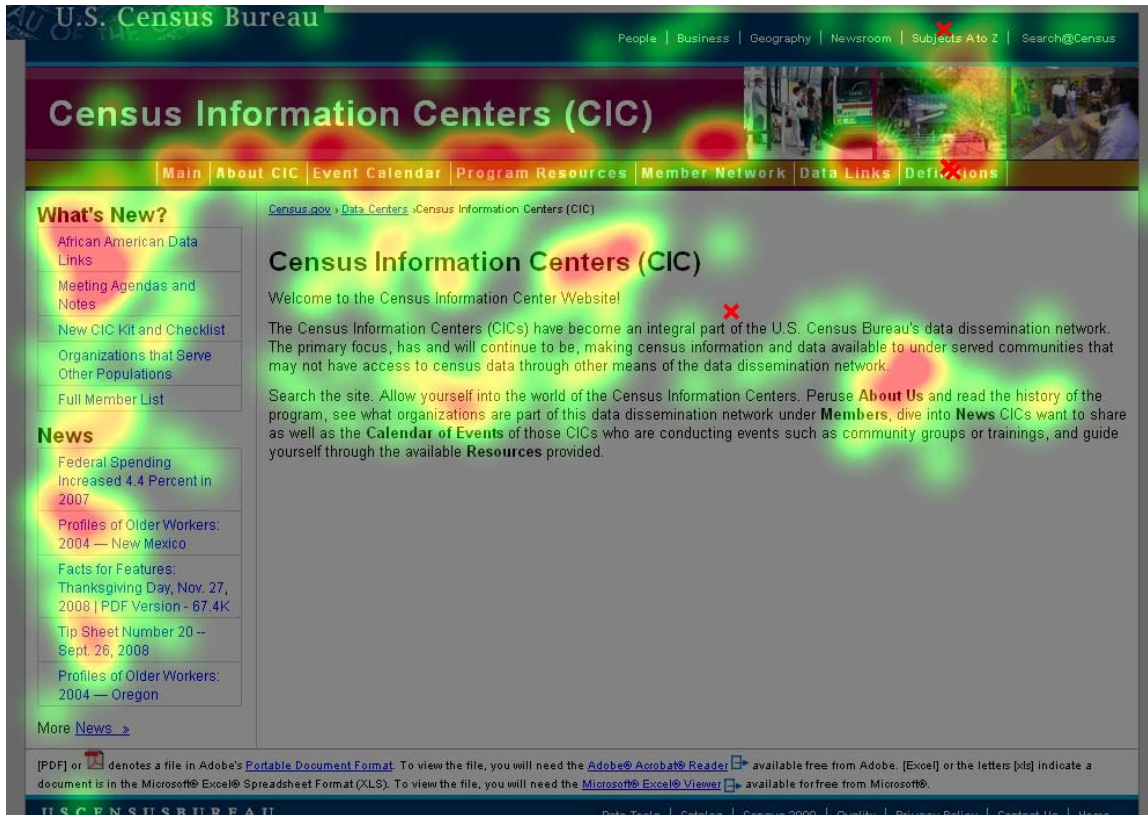


Figure 2. Heat Map for All Three Participants for Task 1.

