

STUDY SERIES
(*Survey Methodology* #2012-02)

**Final Report for Usability
Testing of the Census Regional Website**

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Date: Monday, December 05, 2011

To: Dianna Thaxton

From: Usability Team: Victor Quach and Lawrence Malakhoff, Center for Survey Measurement

Subject: Final Report for Usability testing of the Census Regional Website

Introduction and Background

The Census Bureau's Usability Lab conducted usability testing on the Census Regional Website from November 15th to December 15th, 2010. Recommendations were provided in the quick report and are presented in this report as well. This report contains the in-depth eye-tracking and debriefing session that was omitted from the quick report.

Method

This section describes the participants involved in the study, how and where the testing was conducted, and the materials used in the study.

Participants

Before actual testing occurred in each round, the usability staff conducted a dry-run (i.e., pilot test) of the usability testing procedure. Based on the pilot sessions, the methods and procedures were refined slightly to ensure an effective usability study. We recruited 5 persons with limited vision who used the Job Access With Speech (JAWS) screen-reader – two from the Census Bureau and 3 through Columbia Lighthouse for the Blind to test for compliance to the Federal accessibility standard (Section 508). Eight people with normal vision were also recruited from the local area, bringing the total to 13 interviews. Demographics of the participants are listed in the table below.

	JAWS Users	Eye-Tracking Users
Age		
21-30	1	2
31-40	1	2
41-50	1	1
51-60	0	2
61-70	2	1

Gender		
Male	3	3
Female	2	5
Race		
White	3	5
Black	2	2
Hispanic	0	0
Asian	0	1
Education		
Some college	2	2
College graduate	1	5
Some graduate school	1	1
Advanced degree	1	0

Procedure

Each usability session lasted about sixty minutes and was conducted at the Census Bureau's Usability lab. Upon arriving, each participant was seated in the testing room, facing one-way glass and a wall camera, in front of an LCD monitor that was on a table at standard desktop height. During the usability test, the test administrator sat in the control room on the other side of the one-way glass. The test administrator and the participant communicated through microphones and speakers. The participant's workstation consisted of a Dell personal computer, a standard keyboard, and a standard mouse with a wheel.

The test administrator greeted the participant and read the general introduction ([Appendix A](#)) explaining the purpose of the session, the testing procedure, and the importance of participant contribution. Before beginning the usability study, the participant read and signed the consent form, ([Appendix B](#)) explaining that all information gathered during the study was confidential and that the session would be videotaped and used solely for research purposes. In addition participants were informed that we would be using eye tracking to see how they interacted with the survey.¹ After receiving the participants' signature, video recording began.

Next, the test administrator asked the participant to do a practice task using a familiar site (e.g., WTOP.com) to practice thinking aloud. They were asked to find WTOP alerts from the WTOP.com website. During testing, the think-aloud technique was used to understand the participant's cognitive processes as they interacted with the interface. Think-aloud is modeled on Ericsson and Simon's (1993) approach to collecting verbal protocols, which was used to maintain a running verbal commentary of the participants' expectations and reasoning. A participant engaging in think-aloud verbalizes his or her available, conscious thoughts and decisions while completing the tasks. If at any time a participant became quiet for more than 10 to 15 seconds, the test administrator encourages the participant to continue to think-aloud, using prompts such as, "What are you thinking?", "Can you tell me your thoughts?" and "Keep talking."

¹ No eye-tracking data could be recorded for Job Access With Speech (JAWS) screen-reader users.

After the practice think aloud task, the test administrator calibrated the participant's eyes for eye-tracking. The test administrator did a sound check from the control room while the participant completed the Questionnaire on Computer Use and Internet Experience and Demographics ([Appendix C](#)).²

The test administrator then instructed participants to read each task out loud and to state the final answer out loud. After completing the tasks, the participant filled out the Satisfaction Questionnaire ([Appendix D](#))³ and the test administrator asked the participant debriefing questions ([Appendix E](#)) allowing for a conversational exchange about the Census Regional website.

Eye tracking equipment was also used during testing. The participant sat in front of a Tobii X120 equipped with cameras for eye tracking. The Tobii eye-tracking device and the Tobii Studio software program monitored the participants' eye movements and recorded eye gaze data.

Video recording was also used. A wall-mounted camera recorded the participant's face and non-verbal behaviors. In addition, video of the participant's monitor was combined with the camera video and audio sources and recorded on digital videocassette tape. Video was used to track JAWS participants' path by recording screen changes and the text vocalized by the screen-reader.

Performance and Satisfaction Measurement Results

The next section reports participant efficiency and satisfaction with completing tasks using the Census Regional Website.

User Satisfaction

The satisfaction questionnaire required participants to rate aspects of the web site on a scale from 1 to 7. A 1 represents the lowest value for that characteristic, while a 7 represents the highest value for the characteristic. Appendix D provides a paper version of the questionnaire. Ideally, the satisfaction scores should be above 3.5. In table 1, eye-tracking participants rated SATQ7 (Going back to a previous page) the highest at 6.625 and SATQ1 (Overall reaction to the web site) the lowest at 5.25.

Table 2 shows the average satisfaction for JAWS users. JAWS participants rated SATQ7 the highest at 8.5 and SATQ8 (Performing an operation leads to a predictable result) the lowest at 3.5. We separate these participants from the eye-tracking participants because hearing the text of a web-site spoken takes more time than seeing it with normal vision, resulting in a much different experience when performing tasks. JAWS users usually hear all text on a web site because they are unable to scan a page like a person with normal vision would typically do. Another important difference between JAWS and eye-tracking users is that JAWS users are constrained to follow the programmed order of links, whereas eye-tracking users are exposed to the web site information in random order, depending where they look. JAWS participants overall had lower satisfaction than the eye-tracking participants for the majority of

² The Questionnaire on Computer Use and Internet Experience and Demographics was filled out on computer for sighted participants and conducted verbally for JAWS users

³ The Satisfaction Questionnaire was filled out on the computer for sighted participants and conducted verbally for JAWS users.

satisfaction questions except SATQ3 (Use of terminology throughout the Census Regional Website) and SATQ7 (Going back to a previous page on the Census Regional Website).

Table 1: Satisfaction questionnaire for sighted users

	SATQ1	SATQ2	SATQ3	SATQ4	SATQ5	SATQ6	SATQ7	SATQ8 ⁴	Average across Questions
P1	5	5	5	5	5	5	7	NULL	5.289
P2	6	6	4	6	5	7	4	NULL	5.43
P3	5	7	7	5	7	6	7	7	6.38
P4	5	6	7	6	5	5	7	6	5.88
P5	6	5	7	6	6	6	7	5	6
P6	5	6	4	6	5	6	7	4	5.38
P7	5	4	5	4	4	5	7	4	4.75
P8	5	7	7	7	6	6	7	7	6.5
Average across Participants	5.25	5.75	5.75	5.625	5.375	5.75	6.625	5.5	

Table 2: Satisfaction questionnaire for JAWS users

	SATQ1	SATQ2	SATQ3	SATQ4	SATQ5	SATQ6	SATQ7	SATQ8	Average across Questions
P1-AC	6	6	6	7	7	6	9	7	6.75
P2-AC	3	4	7	2	2	3	7	3	3.875
P3-AC	5	5	8	4	5	7	9	3	5.75
P4-AC	3	3	9	5	4	1	9	1	4.375
P5-AC⁵	-	-	-	-	-	-	-	-	-
Average across Participants	4.25	4.5	7.5	4.5	4.5	4.25	8.5	3.5	

⁴ NULL values occurred due to problems with the digital satisfaction questionnaire. The problem was later fixed.

⁵ There are no satisfaction questionnaire scores available since the Participant 5-AC session terminated early due to the Metro Access shuttle schedule.

User Performance

All participants were asked to perform the following 10 tasks:

1. You are interested in becoming a Census Bureau partner in order to promote the Census. How would you submit your information for a partnership with the Boston Regional Office?
2. Suppose you live in the Commonwealth of the Northern Mariana Islands. How would you find out if the Census Field Representative at your door is from the Census Bureau?
3. You are seeking a position as a Field Representative. You wish to find what qualifications are needed and the workload hours in Puerto Rico.
4. Locate the phone number for the partnership and data services staff contacts in the Dallas region.
5. How would you request a workshop at the Philadelphia Regional Office Website?
6. Find the directions to the Charlotte Regional Office via their Website.
7. You are interested in viewing microfiche data from the 1980 Census and are wondering if you need an appointment with the Boston Regional office to physically see the data. Where would you find this information?
8. After submitting your information to the Boston Regional Office, you wish to update your partner information. How would you do it?
9. You have a complaint and wish to speak to the director of the Los Angeles Regional Office. What is this person's name and telephone number?
10. You wish to find the population of the state of Kansas. How would you find it on the Website? *[note: for this question you do not need to provide the actual population estimate]*

Participants received a Yes for successful completion of a task and a No for an incomplete or wrong response. For example, a wrong response to any task could be stating that they would call the Census Regional Office for information. A task incompleteness would be finding the link to the answer, but not clicking on it. For example, on Task 5 we asked participants to request a workshop from the Philadelphia Regional Office. Several participants found the Request a Workshop link through the Resources & Services Web page, but failed to follow up and click the link. Instead they said they would e-mail the contact listed below the "Request a Workshop" link. Table 3 shows the breakdown of task completion and the percentage of tasks successfully completed for sighted users. Ideal task completion rate should be above 50%. Nine out of 10 tasks met this criteria. Across participants, Task 2 had the lowest completion rate at 12.50% with one participant finding the Commonwealth of the Northern Mariana Islands (CNMI) by guessing. Across tasks, participants 4 and 6 had the lowest success rate (50%).

Table 4 shows the breakdown of task completion and percentage of tasks successfully completed for JAWS users. Only one JAWS participant completed Task 2 successfully. Participant 2-AC recalled that

the CNMI was in the Pacific Ocean which also borders southern California. The fact that the LA regional office included Hawaii led this participant to select LA because it might contain other US island territories. Performance by JAWS users was worse than by sighted users – only 4 of the 10 tasks met the criteria of 50% completion rate. Tasks 8 and 10 had identical success rates for both JAWS and sighted participants.

	Task1	Task2 ⁶	Task3	Task4	Task5	Task6	Task7	Task8	Task9	Task10	Success Rate across Tasks
P1	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	90.00%
P2	No	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	70.00%
P3	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	90.00%
P4	Yes	No	No	Yes	No	Yes	Yes	Yes	No	No	50.00%
P5	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	80.00%
P6	No	No	Yes	No	No	Yes	Yes	Yes	No	Yes	50.00%
P7	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	90.00%
P8	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	No	60.00%
Success Rate across Participants	75.00%	12.50%	87.50%	75.00%	75.00%	87.50%	87.50%	100.00%	50.00%	75.00%	

Table 4: Task Performance for JAWS participants

	Task1	Task2	Task3	Task4	Task5	Task6	Task7	Task8	Task9	Task10	Success Rate across Tasks
P1-AC	Yes	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	80%
P2-AC	Yes	Yes	No	Yes	Yes	No	No	Yes	No	Yes	60%
P3-AC	Yes	No	No	Yes	No	No	No	Yes	No	No	30%
P4-AC	Yes	No	Yes	Yes	No	No	Yes	Yes	No	Yes	60%
P5-AC⁷	Yes	No	No	Yes	No	No	----	----	----	----	----
Success Rate across Participants	100%	20%	40%	100%	40%	20%	25%	100%	25%	75%	

⁶ Some participants were successful in finding information on identifying a Census Field Representative from another Regional Office page. However, their task was marked incomplete since they could not find the Commonwealth of the Northern Mariana Islands.

⁷ Participant 5-AC was unable to complete the study.

User Efficiency⁸

Tables 5 and 6 show the overall elapsed time, overall average completion time, averages of task completion with only successful tasks completed, and averages of task failure times for sighted and JAWS users, respectively. Participant 2 took 10 minutes and 3 seconds, the longest amount of time on any task, across all the sighted participants. The fastest completion time for a task was 34 seconds. The majority of completion times were under five minutes. The red boxes indicate which tasks were not completed successfully on a participant level.

For most of the tasks for both sighted and JAWS users, the average amount of time spent on a successful task completion was less than the average amount of time spent if the participants were unsuccessful in completing the task. This pattern held across tasks for most participants, and across participants for the tasks. Except for tasks 2 and 9, sighted users were able to successfully complete their task in less time than JAWS users. It is likely JAWS users were more successful than sighted users in tasks 2 and 9 and performed nearly as well in tasks 7 and 8 because they heard every word on the screen.

⁸ Since participants were asked to “think out loud,” time on a task may not be representative of actual time taken on a task outside of the laboratory.

Table 5: Time on task in seconds for sighted users

	Task1	Task2	Task3	Task4	Task5	Task6	Task7	Task8	Task9	Task10	Avg. All	Avg. Success	Avg. Failure
P1	1:33	4:40	2:04	1:35	1:25	1:46	3:58	0:34	1:13	3:12	2:12	1:55	4:40
P2	10:03	5:39	6:15	2:41	2:31	0:51	5:28	0:36	0:45	2:02	3:41	2:14	7:03
P3	2:33	8:09	1:53	3:43	1:16	1:02	4:04	0:39	1:27	2:00	2:40	2:33	3:43
P4	3:23	3:00	2:48	1:06	1:38	0:46	1:12	0:35	2:10	3:28	2:00	1:24	2:36
P5	2:04	3:48	1:24	1:38	1:41	2:16	2:31	0:39	1:16	1:23	1:52	1:43	2:32
P6	2:34	2:45	2:47	3:03	2:53	1:18	3:19	1:02	0:56	6:12	2:40	2:55	2:26
P7	1:45	5:39	1:33	1:44	1:02	1:24	2:10	1:09	1:50	5:07	2:20	2:00	5:39
P8	5:22	8:25	3:04	2:27	5:55	6:29	3:57	2:41	1:44	8:31	4:51	3:54	6:17
Avg. All	3:39	5:15	2:43	2:14	2:17	1:59	3:19	0:59	1:25	3:59			
Avg. Success	2:46	6:42	2:42	1:51	2:18	1:20	3:01	0:59	1:18	3:19			
Avg. Failure	6:18	4:50	2:48	3:23	2:15	6:29	5:28	N/A	1:31	5:59			

Table 6: Time on task in seconds for JAWS users

	Task1	Task2	Task3	Task4	Task5	Task6	Task7	Task8	Task9	Task10	Avg. All	Avg. Success	Avg. Failure
P1-AC	03:18	13:18	05:27	03:02	01:47	01:35	10:03	00:39	00:57	03:43	04:22	2:33	11:40
P2-AC	03:17	05:00	09:08	04:44	06:50	04:09	02:42	01:21	03:06	03:41	04:23	4:10	4:46
P3-AC	07:33	12:57	09:01	04:50	11:56	06:43	03:44	00:59	06:38	04:59	06:56	4:27	7:59
P4-AC	08:29	06:28	11:44	04:16	06:45	10:03	03:08	01:35	02:12	07:21	06:12	6:06	6:22
P5-AC ⁹	06:31	14:04	16:27	08:13	08:49	05:43	----	----	----	----	09:57	7:22	11:15
Average (seconds)	05:49	10:21	10:21	05:01	07:13	05:38	04:54	01:08	03:13	04:56			
N	5	5	5	5	5	5	4	4	4	4			
Avg. Success	5:49	5:00	8:35	5:01	4:18	1:35	3:08	1:08	0:57	4:55			
Avg. Failure	N/A	11:41	11:32	N/A	9:10	6:39	5:29	N/A	3:58	4:59			

⁹ Participant P5-AC was unable to complete the study due to the MetroAccess vehicle schedule.

Satisfaction Comments

Several participants wrote comments in the comment boxes on the satisfaction questionnaire. Their written comments are organized by satisfaction question and provided in Appendix G. Comments with an –AC suffix were transcribed by the experimenter. Some comments are referenced in the following Issues section.

Issues

JAWS Navigation

While the Census Regional Web site was accessible, and every word and link was vocalized and or activated by JAWS keyboard commands, we will note navigation problems experienced by JAWS users when they occur.

High Priority Issues

1. *Missing Territories*

The task set for participants was to authenticate the credentials of a Census Field Representative in the CNMI. The majority of sighted participants, 87.5%, were unable to find an image or listing of the CNMI. Although some participants made guesses as to its possible location, they were unable to find it. Several participants scanned the table below the map in an attempt to locate the islands. One participant commented, “seeing if it's on listing here.” Another participant commented “Why aren’t the Northern Mariana Islands listed in the table below the thematic map?” in the satisfaction questionnaire. A few participants clicked on other regional offices out of frustration or guesses as to where CNMI could be located. A participant commented, “I have no idea of where CNMI is, but being an island it must be off continent.” A few participants were able to find information on identifying the Census Field Representative.

Suggestions:

- List the CNMI, Guam, and American Samoa in the table below the thematic map and place their images near the thematic map as shown in Figure 1. These territories are only listed on the LA region page. Participants are unlikely to exert as much effort to find the territories outside of the laboratory, and residents of those territories are unlikely to know which regional office to visit.
- Adding map images of Guam, the CNMI, and American Samoa to the Los Angeles Regional Office in Figure 2 would provide confirmation that the users have found the correct regional office.
- The text in the red box in Figure 2 should be re-worded. In its current form, it could easily mislead the user into thinking Guam, Northern Mariana Islands and American Samoa were counties in the state of Hawaii.

Select an area on the map to locate a Regional Office.

Served by each Regional Office

Alabama, Florida, Georgia	Arkansas, Iowa, Kansas, Minnesota, Missouri, Oklahoma
Connecticut, Massachusetts, New Hampshire, Rhode Island,	Hawaii, Southern California (counties of Fresno, Imperial, Inyo, Kern, Kings, Los Angeles, Madera, Mariposa, Merced, Monterey, Orange, Riverside, San Benito, San Bernardino, San Diego, San Luis Obispo, Santa Barbara, Tulare, and Ventura)
Kentucky, North Carolina, South Carolina, Tennessee, Virginia	New Jersey (counties of Bergen, Essex, Hudson, Middlesex, Morris, Passaic, Somerset, Sussex, Union, and Warren), New York (counties of Bronx, Kings, Nassau, New York, Queens, Richmond, Rockland, Suffolk, and Westchester)
Illinois, Indiana, Wisconsin	Delaware, District of Columbia, Maryland, New Jersey (all counties except those covered by the New York Regional Office listed above), Pennsylvania
Louisiana, Mississippi, Texas	Alaska, Idaho, Northern California (all counties except those covered by the Los Angeles Regional Office listed above), Oregon, Washington
Arizona, Colorado, Montana, Nebraska, New Mexico	
Michigan, Ohio, West Virginia	
Kansas City	
Los Angeles	
New York	
Philadelphia	
Seattle	

Figure 1: Recommended placement of Los Angeles Region island territories.