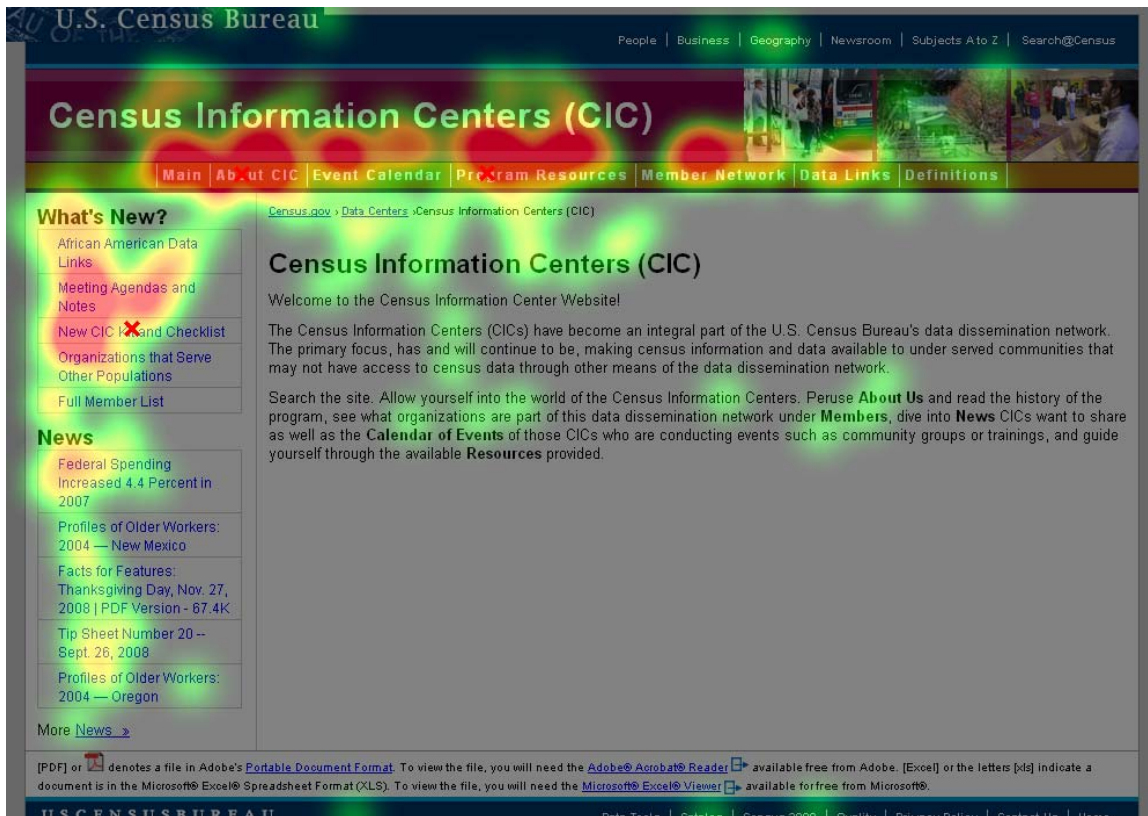


Figure 3. Heat Map for All Three Participants for Task 2.