U.S. Census Bureau

Los Angeles Region

You are here: [Census.gov](#) > [Regional Offices](#) > Los Angeles Region

Los Angeles Region Main | Programs & Surveys | Resources & Services | Partner Information | Local Jobs | Contact Us | All Regions

Welcome to the Census Bureau's Los Angeles region. Our office is responsible for all data collection, data dissemination, and geographic operations, for 19 California counties stretching from Monterey, San Benito, Fresno, Merced, and Mariposa counties to the U.S. Mexican border plus the State of Hawaii with its five counties, Guam, American Samoa, and the Northern Mariana Islands. Our team of professionals is committed to exceeding the high standards required by the Census Bureau as well as delivering excellent customer service.

Defining the past and measuring the present in order to anticipate the future.

James T. Christy, Regional Director

Former 2010 Census Workers

Former 2010 Census Worker Events coming soon [PDF 73K]

Former 2010 Employee Resource Guide [PDF 892K]

How to Identify a Census Field Representative - Your safety and trust is important to us.

Los Angeles Regional Office

15350 Sherman Way, Suite 400
Van Nuys, CA 91406-4224
(818) 267-1700 or 1-800-992-3530
FAX: (818) 267-1711
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Los Angeles Regional Census Center (2010 Census)

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Source: U.S. Census Bureau | Partnership and Data Services Branch | fd.pds.web.support@census.gov | Last Revised: September 28, 2010

Figure 2: Suggested placement of island territories and indication of poorly worded text.

2. Terminology Confusion

Some participants were confused about the terminology contained in the Census Regional Website. The most common source of confusion was an assumption that regions were areas inside of a state. One participant thought that Region meant state. Regions only have meaning to Census personnel. This may also explain why some participants were confused about Puerto Rico's inclusion as part of the Boston Regional Office. Participants were also confused about the word "partnership." Another participant thought a partnership meant job, although she had recently been searching for a job so she may have approached the tasks with a job-search mindset.

Suggestions:

- Besides Puerto Rico, the public may have trouble determining to which region they belong, especially in any of the Pacific territories. The states of California, New Jersey, and New York span two regions, which is confusing. All this demonstrates the confusing nature of the use of "region." The opening screen might be improved if the user could enter their zip code and state/territory, press enter, and view the appropriate information for where they live.
- The concept of a partnership needs be better explained to avoid confusion with the term "jobs," as seen with participants in this study.

3. Tab Clarification

Participants may have misconceptions about the content listed under the "Resources and Services" and "Programs and Surveys" tabs, perhaps due to the similar meaning of "Programs" and "Resources," each on different tabs. One participant commented that she was "Not sure what's under here (RS tab)." Several participants, when asked to find the state population of Kansas (Task 10) browsed through the links inside the "Programs and Surveys" tab before moving onto "Resources and Services." Another participant, when hovering over "Resources and Services," commented, "maybe, maybe not." One participant browsed through the "Programs and Surveys" tab before concluding, "oh this is not what I'm looking for." She then said, "Now I'm going try RS [Resources and Services]." Seventy-five percent of the participants were able to locate links to Kansas' population through Resources & Services.

The word "Programs" may be confusing participants, since people think of the decennial census when they hear "Census Bureau." The majority of participants visited the Programs and Surveys page when asked to find the population of Kansas before moving onto Resources & Services. One participant's comment about being unsure of the content inside the Resources & Services tab may reflect general confusion about the services the Census provides. People may be unaware of what other services are provided by the Census Bureau. Another participant was confused about what the difference was between Programs versus Resources.

Suggestion:

- Include a link to the fact sheet on the Programs and Surveys web page.

Medium Priority Issues

1. *Left Sidebar*

Seventy-five percent of the participants were able to find the partnership form (Task 1). Although nearly all of the participants found the Partnership Information tab a few minutes into the task, two participants did not find the Become a Partner link on the left. Figure 3 shows within a red dashed box that one participant's fixations were focused on the top left portion of the main page. In Task 9, we asked participants to find the Regional Director for the Los Angeles Region. In this task the participants often missed the "Our Staff" link on the left panel. When asked about Task 9, a participant said that she, "never noticed that." Another participant said, "I didn't pay attention to this side."

Content on the left side of the screen may not reliably attract a user's attention. Users may expect to see navigation functionality to the left and ignore it by assuming the content (or answer in this case) will be in the middle. As Figure 3 demonstrates, the participant did not fixate upon anything below 2010 Census Partnership. The lack of a fixation does not mean the user did not see the text, since users can see text in their peripheral vision. However, information located peripherally may result in the user missing information.

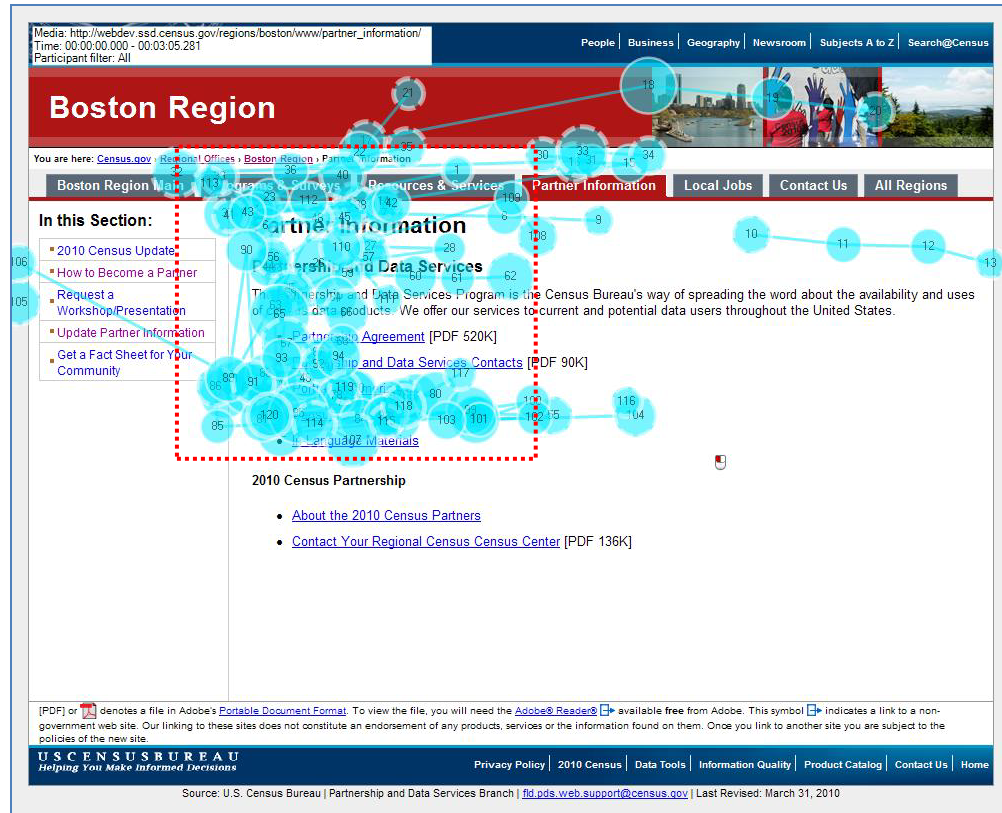


Figure 3: One participant's fixations on the Boston Region Partnership page.

JAWS Navigation

The instruction referring to the jobs links in the left navigation menu is unusable because it relies on normal vision. The concepts of left and right directions are problematic for JAWS users. Thus sighted users typically see the center first, while JAWS users hear the left first.

JAWS users heard all job links before hearing instructions under the Jobs header. After hearing instructions, the JAWS user had to navigate back to the job links and make the selection. If the JAWS user knew the context of the jobs links, he or she could make a choice the first time he or she heard their state name.

Suggestion:

- The text referring to jobs links on the left navigation menu should be eliminated. Ideally, the job links should be placed between the Jobs text and the PDF documents as seen in Figure 4.

Boston Region

You are here: [Census.gov](#) > [Regional Offices](#) > [Boston Region](#) > [Jobs](#)

[Boston Region Main](#) | [Programs & Surveys](#) | [Resources & Services](#) | [Partner Information](#) | **[Local Jobs](#)** | [Contact Us](#) | [All Regions](#)

In this Section:

- [Connecticut Jobs](#)
- [Maine Jobs](#)
- [Massachusetts Jobs](#)
- [New Hampshire Jobs](#)
- [New York Jobs](#)
- [Puerto Rico Jobs](#)
- [Rhode Island Jobs](#)
- [Vermont Jobs](#)

Jobs

The Boston Regional Census Center has completed recruiting for the 2010 Census. For more information about Regional Office employment opportunities in your area, please select the appropriate state link on the left navigation menu. Job links will open PDF documents or automatically forward you to [www.usajobs.opm.gov](#).

The Census Bureau does not discriminate in employment on the basis of race, color, religion, sex, national origin, political affiliation, sexual orientation, marital status, disability, age, membership in an employee organization, or any other nonmerit factor.

Forms

- [Optional Application for Federal Employment \(OF 612\)](#) [PDF 727k]
- [Declaration for Federal Employment \(OF 306\)](#) [PDF 92k]
- [Application for Veteran Preference \(SF-15\)](#) [PDF 1.2Mb]
- [Employment Eligibility Verification \(Form I-9\)](#) [PDF 379k]
- [Employment Package Check List](#) [PDF 8k]
- [Former 2010 Census Workers](#) - Learn about employment resources in your area.

Put jobs links here

Figure 4: Recommended placement of the jobs links.

2. Information on the Home Page

A few participants commented that they expected to see the directions and regional director's information on the main page. When asked about directions (Task 6), participants often scrolled to the bottom of the page before moving through the various tabs. One participant commented that she was "looking for a link to directions." Another participant also commented that she was looking for something that says "directions" on the bottom of the home page. Another participant commented in the satisfaction questionnaire, "Directions to a Regional office were not next to the address like I expected." One participant commented that he expected the Regional Director's contact information on the home page. A few recommendations are made in Figure 5.

U.S. Census Bureau

Philadelphia Region

You are here: [Census.gov](#) > [Regional Offices](#) > Philadelphia Region

[Philadelphia Region Main](#) | [Programs & Surveys](#) | [Resources & Services](#) | [Partner Information](#) | [Local Jobs](#) | [Contact Us](#) | [All Regions](#)

Welcome to the Census Bureau's Philadelphia region. Our office is responsible for all data collection, data dissemination, and geographic operations, for Delaware, the District of Columbia, professionals is committed to exceeding the high standards required by the Census Bureau as well as delivering excellent customer service.

Defining the past and measuring the present in order to anticipate the future.

Fernando E. Armstrong, Regional Director

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[How to Identify a Census Field Representative](#) - Your safety and trust is important to us.

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Both facebook and Twitter are links to non-government web sites. Our linking to these sites does not constitute an endorsement of any products, services or the information found on them. Once you link to another site you are subject to the policies of the new site.

Figure 5: Recommended placement of links to directions to the Regional Office.

Suggestions:

- Provide links to the “our staff” page near or below the Regional Director’s name.
- Provide links to the directions page, near the address. Since many of the participants examined the content on the home page closely they are more likely to pay attention to items on the home page, than on subsequent pages.
- If the entire address is made into a link, the alt-text of the URL should say directions and Issue #6: Directions should also be implemented to provide users with the address.

3. Resources and Services

The Resources & Services web page contains links to other Census Websites on the left (Column 1) and services provided by the regional office on the right (Column 2). On task 7, we asked participants to determine if an appointment is necessary to view 1980 Census microfiche data for the Boston regional office. The majority of participants scanned the left Resource column, ignoring the Services column. Eventually, 75 percent of the participants looked at the Services column and found the answer. Some users read the Resource column and visited another tab before returning to the Resources & Services page and finding the answer.

JAWS Navigation

JAWS users looking for regional office services had to navigate through all of the resource links. Some gave up because of the large number of links. There was no quick way to access the Services on this page. Sighted and low vision users may miss the services column altogether because content on the right side of a screen is frequently advertising and considered less important. The presence of the Resource links interfered with the task of accessing Service links.

Suggestion:

- The resource links could be eliminated because this content could be accessed through the link back to the main Census web site at the top left of every page. If this cannot be done, user efficiency could be enhanced by placing Services in column 1 and Resources in column 2 as Figure 6 demonstrates.

Resources	Services
<p>American FactFinder - Your source for information and data about:</p> <ul style="list-style-type: none"> • 2010 Census - Decennial Count, Historic Snapshot of the Nation • The American Community Survey - Provides yearly economic, social, demographic, and housing information about the communities in the United States • The Economic Census - A Detailed Portrait of the U.S. Economy • Population Estimates Program - Keeping the Population Count Current <p>Census Information Center Program - A cooperative program between the Census Bureau and 57 non profit organizations that make census information and data available to the public and communities they serve.</p> <p>Census Products - Descriptions and prices for Census Bureau Data Products.</p> <p>City Population Estimates - How many people are in your city</p> <p>Current U.S. and World Population - Get up-to-date U.S. and world population estimates through U.S. POPClock.</p> <p>Federal Statistics - Official statistical information available to the</p>	<p>Help data users to:</p> <ul style="list-style-type: none"> • decide what data will best serve their needs • understand the data • choose which format to use <p>Get a Fact Sheet for Your Community</p> <p>Educate users by:</p> <ul style="list-style-type: none"> • making presentations • conducting workshops • staffing exhibits <p>Request a Workshop/Presentation</p> <p>We also provide technical assistance to users of Census Bureau data, including help on Internet access to our Web site.</p> <p>For any data requests or inquiries please contact the Information Services Program at philly_pds@census.gov</p> <p>Our Reference Center</p> <p>Our reference center is open to the public from 9:00 a.m. to 5:00</p>

Figure 6: Suggested revision to the Resources and Services page.

4. Duty Stations for available jobs

Few participants saw the duty station text below each job listing. One participant commented that he hoped, “they would let you know on the screen” when asked if the jobs listed for a state required traveling out of state. Other participants made vague answers such as, “See what the home office and areas of services are” and “would expect the home base would be in Maryland to work from.” Another participant mentioned that he would have to read the duty station text. Participants may not have seen the duty station text because it was the same font as nearby text. Other participants did not make any reference to the duty station text shown in Figure 7.

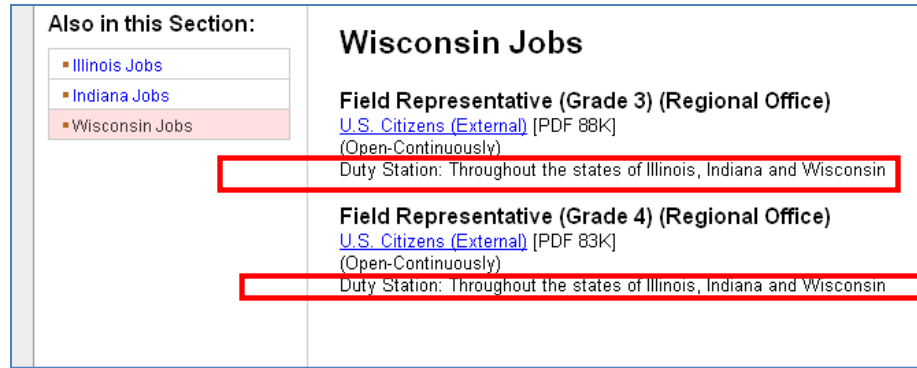


Figure 7: The Wisconsin Jobs screen.

Suggestion:

- Enlarge the duty station text shown in Figure 7. Changing the font color and italicizing the text will also increase its visibility.

5. California Jobs

Several participants indicated that it would be confusing to have California listed in both the Seattle and Los Angeles Regional Offices. One participant commented, "Until you showed me, I didn't even notice that." Several participants recommended clearly labeling the breakdown of California into Northern and Southern California. Another participant commented, "Have all the counties and major cities listed for California. And point out Southern California areas. Would not find it confusing as long as it's explained clearly" in the debriefing. Another participant commented: "Mark them as North CA and South CA. Would find it confusing to see CA listed in both Regional offices." A participant also recommended "Saying South or North CA instead of saying CA."

Suggestion:

- Re-label California into Northern California and Southern California. Placing the labels for Northern California on the left and top parts of the page will improve users understanding that California spans two regions. As seen in issue #4, many participants do not notice the Duty Station text.
- We recommend examining how New York and New Jersey are treated because these states also span two regions. Figure 8 shows the labels that need to be renamed.

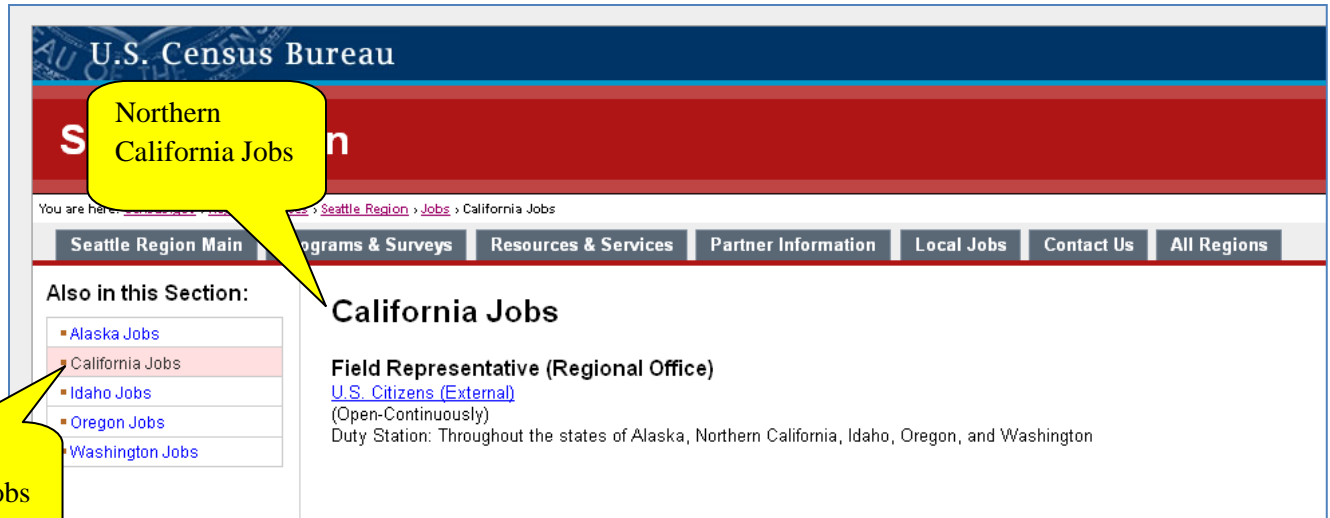


Figure 8: The California Jobs page within the Seattle Region.

6. Lack of Address on Directions Page

The directions page lacks an address at the top of the page. Users have to remember to write it down or navigate back and forth to keep a record of the address since the address is only available on the home page and “Contact Us” page.

Suggestions:

- The address should always be provided on directions page. Figure 9 shows the suggested placement of the address.
- The IKEA website in Figure 10 is an example of keeping the address always within view.

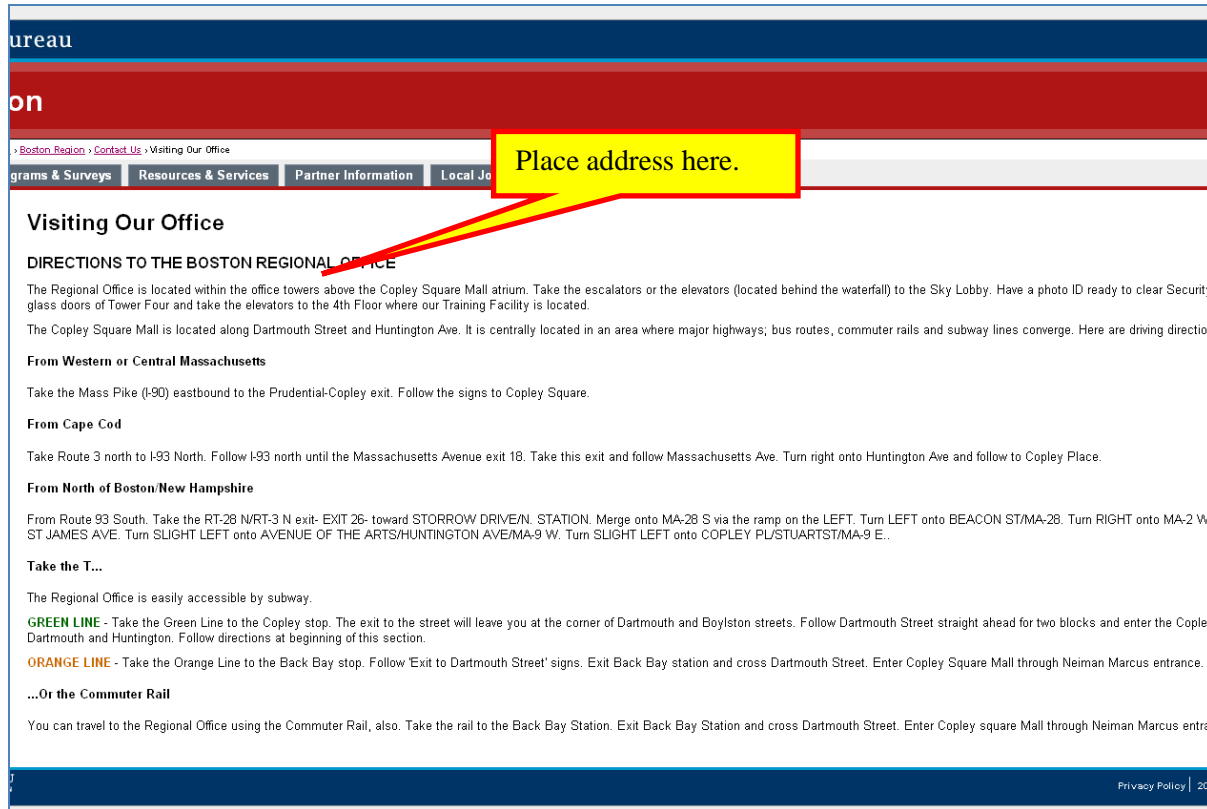


Figure 9: Suggested placement of the address on the Visiting Our Office page

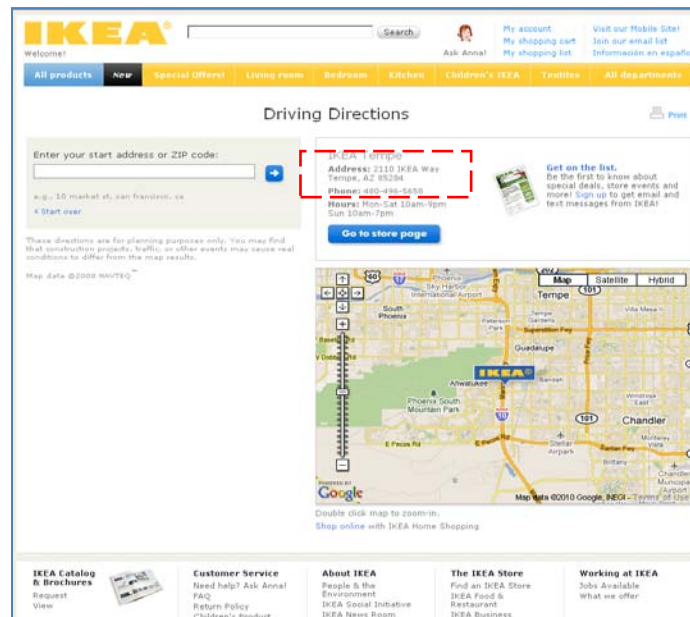


Figure 10: Example of a web site with the address provided on their directions page.

Low Priority Issues

1. Map on Regions Home Page

Two participants tried to click the map on a regional office's home page. One participant commented that she thought she could get information about the state by clicking on the state. Another participant also thought the Regional Office's map was clickable. However, the rest of the participants did not try clicking the image.

Suggestion:

- If feasible, pages could be generated with links to the jobs page, or quick facts such as the population. This issue is placed as a low priority since two participants out of eight attempted to click on the map.

2. Local Jobs Link Clarification

One participant hesitated on clicking the U.S. citizens (external) link. When later probed about her hesitation, she said that she had "no idea what external is." Another participant was also confused about the meaning of the word external. Another participant commented that she wasn't sure why the link said "U.S. Citizens." The only reference informing the user that they were going to link to USAJobs.gov is on a previous page. Figure 11 shows the uninformative link description.

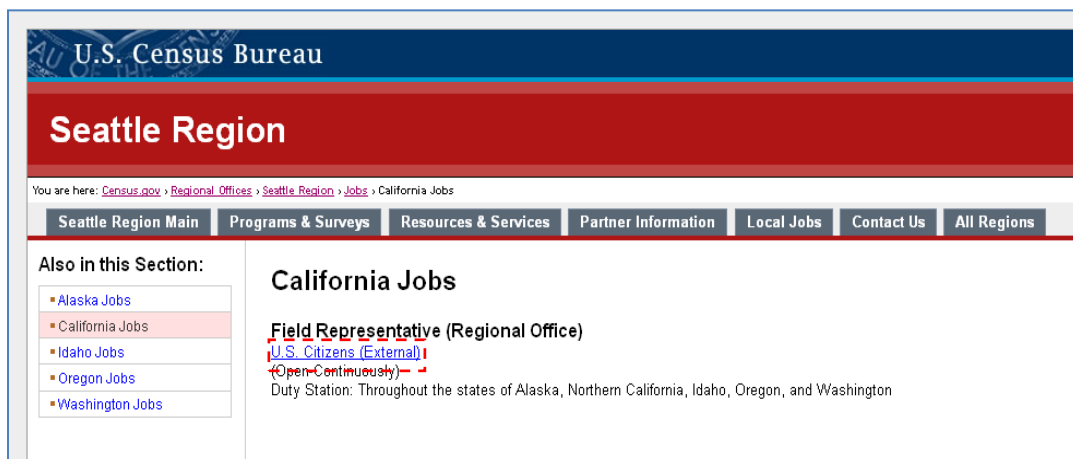


Figure 11: The California Jobs page within the Seattle Region.

Suggestion:

- Be specific about the link's purpose. For example, the link could say [this link will take you to USAJobs.gov] instead of [external] to clarify the purpose of the link and reduce user confusion.

3. Boston and Puerto Rico

The inclusion of Puerto Rico as part of the Boston Regional Office confused two participants. One participant clicked on the Puerto Rico territory and the back button four times. During this task he commented, "I go to PR but it says Boston Region." Another participant had similar behavior, clicking the back button once and re-clicking Puerto Rico. Eventually both participants accepted that Puerto Rico was part of the Boston Regional Office and proceeded with the task. Also, a person with a color vision

deficit may think Puerto Rico is in the same region as Florida because the green and blue colors have the same saturation level and appear identical in gray scale.

Suggestion:

- Place PR adjacent to the Boston region, east of Maine, on the thematic map so users will know it is part of that region. Figure 12 shows the suggested placement. Alternatively, place an arrow that points from Puerto Rico to the Boston Region.

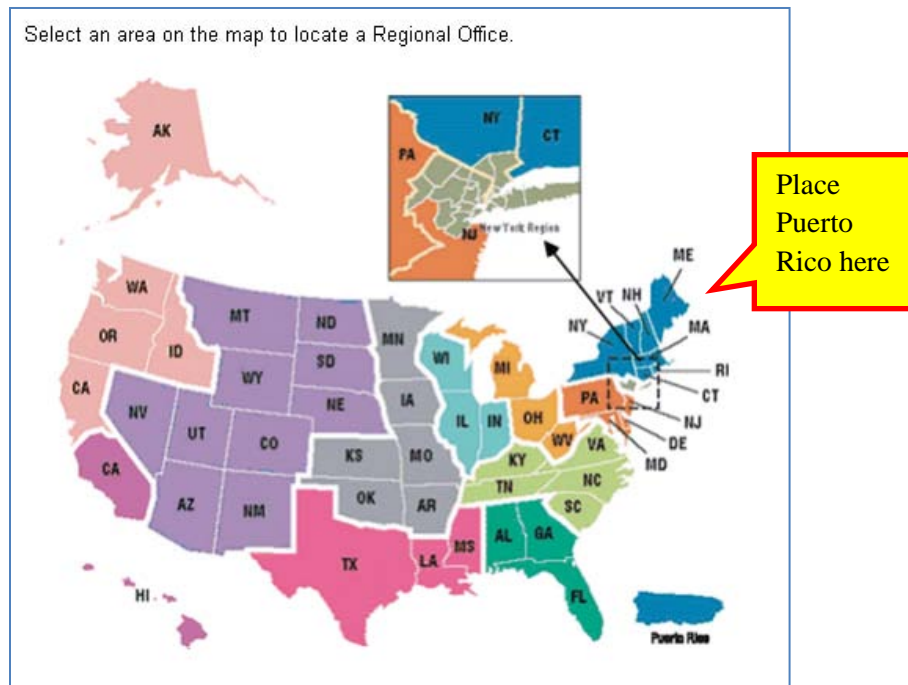


Figure 12: The Regional map with suggested placement of Puerto Rico near the Boston region.

Eye-tracking Methodology

About Heat maps and Gaze Opacity Maps

The heat maps generated for this report demonstrate the number of fixations in an area of the screen on a given page. The colors on a heat map range in visual intensity as the number of fixations in an area of the screen increases. Green indicates a lower number of fixations in a given area, whereas red indicates a higher number of fixations in a given area. As the number of fixations increases, the color grows in intensity.

Gaze opacity maps clearly show the areas where most participants did not fixate at all. For this report, gaze opacity maps were generated based on fixation counts. The brightness of a gaze opacity map ranges from black to white. Areas in black received very few to no fixations and areas in white received more fixations from participants. At the most basic level, a gaze opacity map shows the areas that received the most fixations and the areas that received no fixations. A gaze plot shows the participants' scan paths

across the screen. Each fixation (where a participant stops) is illustrated by a dot. Longer fixations are represented by larger dots.

Areas of Interest (AOIs) are defined by the experimenter at the beginning or end of a usability study. An area is chosen by developers interested in a feature, an area neglected by participants, or any other question that could be answered utilizing eye-tracking data. Numerous metrics can be exported based on the eye-tracking data gathered in a study. One commonly reported measure, time to first fixation, shows the number of seconds before a participant fixates upon an AOI or its group for the first time. These metrics can be used as indicators as to where participants look first. Another metric, first fixation duration, shows the number of seconds the first fixation lasts. A shorter time indicates participants moving onto other areas, while longer time indicates that participants focused on the content. However, this can be indicative either of confusion or processing of information. Short first fixation duration times spread across the various AOIs may be indicative that participants are looking over the entire page to assess where they should start.

A visit count counts the number of fixations made by a participant fixating upon the AOI with the next fixation located outside of the AOI. For example, if the participant fixates upon the progress indicator and the next fixation is outside the progress indicator the visit count is increased by one. Numerous visit counts may be indicative of confusion as the participant re-visits an area. For example, participants may have to re-examine the question after looking at the response options. It may also indicate expectations if they re-visit AOIs were they expect to see information that they may have missed in a prior visit.

Visit duration is determined by the total time spent in between these two fixations. The total visit duration is the sum of all visit durations on an area of interest; often this number will be similar to the total fixation duration. Long fixation durations may be indicative of confusion depending on the complexity of the text being read. It may also be indicative of expectations as participants are searching for information in that area.

First Look at the Census Regional Website

Participants first saw the Census Regional Website in Task 1, where we asked participants to become a Census Bureau partner with the Boston Regional office. The heat map in Figure 13 shows that 8 users looked at the table below the map of the United States. Since Boston was relatively easy to find on the map or column, users were unlikely to use the table as a guide. Eye-tracking data from later tasks will show that the table is used more often, especially on Task #2. The heat map also shows that the instructions and Northeast region of the United States received the most fixations.

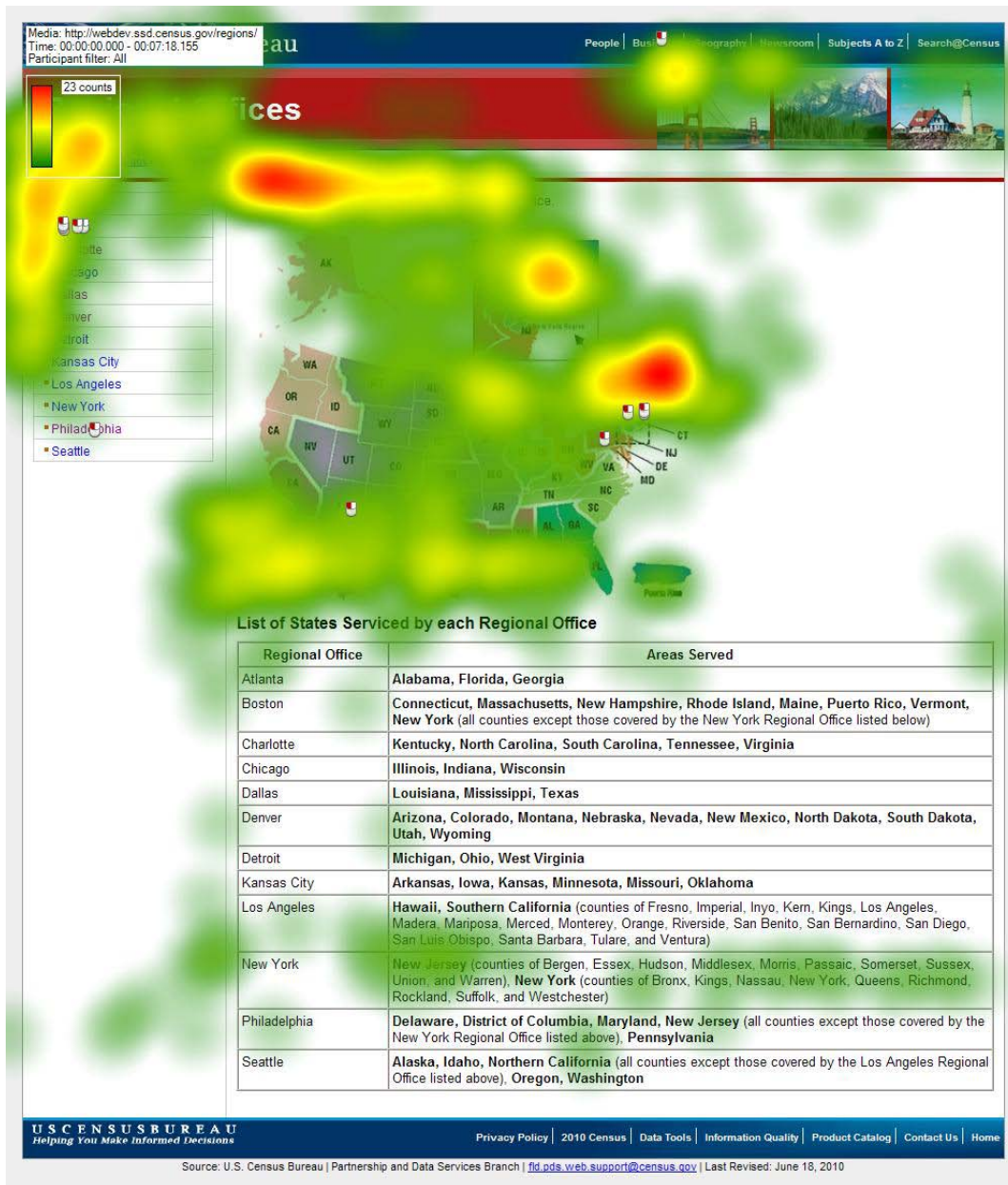


Figure 13: Heat map (count) of the first time participants see the Regions map (n = 8)

The gaze opacity screenshot in Figure 14 shows the majority of fixations from 8 participants on the Regional map. Since users were asked to become a partner in the Boston region, the majority of the fixations were focused on the Boston Regional Office on the map and the column listing the regional offices. The gaze opacity screenshot also showed that users had several fixations upon the instructions, “Select an area on the map to locate a Regional Office.” Participants seemed to understand that they could click on the map to navigate to a Regional office.