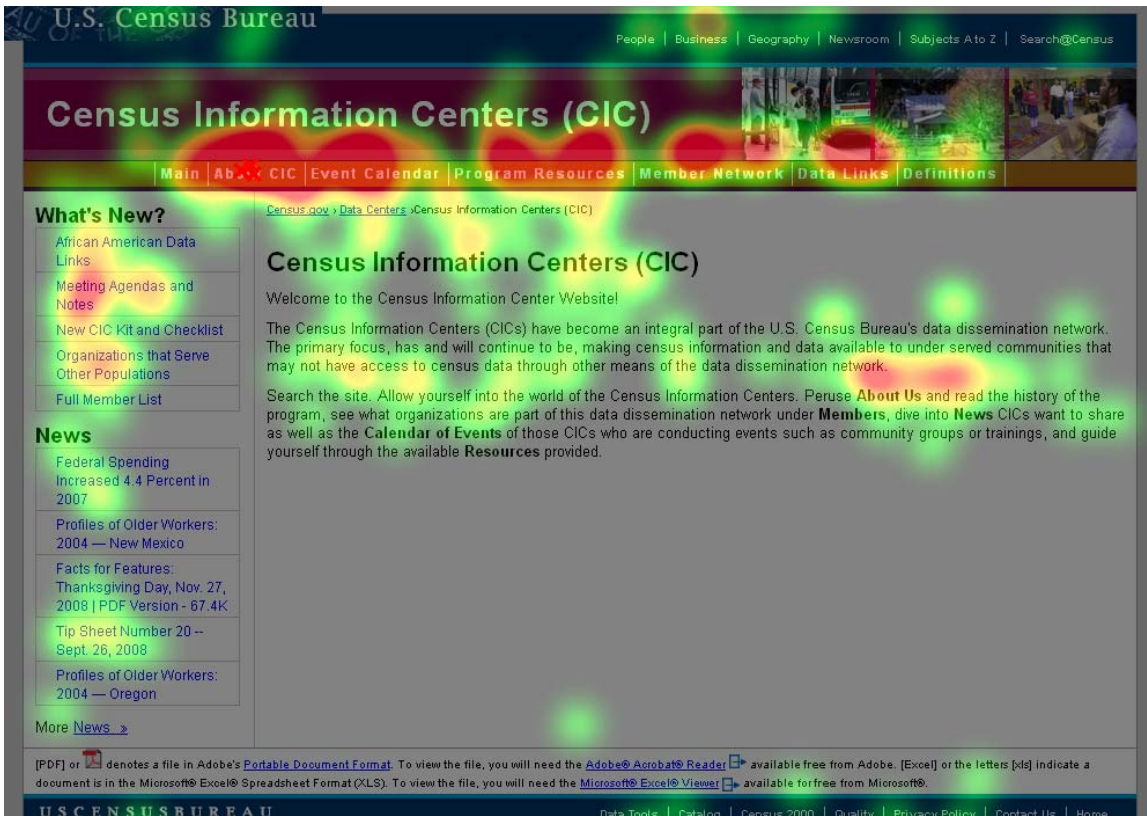


Figure 4. Heat Map for All Three Participants for Task 3.

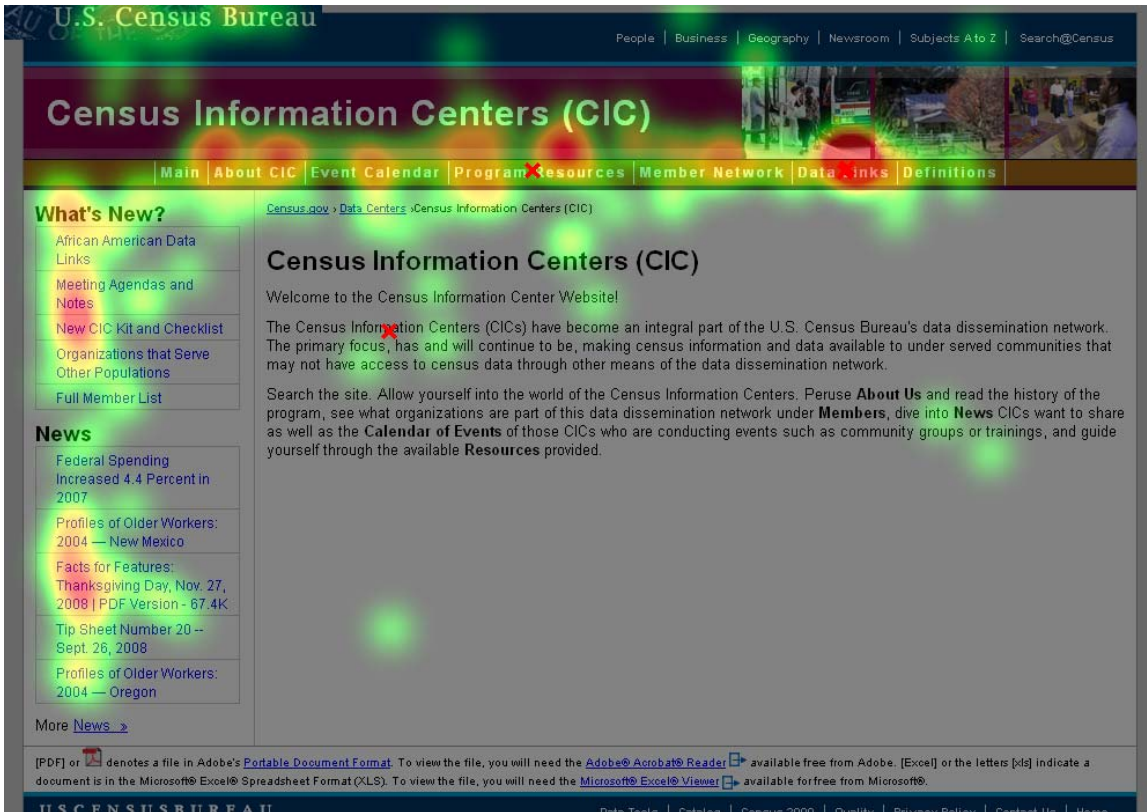


Figure 5. Heat Map for All Three Participants for Task 4.

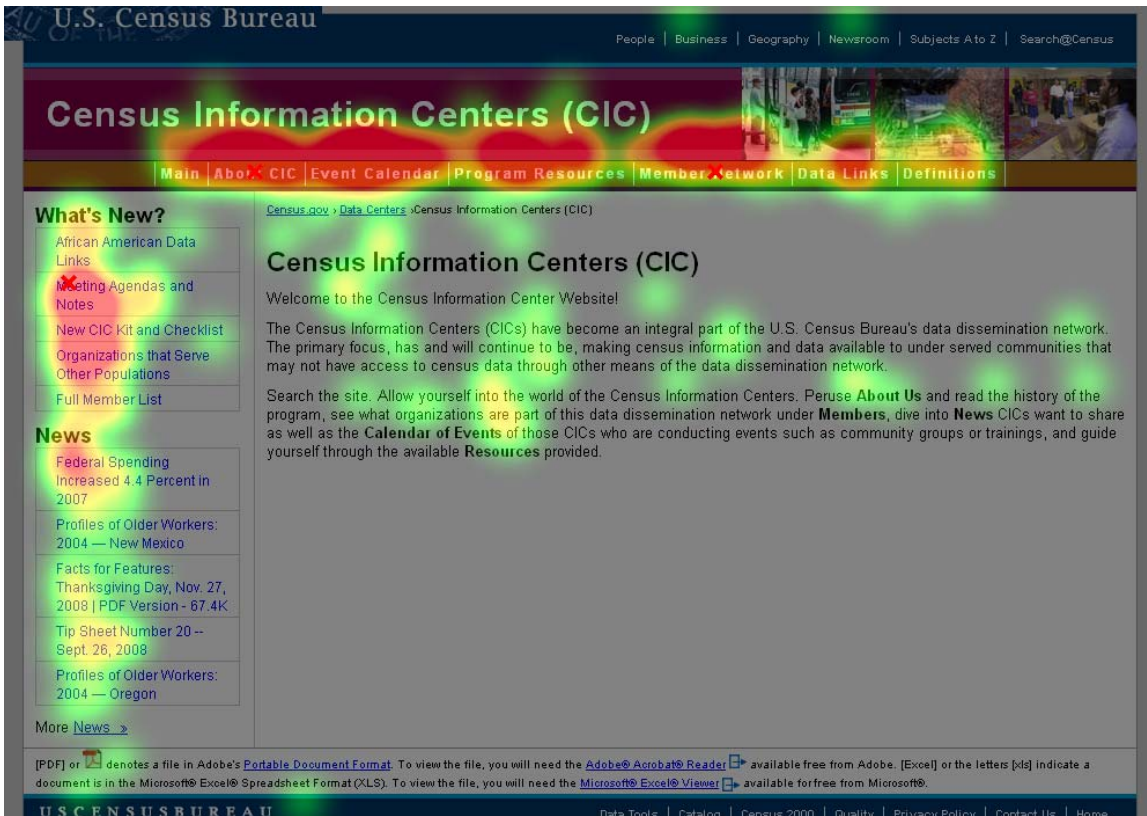


Figure 6. Heat Map for All Three Participants for Task 5.