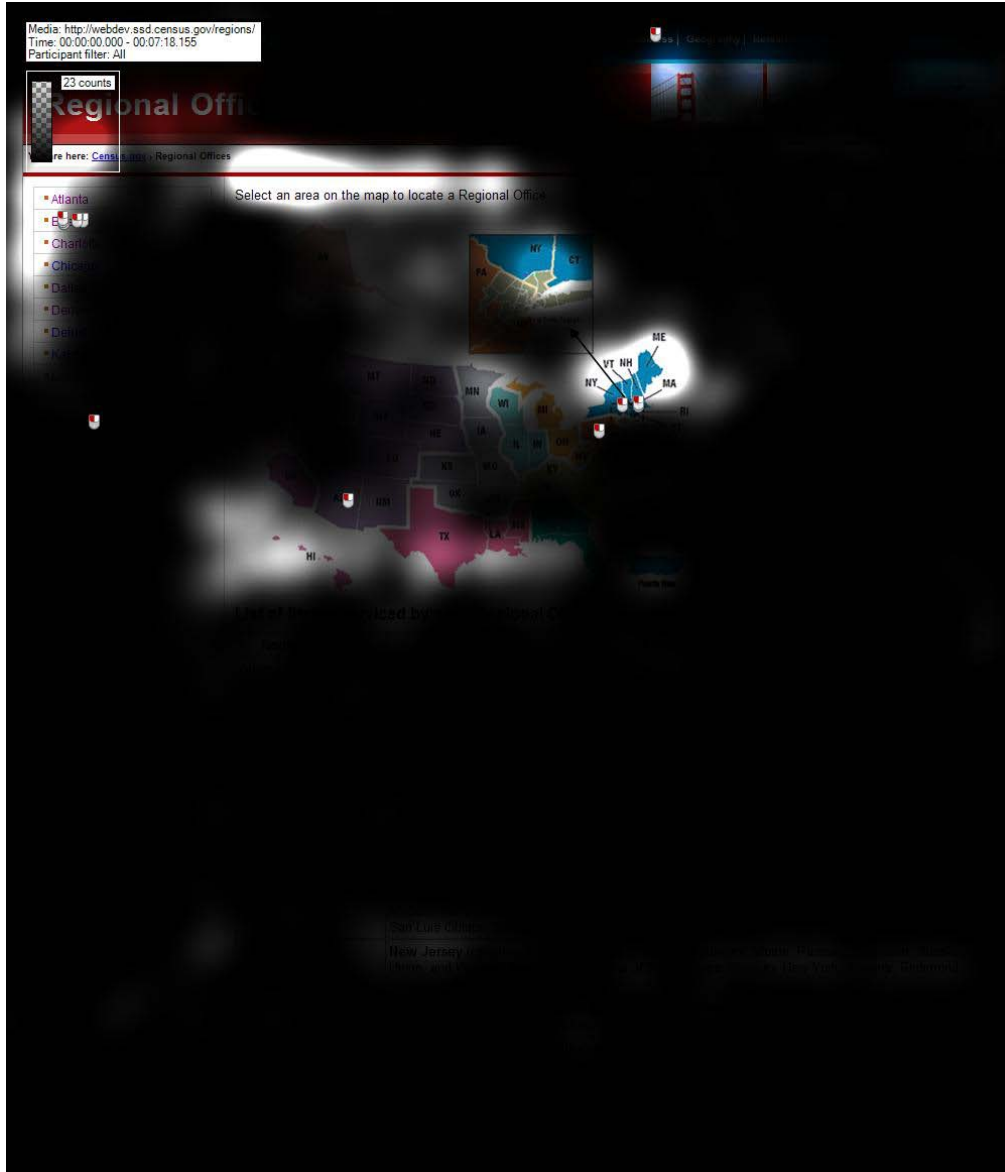


Figure 14: Gaze Opacity (count) of the first time people see the Regions map (n = 8)

The gaze plot in Figure 15 depicts one participant’s gazes across the page. This participant had difficulty locating the Boston Region, taking 10 minute and 3 seconds on Task 1 before being moved on to the next task. The participant first looked at the map of the United States, and glanced at the left column before proceeding to the table. He then re-visited the map and the images at the top before re-visiting the left column. The participant may have been familiarizing himself with the website, since he moved relatively quickly through the table. He may have thought that Boston would be located as part of the New York regional office given the number, spacing, and numerical order of the gazes across the New York row. The following gaze plots in Figures 16, 17, 18, and 19 show the progression of gazes in Figure 15 in 30 second segments for further detail.

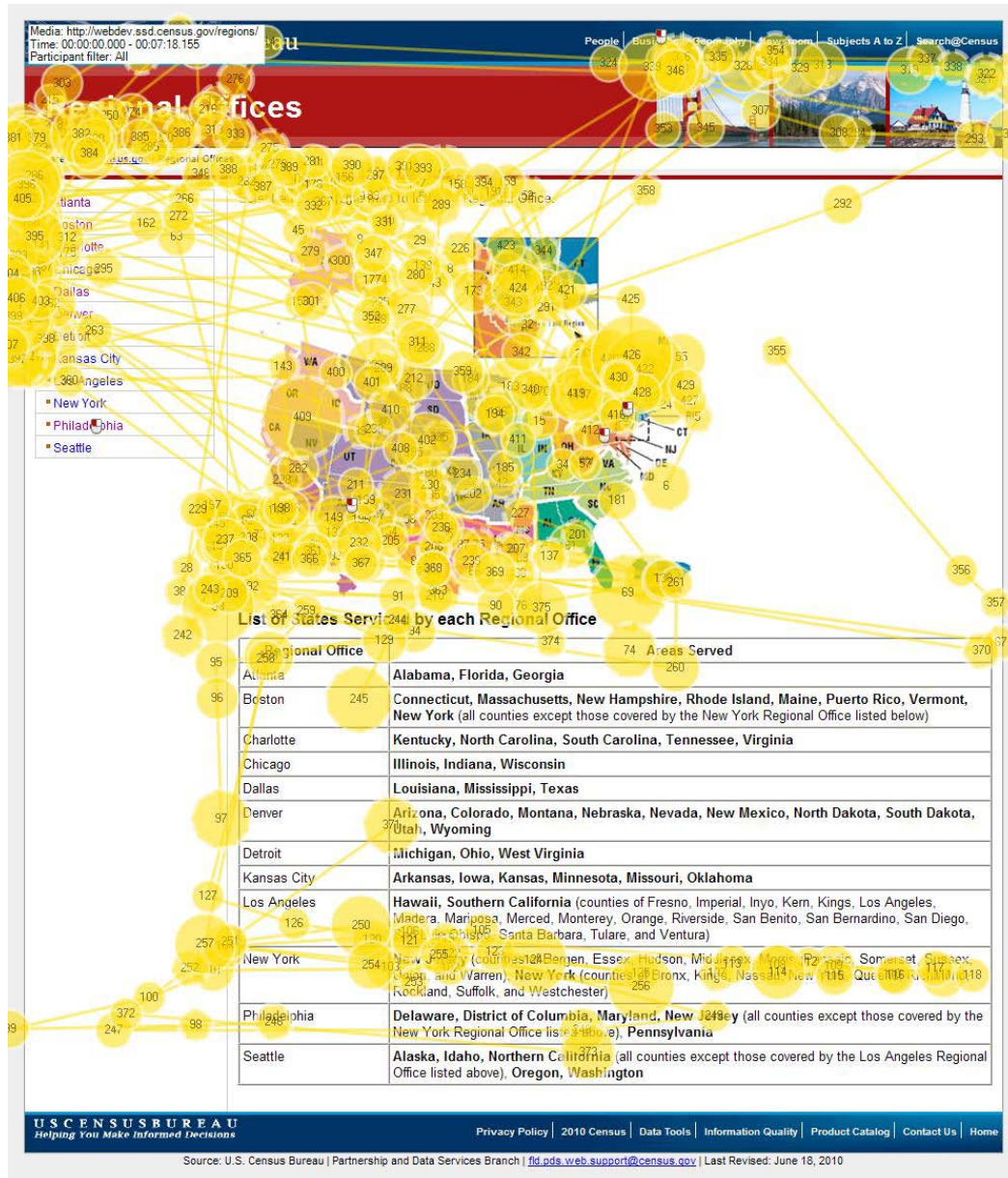


Figure 15: One participant’s gaze plot of the Regional Offices main page

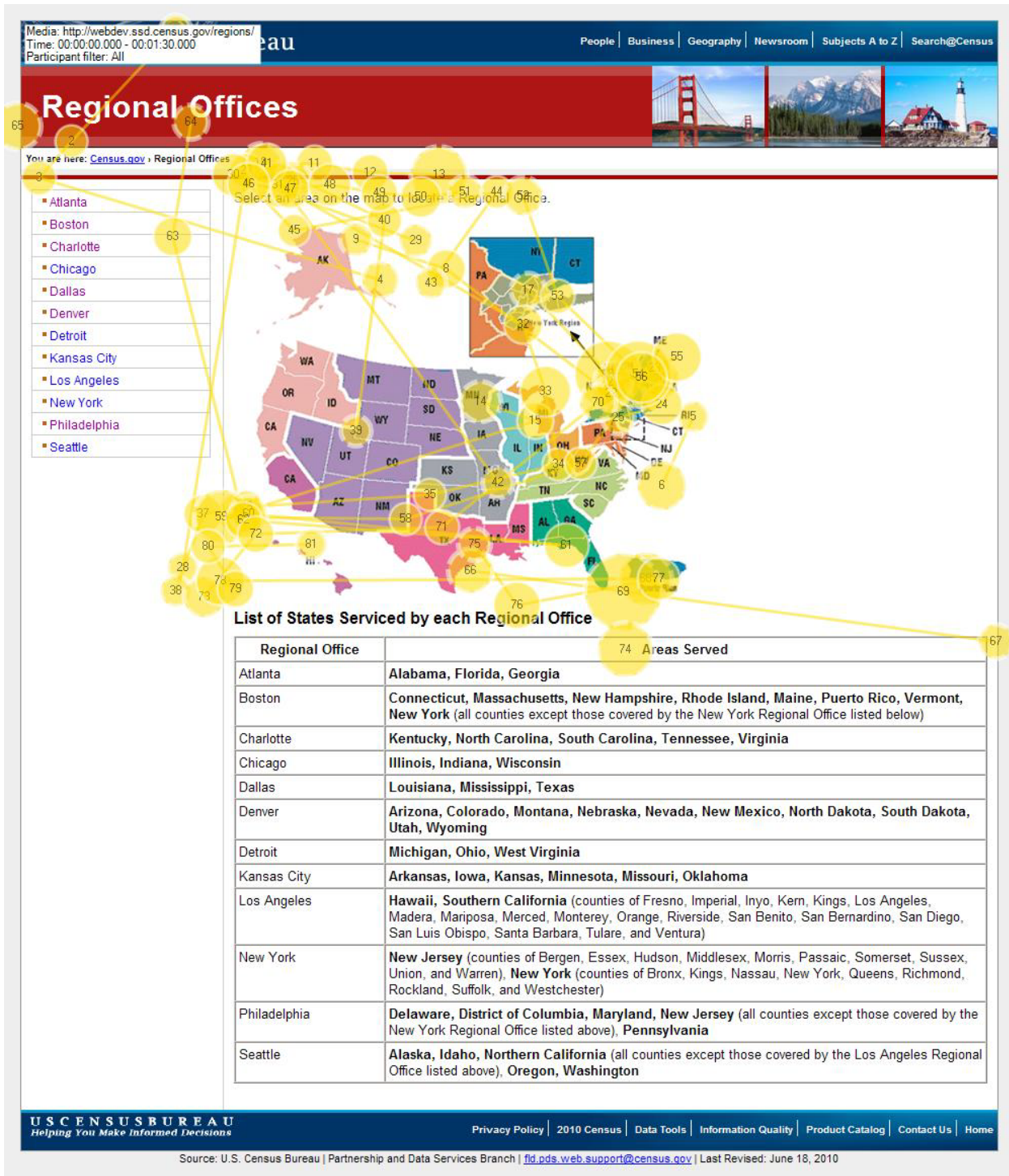


Figure 16: First 30 seconds of one participant’s gaze plot on the Regional Office main page

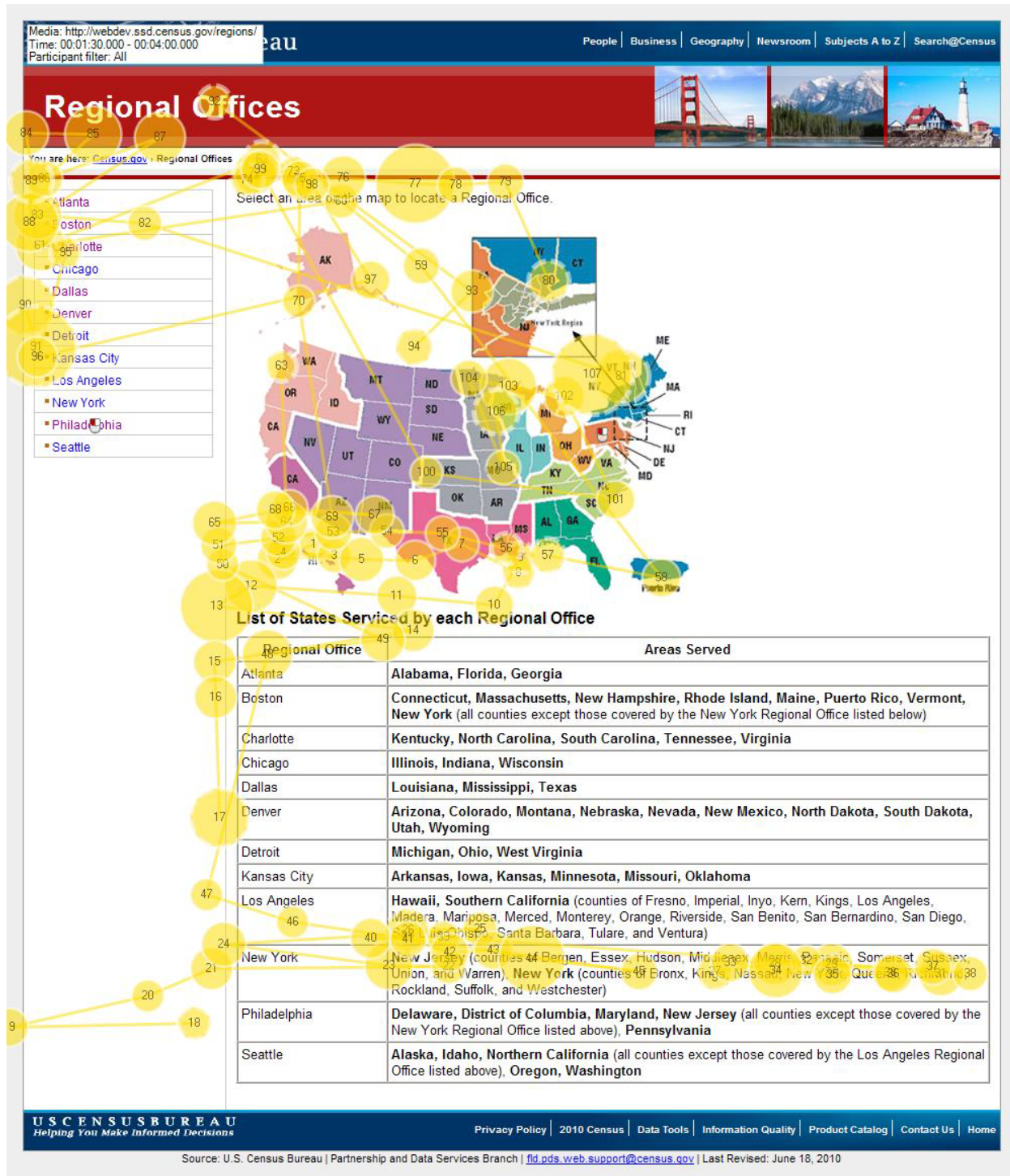


Figure 17: 30 seconds - 1:00 minute of one participant’s gaze plot on the Regional Office main page

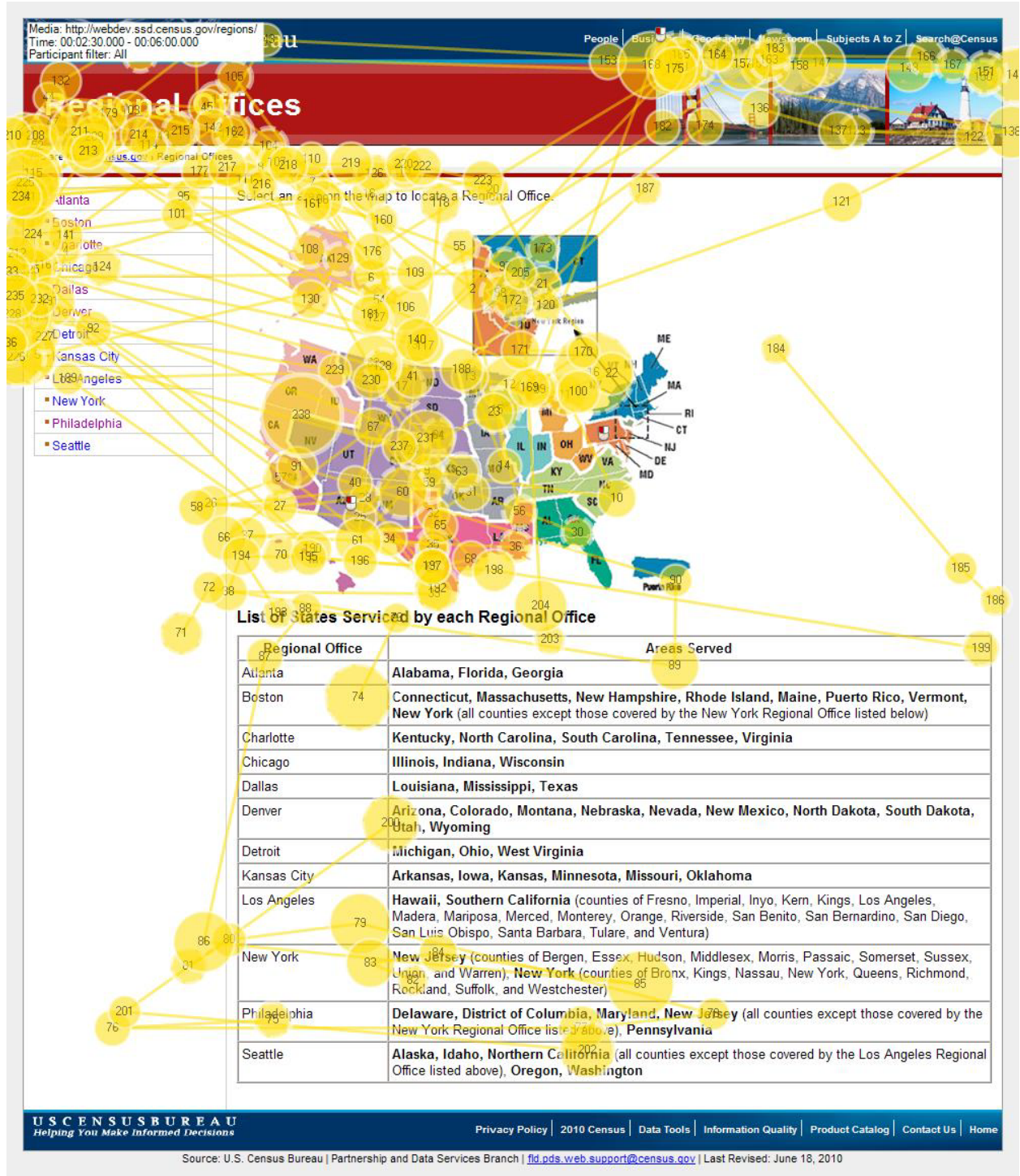


Figure 18: 1:00 – 1:30 minutes of one participant’s gaze plot on the Regional Office main page