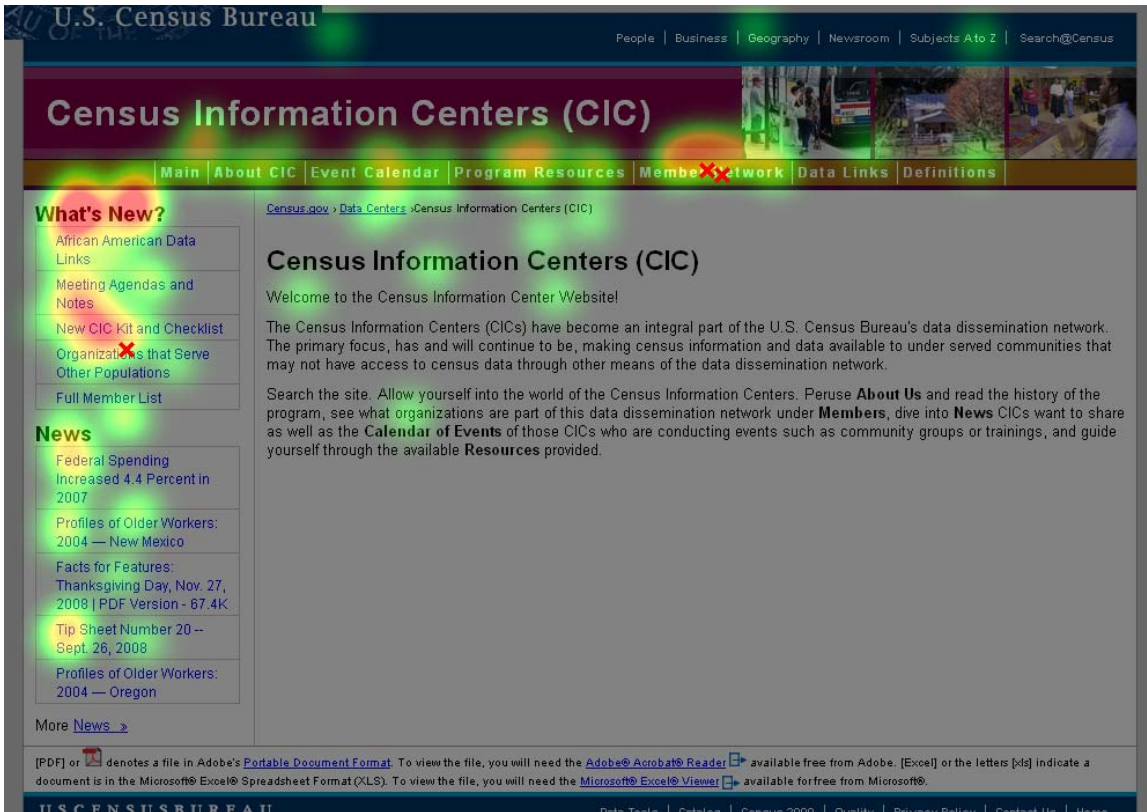


Figure 7. Heat Map for All Three Participants for Task 6.