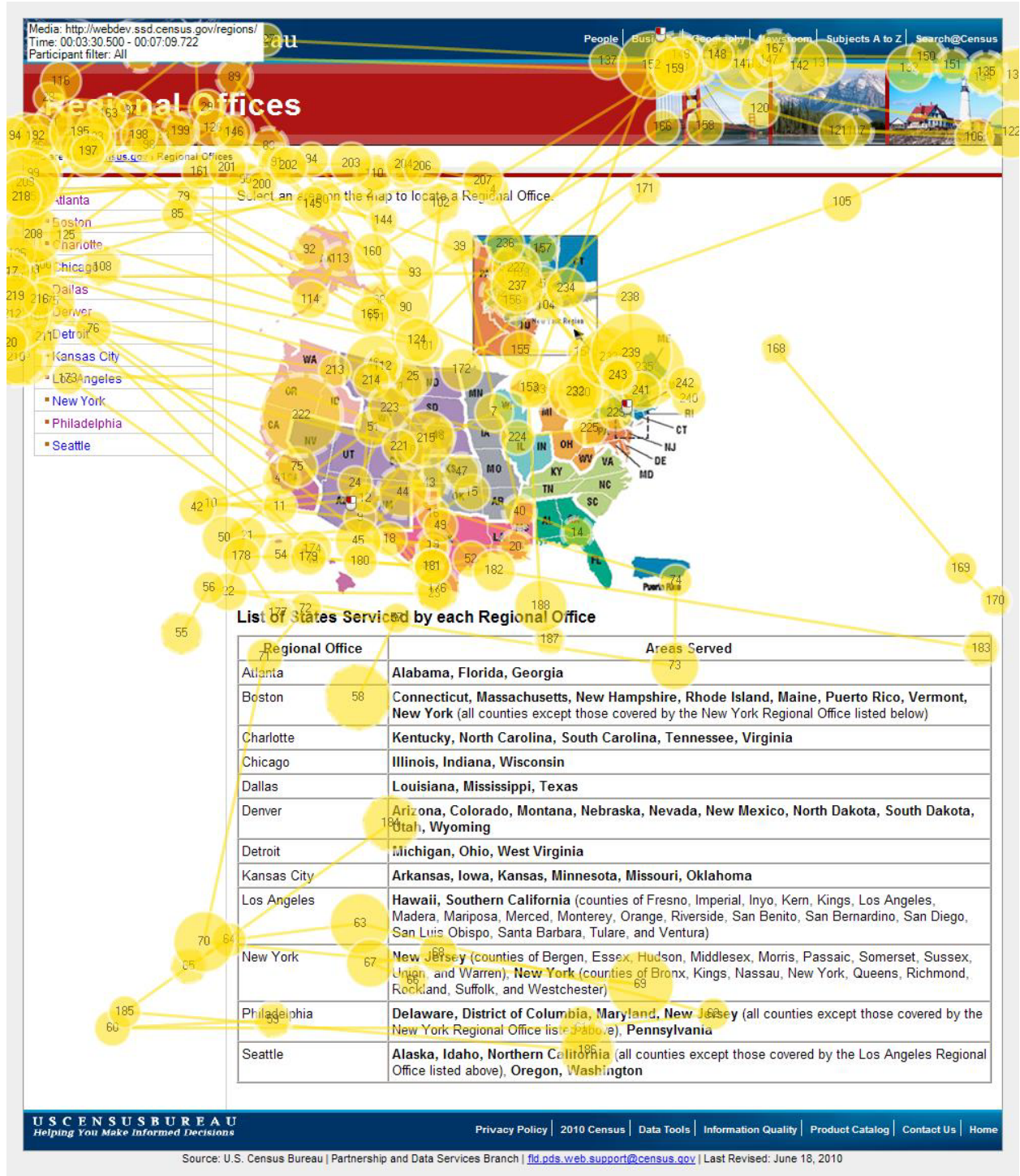


Figure 19: Remaining time of one participant's gaze plot on the Regional Office main page

Task 1

Figure 20 shows an experimenter’s mapping of the areas of interest. We ask the participant: “You are interested in becoming a Census Bureau partner in order to promote the Census. How would you submit your information for a partnership with the Boston Regional Office?”

These AOI mappings are used to designate areas for further eye-tracking data analysis. The tabs are marked since this is the first time participants see a region’s main page. Similarly, the content across the main page was designated as AOIs, since where a participant looks may be helpful in future re-designs.

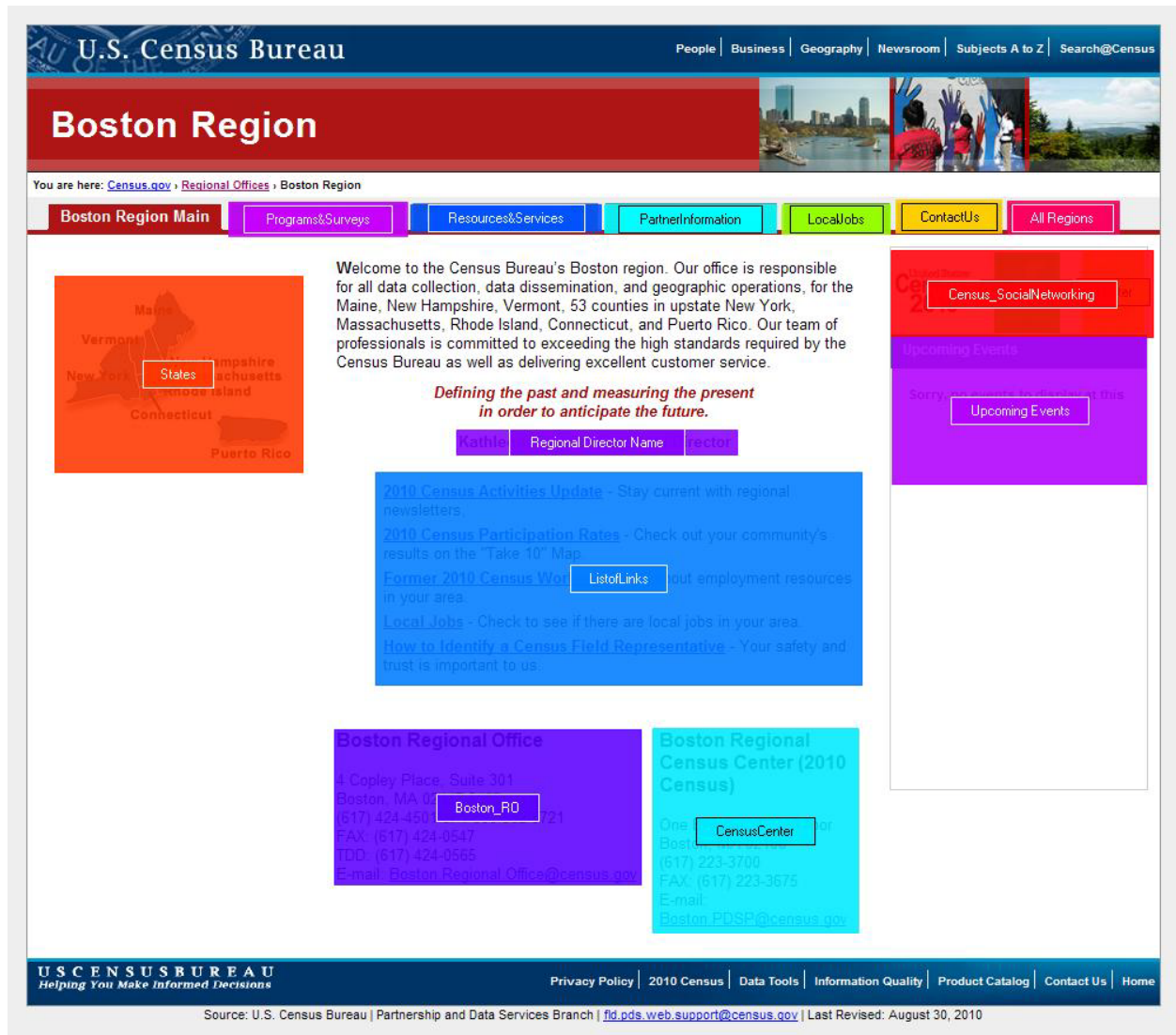


Figure 20: AOI mapping of the Boston region main page

Table 7 shows the number of seconds it took each participant to fixate upon the various AOIs defined in Figure 21(above). A dash (-) means the participant did not fixate upon the AOI. Judging by the spread of dashes, there was a wide range of areas which some participants fixated upon and others did not. For example, only one participant fixated upon the “All Regions” tab. The average of the eight participants’ eye-tracking data for the time to first fixation is provided in the bottom row. From the data we can see that there was a wide range in the participants’ time to first fixation among the various AOIs. The quickest fixation was upon the Facebook and Twitter links. However, only one participant fixated upon Twitter, while two fixated upon Facebook. Along with the 2010 Census Icon, these three icons formed the CensusSocialNetworking AOI. The defined AOIs revealed most participants looked at the list of links in the middle of the page after looking at the social networking and 2010 Census icon.

The navigation tabs were the slowest to be fixated upon. For example, the average time to first fixation for “Local Jobs” was 39.22 seconds, while the average time for the Programs & Services tab was 33.56 seconds. However, the eye-tracking data may be skewed by Participant 2. His times to first fixation are higher than the other participants and the averages across participants.

Table 7: Time to first fixation in seconds (n = 8)

	All Regions	Boston_RO	Census_SocialNetworking	CensusCenter	ContactUs	Facebook	Listoflinks	LocalJobs	PartnerInformation	Programs&Services	Regional Director Name	Resources&Services	States	Twitter	Upcoming Events
P01	-	24.35	2.2	3.6	33.28	2.6	2.78	35.03	32.08	-	1.02	18.69	-	2.2	0.6
P02	132.8	121.91	-	23.44	143.25	-	8.02	131.66	131.31	137.25	40.16	130.59	1.26	-	68.05
P03	-	-	-	-	-	-	8.54	24.73	22.53	-	5.05	21.35	21.18	-	1.37
P04	-	-	23.38	16.55	-	-	3.71	-	-	4.16	-	-	24.26	-	21.26
P05	-	-	-	-	-	-	9.14	-	17.34	11.96	11.03	13.47	1.57	-	-
P06	-	-	-	-	5.57	-	-	4.32	-	0	-	-	-	-	-
P07	-	-	-	-	-	-	2.18	0.38	0.11	-	-	-	-	-	-
P08	-	-	0.01	-	-	0.01	-	-	42.88	14.45	30.45	0.22	13.95	-	6.7
AVERAGE	132.8	73.13	8.53	14.53	60.7	1.31	5.73	39.22	41.04	33.56	17.54	36.86	12.44	2.2	19.60

Table 8 shows that the average time of the participants' first fixation was less than half a second. This indicates that when participants first see the web page, they are scanning rapidly to decide where they should start. The "Partner Information" tab received the longest first fixation duration with an average of 0.456 seconds. This indicates that participants saw the word Partner and paused for a few milliseconds longer.

Table 8: First fixation duration in seconds (n = 8)

	All Regions	Boston_RO	Census_Social Networking	CensusCenter	ContactUs	Facebook	Listoflinks	Localjobs	PartnerInform ation	Programs&Sur veys	Regional Director Name	Resources&Se rvices	States	Twitter	Upcoming Events
P01	-	0.1	0.4	0.18	0.3	0.18	0.22	0.17	0.23	-	0.18	0.28	-	0.4	0.22
P02	0.28	0.1	-	0.3	0.3	-	0.72	0.53	0.35	0.5	0.42	0.25	0.3	-	0.27
P03	-	-	-	-	-	-	0.33	0.27	0.28	-	0.47	0.18	0.17	-	0.3
P04	-	-	0.2	0.28	-	-	0.17	-	-	0.53	-	-	0.2	-	0.25
P05	-	-	-	-	-	-	0.23	-	0.08	0.28	0.02	0.28	0.08	-	-
P06	-	-	-	-	0.42	-	-	0.25	-	0.04	-	-	-	-	-
P07	-	-	-	-	-	-	0.25	0.3	0.27	-	-	-	-	-	-
P08	-	-	0.22	-	-	0.22	-	-	1.53	0.13	0.18	0.42	0.27	-	0.3
AVERAGE	0.28	0.1	0.27	0.25	0.34	0.2	0.32	0.30	0.46	0.30	0.25	0.28	0.20	0.4	0.27

Table 9 shows the total visit duration otherwise known as the total time spent fixated upon an AOI. From this table, we can see that most participants spent the longest amount of time looking at the List of Links on the middle of the Boston regional office's main page. The next two AOIs that received the longest visit duration were the CensusCenter AOI (3.89 seconds) at the bottom of the page, and the "Partner Information" tab (2.78 seconds). However, only three participants saw the CensusCenter link.

Table 9: Total visit duration in seconds (n = 8)

	All Regions	Boston_RO	Census_SocialNet working	CensusCenter	ContactUs	Facebook	Listoflinks	LocalJobs	PartnerInformatio n	Programs&Surveys	Regional Director Name	Resources&Service s	States	Twitter	Upcoming Events
P01	-	0.1	0.58	8.41	0.65	0.18	9.16	0.38	3.8	-	0.98	0.88	-	0.4	0.93
P02	1.05	0.28	-	2.55	0.3	-	21.41	1.35	2.17	0.8	2.35	0.87	1.65	-	2.81
P03	-	-	-	-	-	-	3.15	0.27	5.86	-	0.88	0.18	0.17	-	0.3
P04	-	-	0.65	0.72	-	-	7.13	-	-	0.53	-	-	0.21	-	1.02
P05	-	-	-	-	-	-	0.4	-	0.08	0.53	0.02	0.28	0.18	-	-
P06	-	-	-	-	0.42	-	-	1.23	-	0.04	-	-	-	-	-
P07	-	-	-	-	-	-	0.25	0.3	3.08	-	-	-	-	-	-
P08	-	-	1.03	-	-	0.22	-	-	1.68	0.55	0.18	0.42	0.27	-	0.58
AVERAGE	1.05	0.19	0.75	3.89	0.46	0.2	6.92	0.71	2.78	0.49	0.88	0.53	0.50	0.4	1.13

The heat map of the Boston Regional web page, Figure 21, shows that the majority of the participants' fixations focused on the "Programs & Surveys," "Resources & Services," "Partner Information," and links on the center of the home page.

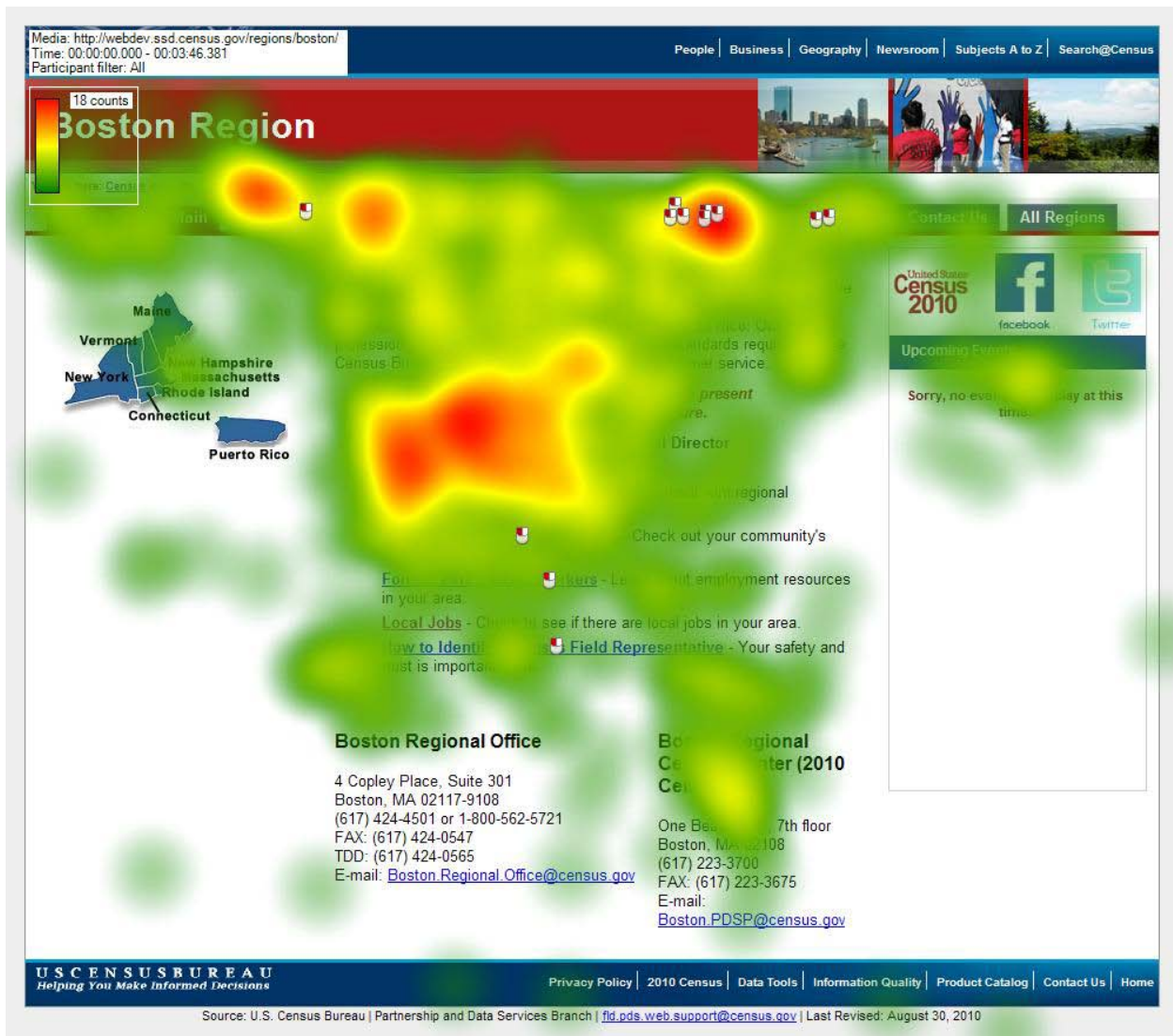


Figure 21: Heat map (count) of Boston Region Homepage. (n = 8)

One participant's gaze plot of the Boston Regional homepage, Figure 22, shows that the participant started by looking at the links on the main page before looking at the address and contact information at the bottom of the page in the first 2 minutes and 6 seconds. The user then glanced at the image of the states served by the Boston Region before proceeding across the navigational tabs. The majority of participants start by looking in the middle of the page.

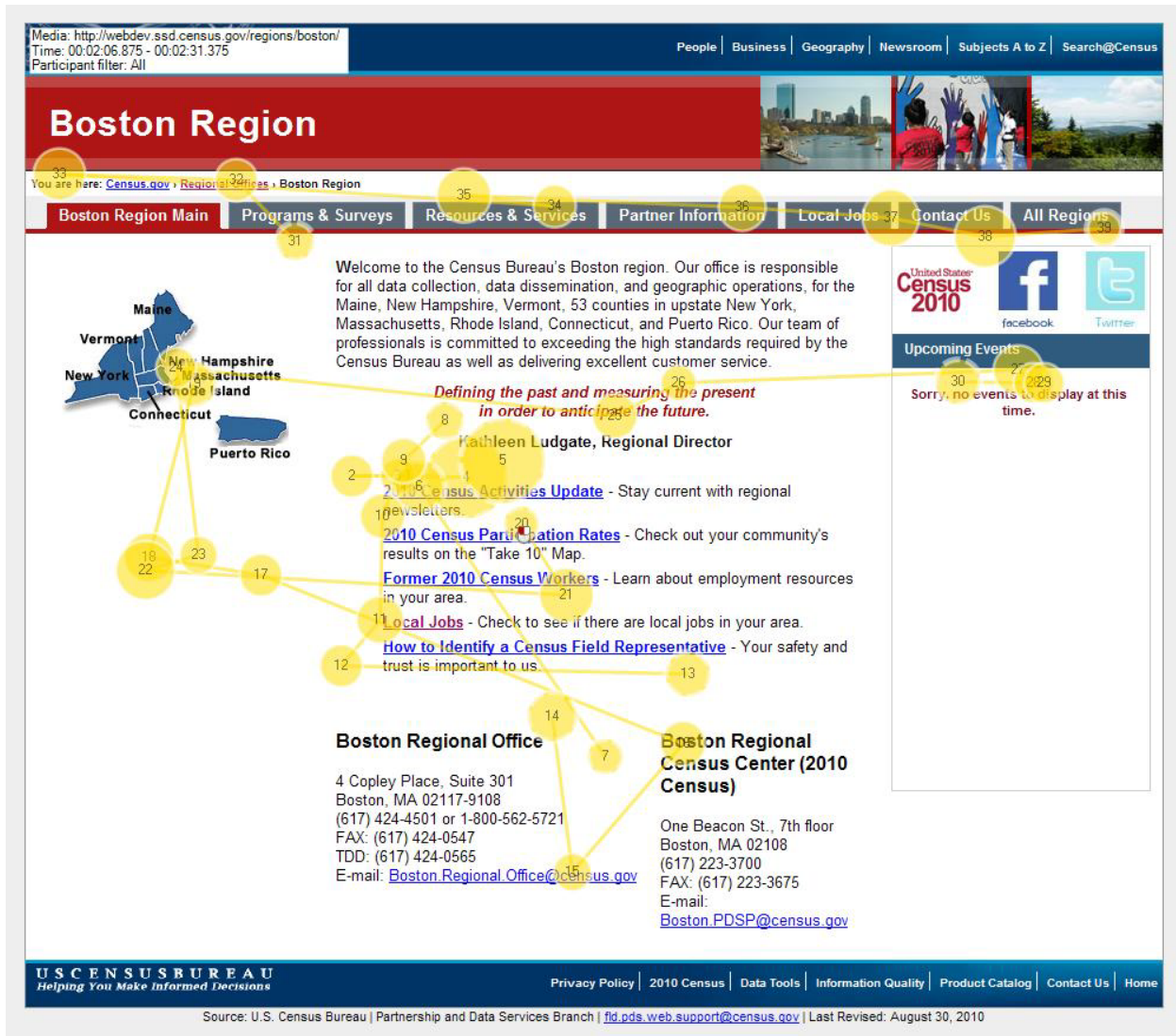


Figure 22: One participant’s gaze plot of the Boston Regional Office home page for 2 minutes and 6 seconds

The gaze opacity screenshot in Figure 23 shows that the highest numbers of fixations were focused on the middle of the page. However, links to various PDF documents or other Census websites are placed in the middle. The number of fixations decreased as participants read down the list of PDFs. Users clicked on the “Partnership Agreement,” “Partnership and Data Services Contact,” “About the 2010 Census Partners,” and “Contact Your Regional Census Center” links. Content inside the “Partnership and Data Services Contact” PDF should be listed on the web page itself instead of making users open it to get the information they need. The pattern of mouse clicks on the links in the middle of the page indicated that some users were exploring the PDFs before moving onto the left column. To successfully complete this task, participants had to locate the “How to Become a Partner” link in the left sidebar.

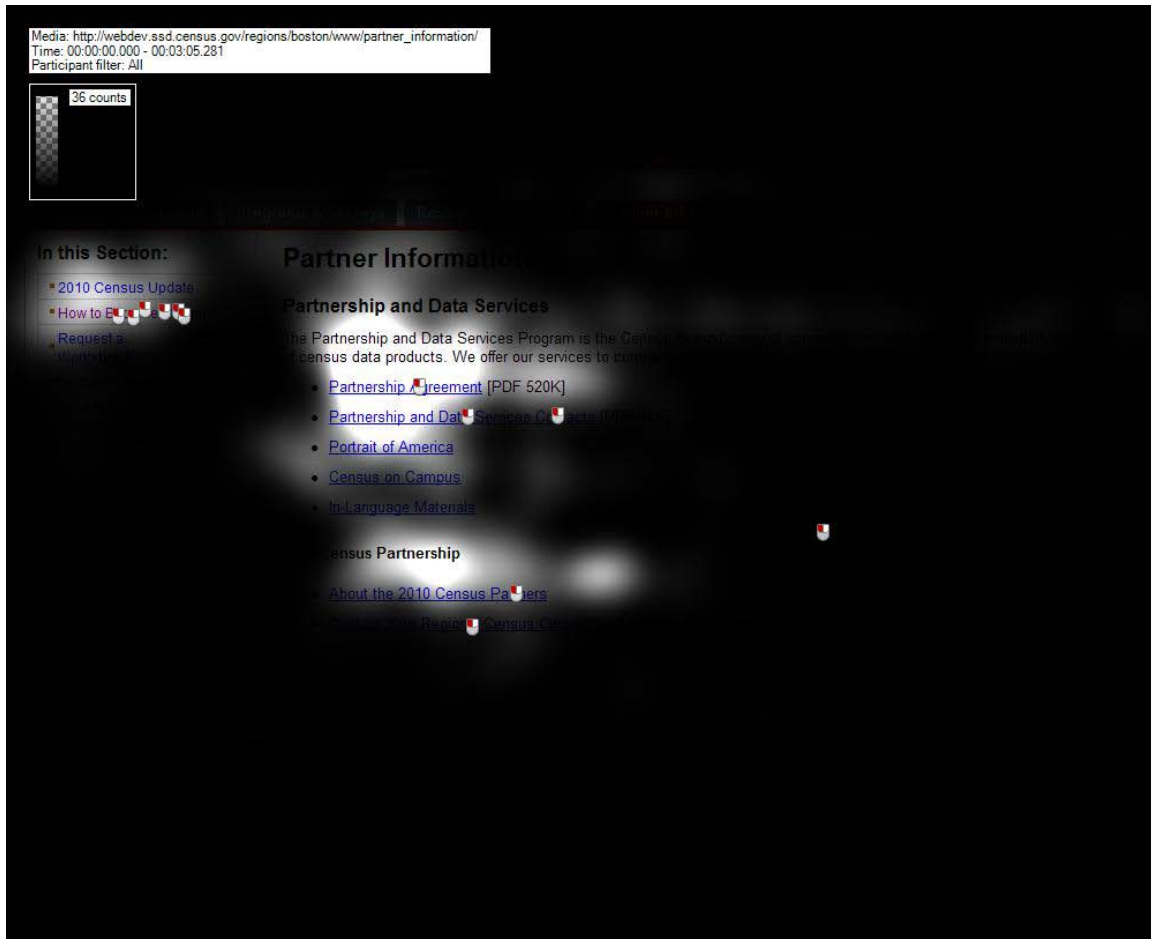


Figure 23: Gaze opacity screenshot of the Partner Information page (n = 7)

Figure 24 shows that one participant on the Partner Information page rarely fixated upon the left column. His gazes were spread across the middle of the page, occasionally referring back to the “Partner Information” tab. His back and forth gazes between the Partner Information header and the tab may indicate checking if he had navigated to the correct page. The gazes also reveal that he spent little time reading the text on the page, preferring to read the links to see if they met his search criteria for becoming a partner. Although the gaze plot shows that this participant briefly scanned the left column, it is possible that he saw the links in his peripheral vision since the eye-tracker only captures the fovea.



Figure 24: Participant’s gaze plot on the Partner Information page for the Boston Region

Figures 25 and 26 details the progression of the gaze plot in Figure 24 (above) in 30 second intervals.



Figure 25: First 30 seconds of the same participant's gaze plot

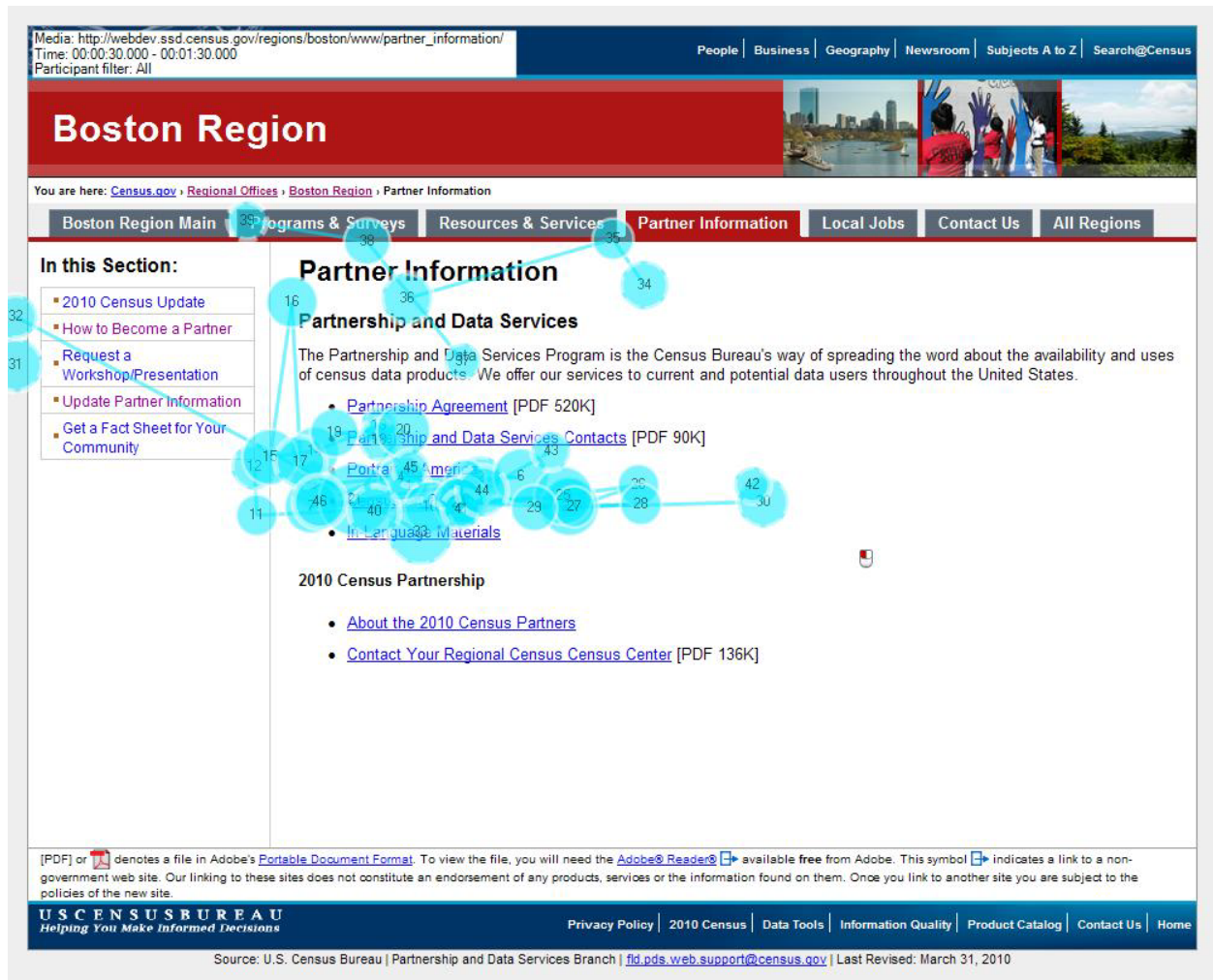


Figure 26: Last 30 seconds of the same participant’s gaze plot

Task 2

In Task 2, we asked participants to find information on how to identify a Census Field representative while living in the Commonwealth of the Northern Mariana Islands (CNMI). To successfully complete this task the participants had to locate the CNMI, and find the page on Census Field representative identification. Figure 27 shows the Regional Offices main page, where participants began this task.

U.S. Census Bureau

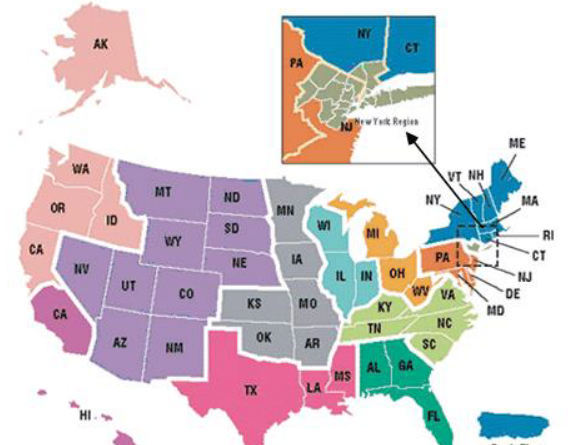
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Regional Offices

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- Atlanta
- Boston
- Charlotte
- Chicago
- Dallas
- Denver
- Detroit
- Kansas City
- Los Angeles
- New York
- Philadelphia
- Seattle

Select an area on the map to locate a Regional Office.



List of States Served by each Regional Office

Regional Office	Areas Served
Atlanta	Alabama, Florida, Georgia
Boston	Connecticut, Massachusetts, New Hampshire, Rhode Island, Maine, Puerto Rico, Vermont, New York (all counties except those covered by the New York Regional Office listed below)
Charlotte	Kentucky, North Carolina, South Carolina, Tennessee, Virginia
Chicago	Illinois, Indiana, Wisconsin
Dallas	Louisiana, Mississippi, Texas
Denver	Arizona, Colorado, Montana, Nebraska, Nevada, New Mexico, North Dakota, South Dakota, Utah, Wyoming
Detroit	Michigan, Ohio, West Virginia
Kansas City	Arkansas, Iowa, Kansas, Minnesota, Missouri, Oklahoma
Los Angeles	Hawaii, Southern California (counties of Fresno, Imperial, Inyo, Kern, Kings, Los Angeles, Madera, Mariposa, Merced, Monterey, Orange, Riverside, San Benito, San Bernardino, San Diego, San Luis Obispo, Santa Barbara, Tulare, and Ventura)
New York	New Jersey (counties of Bergen, Essex, Hudson, Middlesex, Morris, Passaic, Somerset, Sussex, Union, and Warren), New York (counties of Bronx, Kings, Nassau, New York, Queens, Richmond, Rockland, Suffolk, and Westchester)
Philadelphia	Delaware, District of Columbia, Maryland, New Jersey (all counties except those covered by the New York Regional Office listed above), Pennsylvania
Seattle	Alaska, Idaho, Northern California (all counties except those covered by the Los Angeles Regional Office listed above), Oregon, Washington

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Figure 27: Screen image without the heat map overlay

The gaze plot in Figure 28 shows the first twenty seconds of all the participants' gazes as they try to find CNMI on the Regional Offices main page. Generally, participants look over the map and the left column before moving to the table.

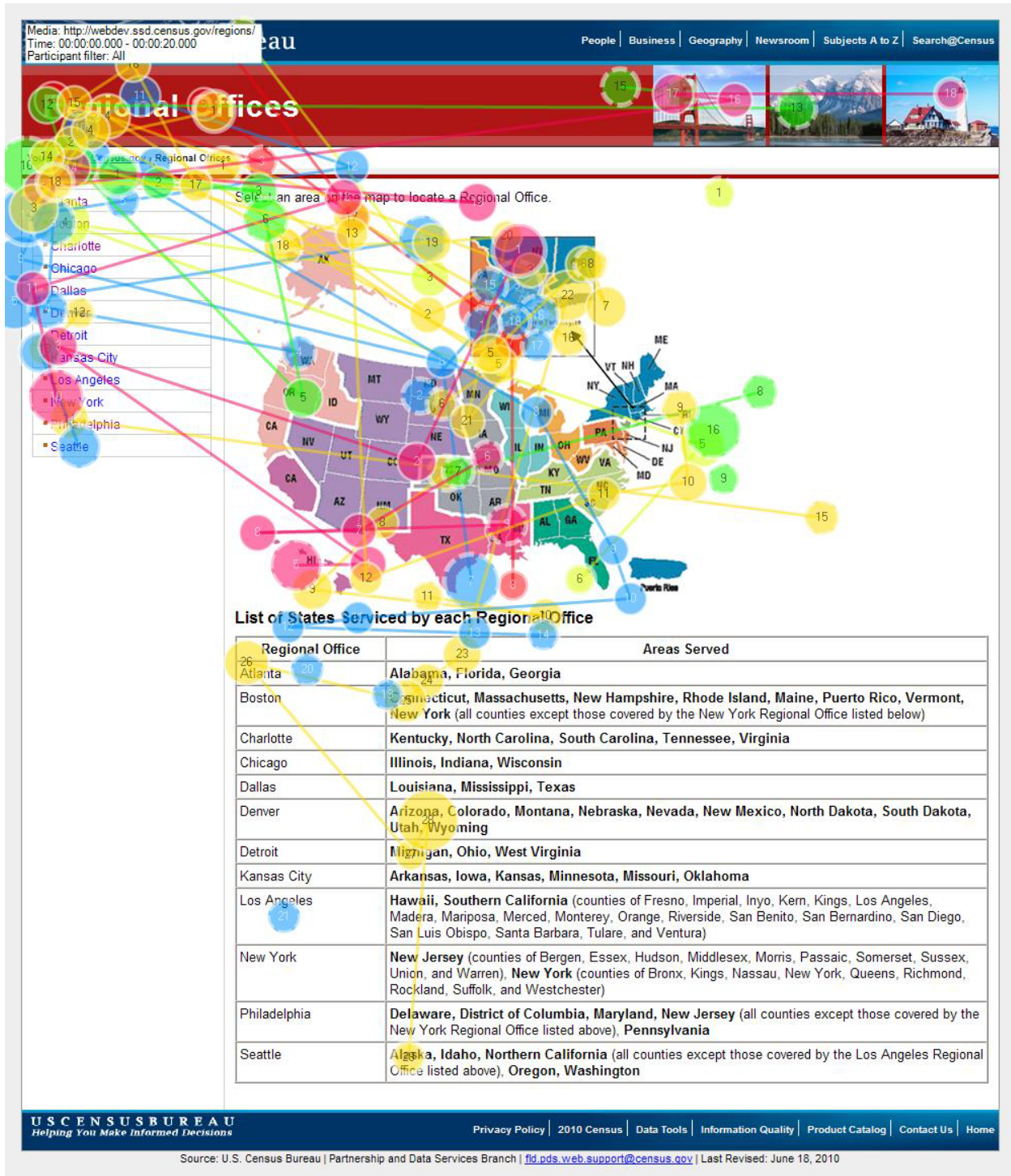


Figure 28: Gaze plot of the first 20 seconds of the Regional Office main page (n = 8)

The heat map in Figure 29 shows the number of fixations made by participants. Links in the left column received the most fixations, spread relatively evenly across the various regional offices. The images in the header, the New York Regional Office map box, Hawaii, and the middle of the table were also areas users fixated upon when searching for the CNMI.