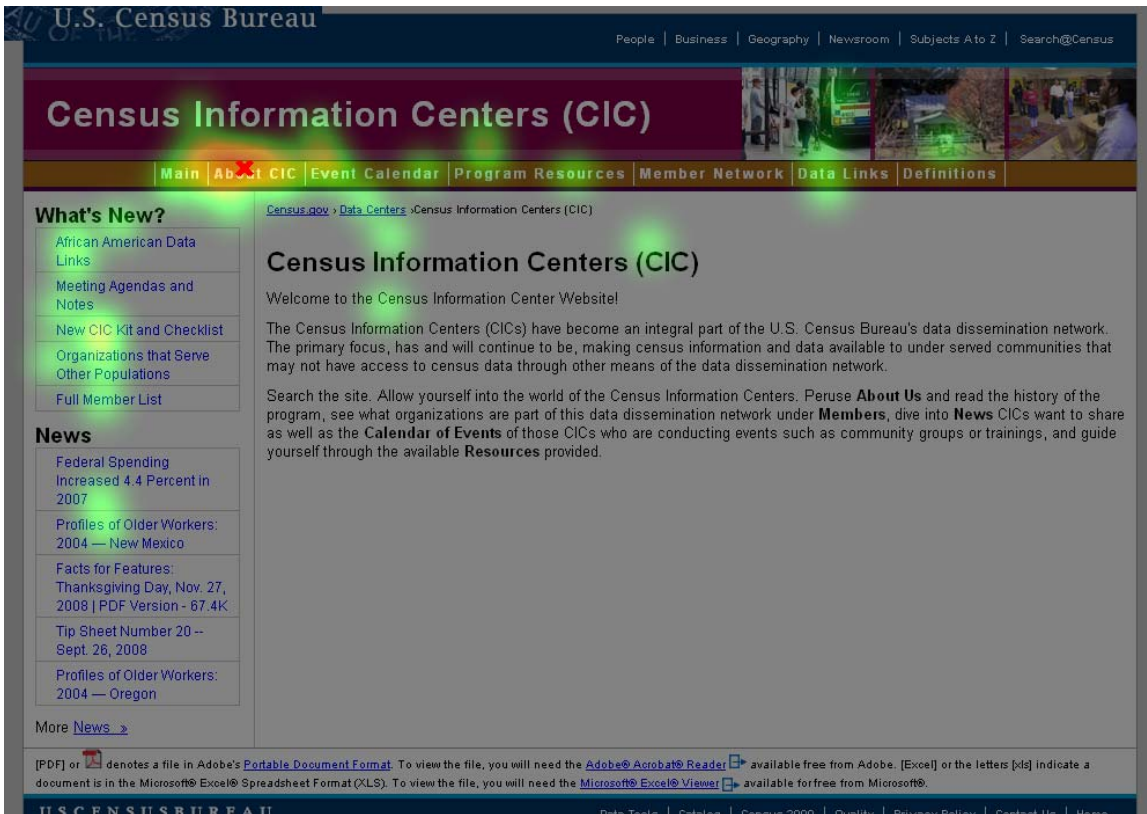


Figure 8. Heat Map for Participants 2 and 3 for Task 7.