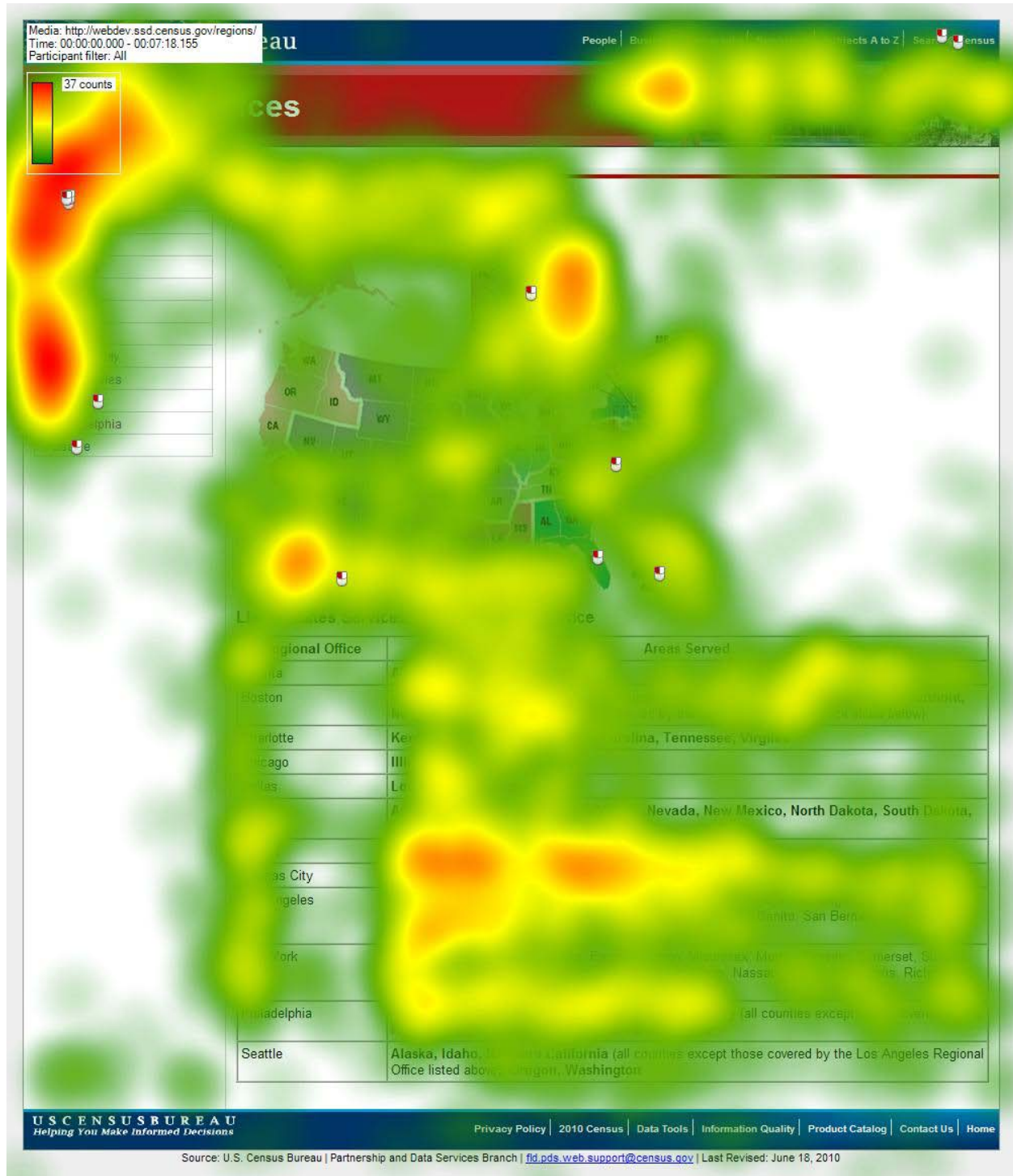


Figure 29: Heat map of the number of fixations made by participants on the Regional Office main page (n = 8)

The heat map in Figure 30 shows the relative duration participants spent examining each area of the web page. Unlike heat map counts, a relative duration heat map takes into account the fixation durations. Participants spent the majority of their time fixating upon the links in the left column, and the Southern California image on the Regional Office map. In contrast, they spent less time on the table despite not knowing where the CNMI was.

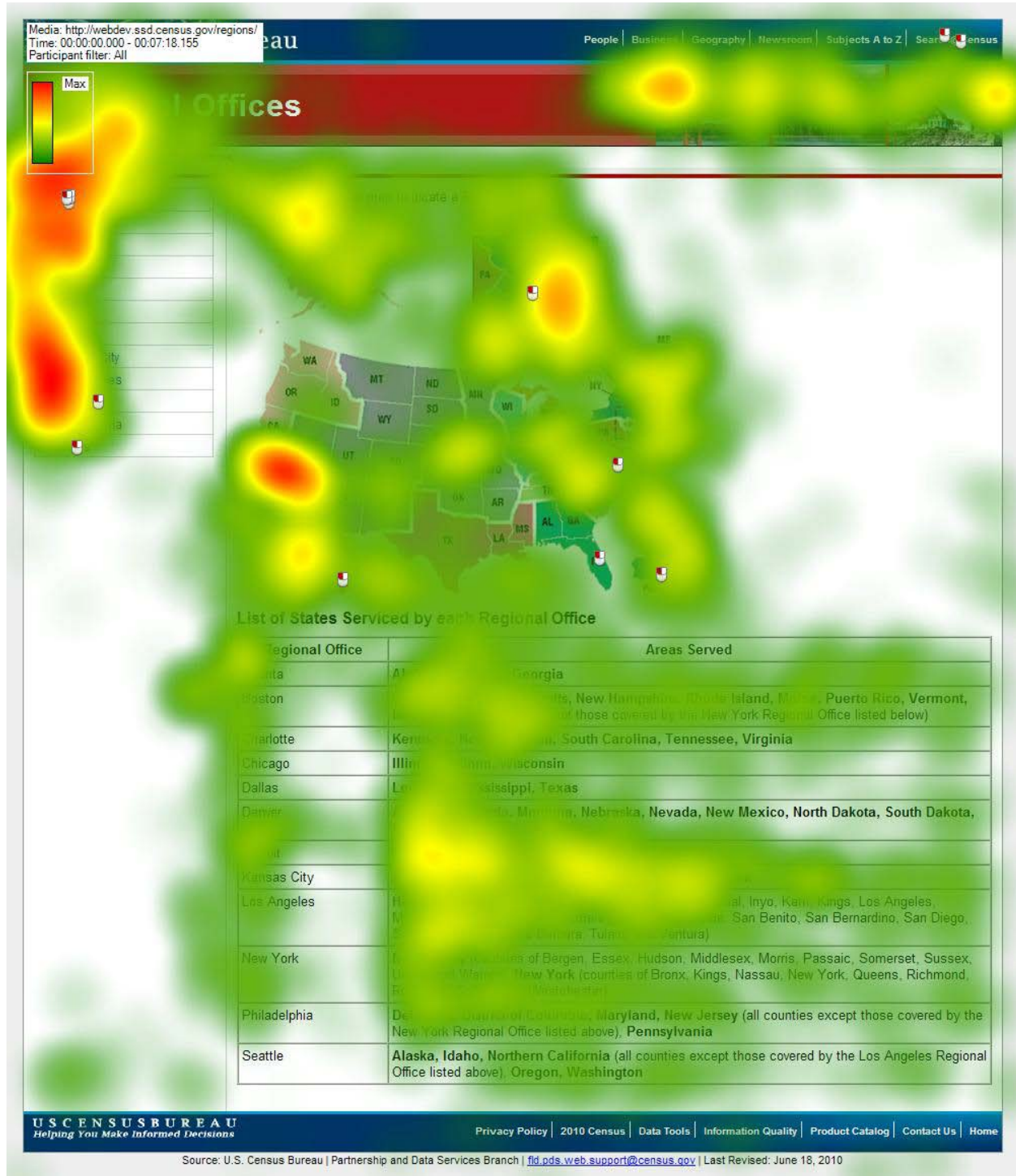


Figure 30: Heat map of the relative duration of fixations of participants on the Regional Office main page (n = 8)

Figure 31 shows the three AOIs designated on the Regional offices website. The List of Offices consisted of the links in the left column, while the Table consisted of the entire text table.

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Regional Offices

You are here: [Census.gov](#) | Regional Offices

Select an area on the map to locate a Regional Office.

List of States Served by each Regional Office

Regional Office	Areas Served
Atlanta	Alabama, Florida, Georgia
Boston	Connecticut, Massachusetts, New Hampshire, Rhode Island, Maine, Puerto Rico, Vermont, New York (all counties except those covered by the New York Regional Office listed below)
Charlotte	Kentucky, North Carolina, South Carolina, Tennessee, Virginia
Chicago	Illinois, Indiana, Wisconsin
Dallas	Louisiana, Mississippi, Texas
Denver	Arizona, Colorado, Montana, Nebraska, Nevada, New Mexico, North Dakota, South Dakota, Utah, Wyoming
Detroit	Michigan, Ohio, West Virginia
Kansas City	Arkansas, Iowa, Kansas, Minnesota, Missouri, Oklahoma
Los Angeles	Hawaii, Southern California (counties of Fresno, Imperial, Inyo, Kern, Kings, Los Angeles, Madera, Mariposa, Merced, Monterey, Orange, Riverside, San Benito, San Bernardino, San Diego, San Luis Obispo, Santa Barbara, Tulare, and Ventura)
New York	New Jersey (counties of Bergen, Essex, Hudson, Middlesex, Morris, Passaic, Somerset, Sussex, Union, and Warren), New York (counties of Bronx, Kings, Nassau, New York, Queens, Richmond, Rockland, Suffolk, and Westchester)
Philadelphia	Delaware, District of Columbia, Maryland, New Jersey (all counties except those covered by the New York Regional Office listed above), Pennsylvania
Seattle	Alaska, Idaho, Northern California (all counties except those covered by the Los Angeles Regional Office listed above), Oregon, Washington

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Figure 31: AOI mapping on the Regional Offices main page

Table 10 shows the time to a participants' first fixation among the defined AOIs on the Census Region main page. From the table, we can see that participants varied in which areas of the web page they examined first. Participant 6 examined the table before the list of links. AOIs that have similar close fixation times indicate visual scanning. For example, Participant 7's eye-tracking data indicates that this participant looked briefly at the content on the page before deciding what to do. While, fixation times farther apart from each other indicate that participants were examining each region closely before moving on.

Table 10: Time to first fixation in seconds (n = 8)

	List of Offices	Region Map	Table
P01	0.71	0.41	27.26
P02	68.36	0	56
P03	20.31	0.4	33.48
P04	13.72	0.7	17.62
P05	1.36	18.44	-
P06	114.12	1.24	75.64
P07	0.93	0.05	23.02
P08	45.74	1.41	93.63
AVG.	33.16	2.83	46.66

Table 11 shows the average fixation duration and maximum fixation duration of the Regional Map, links in the left column, and table below the map. Total Visit Duration in Table 13 provides the total fixation duration of each participant. For example, Participant 1's total fixation duration of the links in the left column was 13.56 seconds, while her longest fixation on the links was 3.46 seconds.

Table 11: Fixation duration averages and maximum in seconds (n = 8)

	List of Offices_Mean	List of Offices_Max	Region Map_Mean	Region Map_Max	Table_Mean	Table_Max
P01	0.47	3.46	0.37	1.62	0.32	0.97
P02	0.13	0.13	0.42	3.15	0.16	0.22
P03	0.3	0.62	0.37	1.55	0.35	3.9
P04	0.29	0.85	0.27	0.83	0.3	0.8
P05	0.4	1.15	0.37	0.9	-	-
P06	0.27	0.27	0.29	0.72	0.32	1.08
P07	0.56	1.87	0.44	2.28	0.32	0.77
P08	0.42	2.8	0.27	1.3	0.29	0.93
AVG.	0.36	1.39	0.35	1.54	0.31	0.93

Table 12 shows a breakdown of the number of visits made by participants to the three parts of the web page. A visit is defined by the number of entries into a defined area. A unique visit is tallied whenever a participant completely exits and re-enters a defined area. For example, for a tally to be added to the number of visits in links column, a participant would have to exit the column completely before re-entering it. A row averaging the number of fixations is provided at the bottom. The Region Map received the most visits (on average 32.5), followed by the table (on average 20), and lastly the links in the left column (on average 14.5). The Region Map received the most visits for any participant, while the number of visits for the links and table differed depending on the participant.

Table 12: Total number of visits to the left column, regional map, and table on the home page (n = 8)

	List of Offices	Region Map	Table
P01	13	25	12
P02	1	17	1
P03	11	40	29
P04	23	38	19
P05	4	4	0
P06	1	29	16
P07	22	28	9
P08	41	79	74
AVG.	14.5	32.5	20

Table 13 shows the total visit duration of participants to the various areas of the Census Region main page. The columns to the right summarizes the total time each participant spent in the various areas. Participant 8 spent 150.92 seconds looking at the table. The majority of participants spent more time examining the table than the map. Participants 2, 5, and 7 spent more time examining the Regional Map.

Table 13: Total visit duration of the various areas in seconds (n = 8)

	List of Offices	Region Map	Table
P01	13.56	21.35	40.01
P02	0.13	27.06	0.32
P03	3.88	42.19	95.45
P04	8.88	22.6	23.68
P05	3.23	2.23	0
P06	0.27	14.42	16.27
P07	24.85	44.4	33.33
P08	21.52	51.42	150.92
AVG.	9.54	28.21	45

Table 14 shows the breakdown of first mouse clicks on the region home page for the second task. Three participants clicked on a link in the left column, while three participants clicked on the regional map. The other two participants did not click either the map or the links in the first task.

Table 14: Time to a participants' first mouse click on the web page in seconds (n = 8)

	List of Offices	Region Map	Table
P01	110.95	-	-
P02	-	100.78	-
P03	-	197.29	-
P04	-	-	-
P05	-	26.8	-
P06	-	-	-
P07	143.5	-	-
P08	420.56	-	-
AVG.	225.00	108.29	

Participant 3 was the only participant to access the Los Angeles region page on Task 2. The only indication that participants have found the regional office that oversees CNMI is in the Regional Director's statement. However, the text reading drop-off rate on the Internet is high. From the image in Figure 32 we can see that although the participant started looking at the paragraph, he quickly jumped to the links.

Media: http://webdev.ssd.census.gov/regions/los_angeles/
Time: 00:00:00.000 - 00:01:57.484
Participant filter: All

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Los Angeles Region

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[Los Angeles Region Main](#) | [Programs & Surveys](#) | [Resources & Services](#) | [Partner Information](#) | [Local Jobs](#) | [Contact Us](#) | [All Regions](#)

Welcome to the Census Bureau's Los Angeles region. Our office is responsible for all data collection, data dissemination, and geographic operations, for 19 California counties stretching from Monterey, San Benito, Fresno, Merced, and Mariposa counties to the U.S. Mexican border plus the State of Hawaii with its five counties, Guam, American Samoa, and the Northern Mariana Islands. Our team of professionals is committed to exceeding the high standards required by the Census Bureau as well as delivering excellent customer service.

*Defining the past and measuring the present
in order to anticipate the future.*

James T. Christy, Regional Director

[2010 Census Activities Update](#) - Stay current with regional newsletters.
[2010 Census Participation Rates](#) - Check out your community's results on the "Take 10" Map.
[Former 2010 Census Workers](#) - Learn about employment resources in your area.
[Former 2010 Census Worker Events coming soon](#) [PDF 73K]
[Former 2010 Employee Resource Guide](#) [PDF 892K]
[How to Identify a Census Field Representative](#) - Your safety and trust is important to us.

Los Angeles Regional Office

15350 Sherman Way, Suite 400
Van Nuys, CA 91406-4224
(818) 267-1700 or 1-800-992-3530
FAX: (818) 267-1711
TDD: (818) 904-6429
E-mail: Los_Angeles_Regional_Office@census.gov

Los Angeles Regional Census Center (2010 Census)

9301 Corbin Avenue, Suite 1000
Northridge, CA 91324
(818) 717-6700
FAX: (818) 717-6777
E-mail: Los_Angeles_RCC_Ask_Census_2010@census.gov

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Figure 32: Participant 3 looking at the Los Angeles Region main page (n =1)

Task 3

In Task 3 we asked participants to identify the qualifications and workload hours required for a Field Representative position in Puerto Rico. Figure 33 shows the AOI mapping of the local jobs page on the Boston Region web page. Since a reference to the job listings in the left column was embedded in the first paragraph, we created the Instructions_ClickON AOI inside of the Text_1stParagraph AOI. This allowed us to see how many participants fixated upon the text, and the amount of time spent.

The screenshot shows the U.S. Census Bureau Boston Region website. The page is titled "Boston Region" and has a navigation menu with "Local Jobs" selected. The main content area is divided into three sections: "Jobs", "Forms", and "Former 2010 Census Workers".

Annotations on the page include:

- Job Listings**: A callout box pointing to the "Job Listings" link in the left sidebar.
- PR Jobs Link**: A callout box pointing to the "PR Jobs Link" link in the left sidebar.
- Text_1stParagraph**: A callout box pointing to the first paragraph of the "Jobs" section.
- Instructions_ClickON**: A callout box pointing to the "Instructions_ClickON" link within the first paragraph.
- Text_2ndParagraph**: A callout box pointing to the second paragraph of the "Jobs" section.
- Forms**: A callout box pointing to the "Forms" section.

The "Jobs" section contains the following text:

The Boston Region Census Bureau has compiled a list of employment opportunities in your area. [Click here](#) to view PDF documents or automatically forward all site to [www.usps.gov](#). Job links will open in a new window.

The Census Bureau does not discriminate in employment on the basis of race, color, religion, sex, national origin, political affiliation, sexual orientation, marital status, disability, or any other protected characteristic.

The "Forms" section contains the following links:

- [Custom Application for Federal Employment \(OC E-12\) \(PDF 727k\)](#)
- [Declaration for Federal Employment \(SF-306\) \(PDF 82k\)](#)
- [Application for Veteran Preference \(SF-15\) \(PDF 1.2M\)](#)
- [Employment Eligibility Verification \(Form I-9\) \(PDF 379k\)](#)
- [Employment Package Check List \(PDF 8k\)](#)

The "Former 2010 Census Workers" section contains the following link:

- [Former 2010 Census Workers](#) - Learn about employment resources in your area.

The footer of the page includes the U.S. Census Bureau logo, the tagline "Helping You Make Informed Decisions", and various links such as "Privacy Policy", "2010 Census", "Data Tools", "Information Quality", "Product Catalog", "Contact Us", and "Home".

Figure 33: AOI mapping of Boston Region's local jobs web page

Figure 34 shows the first 10.06 seconds of 8 different participants' gaze plots. Users start by looking at the links in the middle of the page before reading the text above the links. Some participants skip reading the text completely and go from the links in the middle of the page before moving onto the links in the left column.