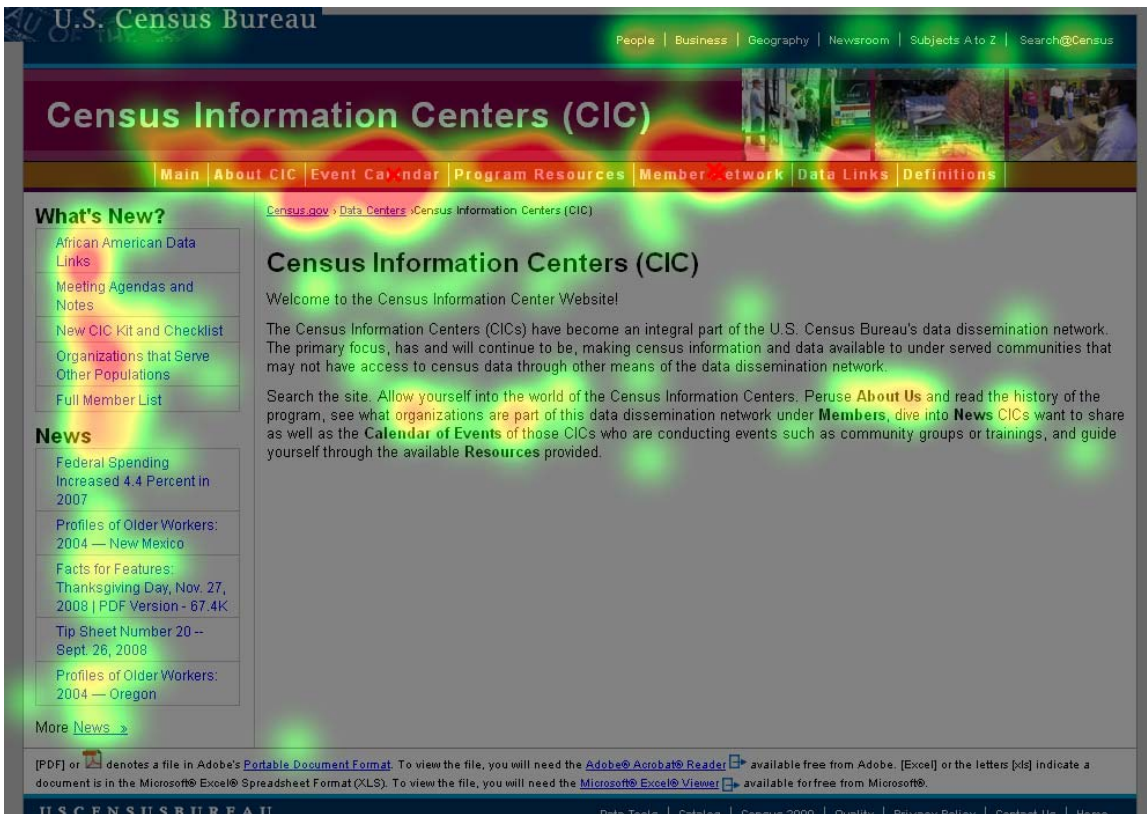


Figure 9. Heat Map for All Three Participants for Task 8.

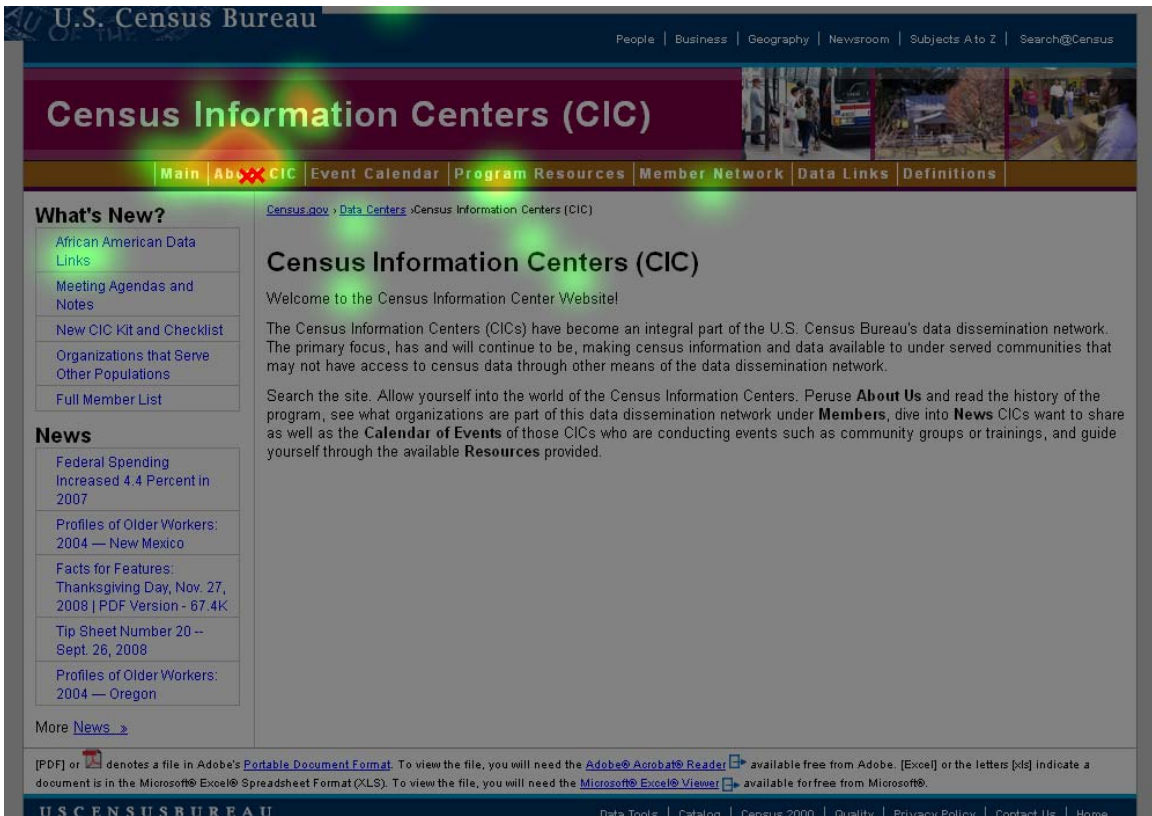


Figure 10. Heat Map for All Three Participants for Task 9.

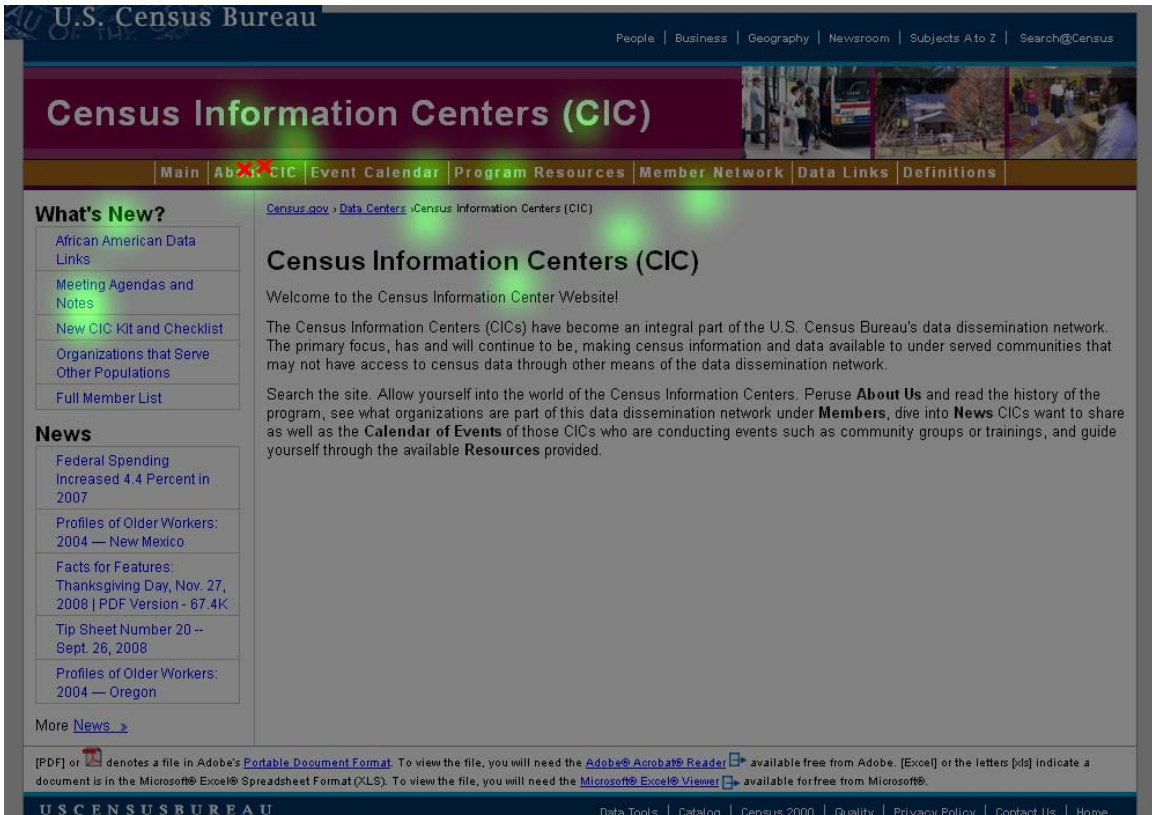


Figure 11. Heat Map for All Three Participants for Task 10.