Participants coming to this page are likely coming with a job search mindset. The PDF forms listed in the middle of the page are only useful to users once they have verified that there are jobs available in their state. It may be more useful to place a link to the forms on the left, and keep the links to specific state

pages in the middle. The text in the “Employment Package Check List” PDF should also be provided on the page itself, to inform users which forms are necessary.

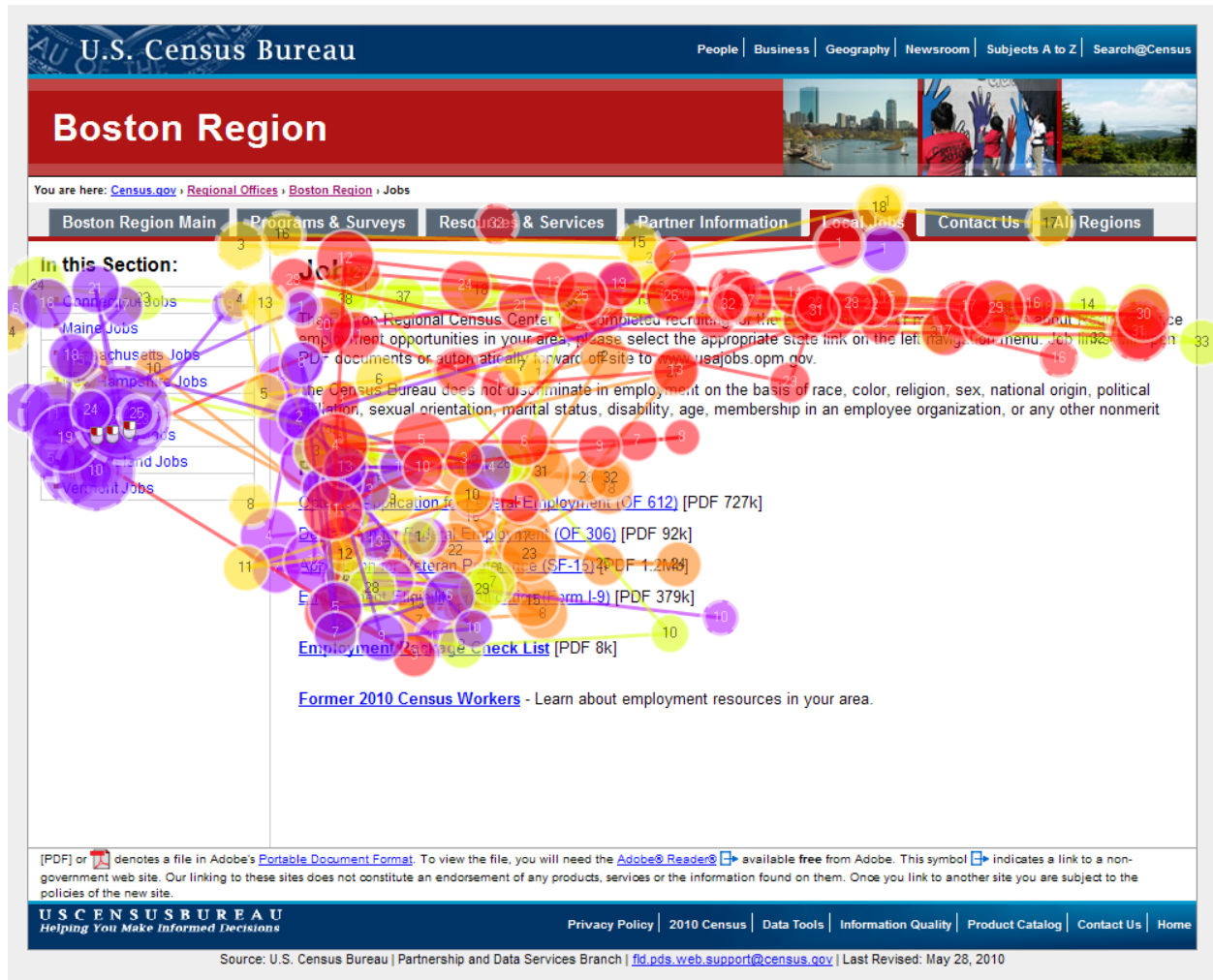


Figure 34: Gaze plot of the first 10.06 seconds across all participants (n = 8)

An AOI analysis of the number of seconds before a participant first fixates upon the AOI shows the majority of participants fixate upon the PDF forms listed in the middle of the web page first. A dash (-) means that participants did not fixate upon the AOI. The text in the first paragraph in Figure 33 (above) was fixated upon in an average of 1.83 seconds. Participants generally looked at the first paragraph before moving over to the jobs listing. From there, they would move onto the second paragraph.

The omissions in this table show that three participants did not fixate upon the instructions to click on the links in the left sidebar. However, the majority of participants were successful in completing this task. Three participants did not look at the second paragraph, and the participants who did varied in the time it took to look at the second paragraph. For example, Participant 8 took 35 seconds, while Participant 7 took 0.35 seconds.

Table 15: Time to first fixation in seconds (n = 8)

	Forms	Instructions_ClickON	Job Listings	PR Jobs Link	Text_1stParagraph	Text_2ndParagraph
P01	0.66	20.44	2.4	-	0.06	-
P02	1.67	-	19.76	-	0.34	4.84
P03	0	8.23	5.37	-	3.37	-
P04	0.78	5.53	2.68	-	0.13	0.6
P05	8.92	-	1.32	-	1.22	-
P06	2.55	-	1.01	-	1.73	-
P07	0.58	-	3.96	5.06	2.1	0.35
P08	0.6	16.03	22.09	-	5.1	35.4
AVG	1.97	12.56	7.32	5.06	1.76	10.30

Table 16 shows the number of seconds before a participant fixated upon one of the AOIs. The jobs listing AOI had the longest average first fixation duration, coming in at 2.93 seconds, while the forms link had the least. However, overall, participants spent milliseconds on each AOI for their first fixation.

Table 16: First fixation duration in seconds (n = 8)

	Forms	Instructions_ClickON	Job Listings	PR Jobs Link	Text_1stParagraph	Text_2ndParagraph
P01	0.5	0.27	0.25	-	0.33	-
P02	0.2	-	1.1	-	0.2	0.18
P03	0.17	0.22	0.23	-	0.28	-
P04	0.4	0.35	0.52	-	0.3	0.18
P05	0.02	-	0.2	-	0.1	-
P06	0.32	-	0.15	-	0.25	-
P07	0.22	-	0.23	0.7	0.25	0.23
P08	0.18	0.32	0.25	-	0.27	0.2
AVG.	0.25	1.15	2.93	0.7	1.98	0.8

Table 17 shows the number of visits made by each participant to the AOIs defined on the Local Jobs web page. From the data we can see the forms had the highest average number of visits. However, Participant 4 may have boosted the average given the 13 visits she made to the Forms AOI. The first paragraph also had a high average number of visits; however Participants 4 and 8 may be outliers. High number of visitations may indicate confusion or an expectation as the participant fixates upon the AOI, leaves the area, and re-visits the AOI. Participant 4's visits are high for the first paragraph, second paragraph, and forms. She may have seen the forms and wondered what to do with them.

Table 17: Visit count

	Forms	Instructions_Click ON	Job Listings	PR Jobs Link	Text_1stParagraph	Text_2ndParagraph
P01	8	1	3	-	3	-
P02	5	-	4	-	1	3
P03	5	2	5	-	5	-
P04	13	2	7	-	10	6
P05	1	-	7	-	1	-
P06	2	-	2	-	1	-
P07	2	-	2	1	1	1
P08	2	10	3	-	14	2
AVG.	4.75	3.75	4.13	1	4.5	3

Table 18 shows the total visit duration in seconds for the eight participants. The longest visit was 17.37 seconds on the first paragraph. Long visits on an AOI may indicate cognitive processing of the information or confusion with the information being presented.

Table 18: Total visit duration in seconds (n = 8)

	Forms	Instructions_Click ON	Job Listings	PR Jobs Link	Text_1stParagraph	Text_2ndParagraph
P01	13.22	0.37	3.44	-	1.6	-
P02	3.15	-	2.27	-	0.2	1.18
P03	3.44	0.48	3.33	-	3.7	-
P04	10.56	0.45	3.46	-	8.02	1.53
P05	0.02	-	2.7	-	0.1	-
P06	0.65	-	0.38	-	0.25	-
P07	2.36	-	4.67	0.7	0.25	0.23
P08	0.97	4.9	3.3	-	17.37	0.92
AVG.	4.30	1.55	2.94	0.7	3.94	0.97

Table 19 shows the number of seconds before a participant clicks on the Forms and PR Jobs Link AOIs. The Instructions_ClickON , Text_1stParagraph, and Text_2ndParagraph AOIs were removed from this table since no participants clicked on these AOIs. The Jobs Listing AOI is also omitted since participants only clicked on the PR Jobs Link which was inside the Job Listings AOI. Participant 1 was the only participant to click on the Forms AOI before clicking on the PR jobs link.

Table 19: Time to first mouse click in seconds (n = 8)

	Forms	PR Jobs Link
P01	13.76	27.15
P02	-	22.91
P03	-	13.93
P04	-	-
P05	-	8.72
P06	-	9.39
P07	-	8.62
P08	-	39.86
AVG	13.76	18.65

The gaze opacity screenshot in Figure 35 shows a similar pattern as the gaze plot shown previously in Figure 32 (above). The fixations made by the seven participants showed that they rarely fixated upon the plain text above the links. Instead they fixated upon the links in the middle and links in the column. The image also shows that participants who read the text, often stopped after the second line. In a study of how people read websites, Nielsen (1997)¹⁰ writes that only 79 percent of users will scan any new page they come across, with 16 percent reading each word. Thus the embedding of instructions inside paragraphs should only be used as a last resort.

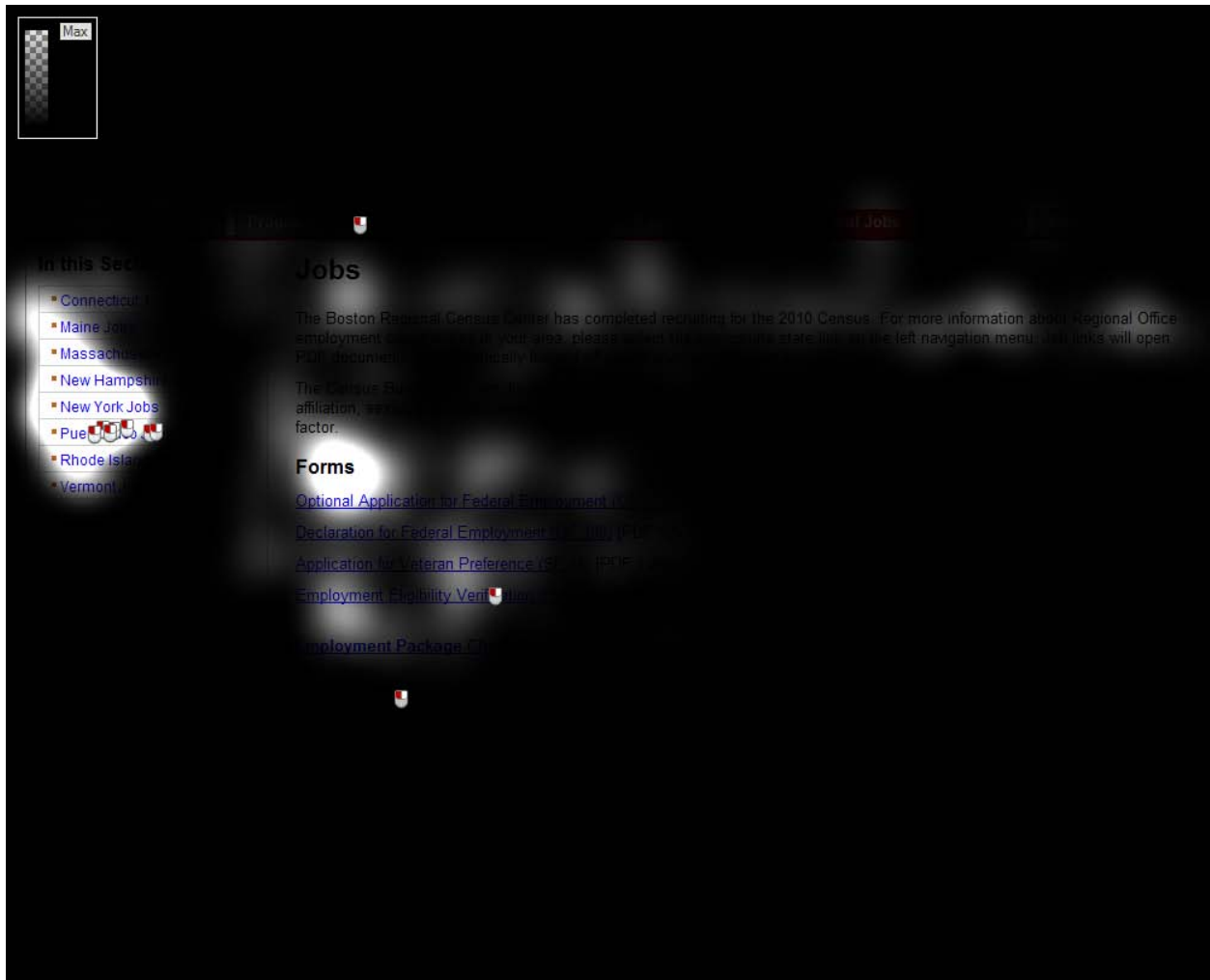


Figure 35: Gaze opacity screenshot of the Boston Region's Local Job page (n = 8)

¹⁰ <http://www.useit.com/alertbox/9710a.html>

Figure 36 shows that the seven participants who navigated to the Puerto Rico Jobs page fixated primarily on the header. These participants may have missed the duty station text since it was below the link and header. Post-test debriefing revealed that users often did not see the duty station text. The gaze opacity map shows that the majority of participants focused on the position and the link.

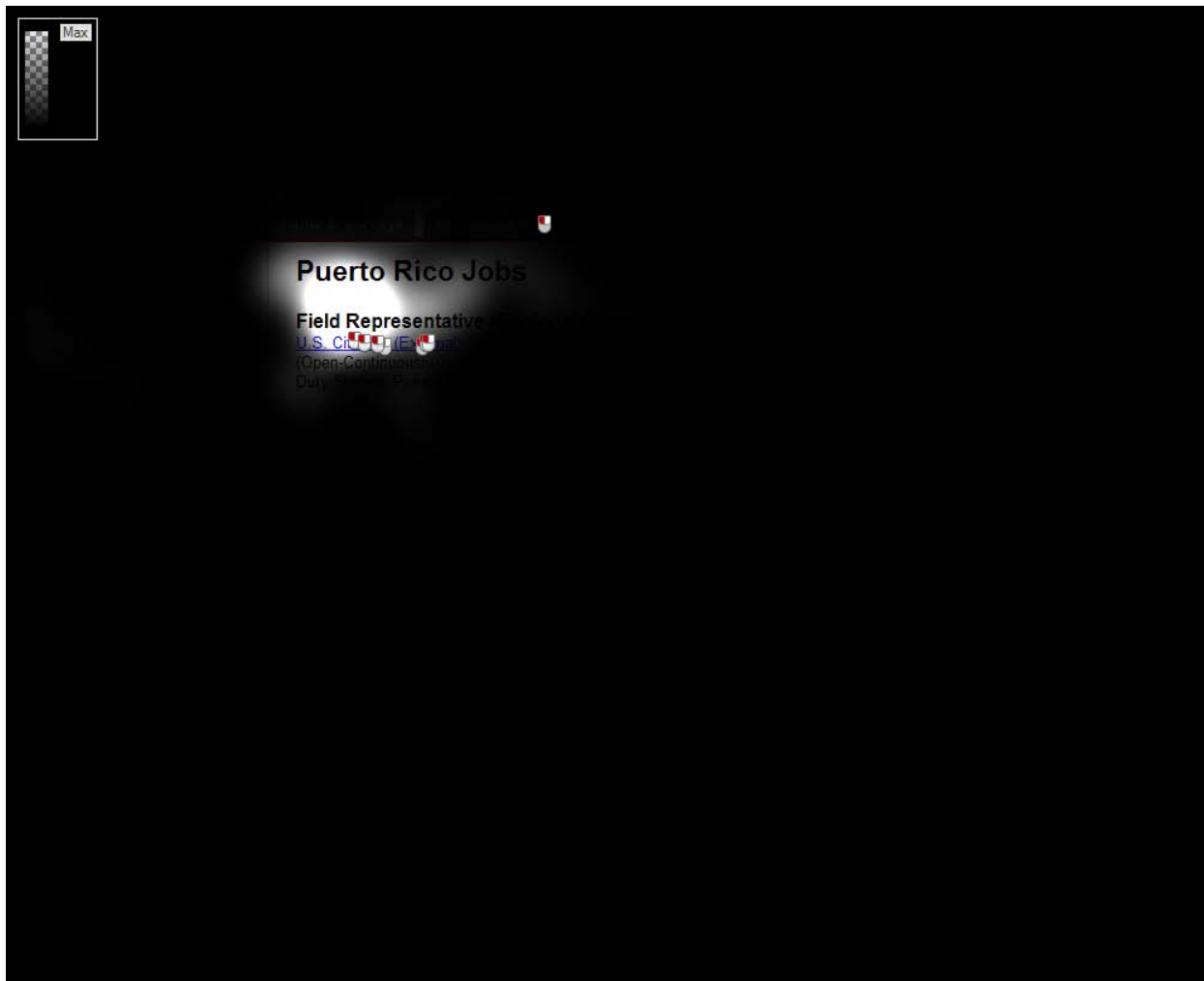


Figure 36: Gaze opacity screenshot of Puerto Rico Jobs page (n = 7)¹¹

¹¹ Participant 4 did not visit this web page.

Table 20 shows the results of an AOI analysis on the participants' first fixation duration on the duty station text. Participant 2 and Participant 5 were the only two participants to fixate upon the text. Participant 3 took 32 seconds to reach the duty station text, while Participant 5 took less than a second. Participant 4 did not navigate to the Puerto Rico jobs page. Although text in a users' peripheral vision can be seen, it is less likely to be read by users. It is likely that other participants did not see the duty station text. Fixation duration data on the duty station text indicates that participants spent little time on the text, and visit count data indicates that only Participant 5 revisited the duty station text three times.

Table 20: AOI Analyses on the duty station text in seconds (n = 7)

	Time to First Fixation	Fixation Duration	Visit Count (Include Zeros)
P01	-	-	0
P02	32.32	0.08	1
P03	-	-	0
P05	0.43	0.17	3
P06	-	-	0
P07	-	-	0
P08	-	-	0

Task 4

In Task 4 we asked participants to locate the phone number of the partnership and data services contact for the Dallas Regional office.

Figure 37 shows the AOI mapping of the Dallas Region's Contact Us web page. Two AOIs were placed on the left. One AOI covered the links in the left sidebar, while another AOI was embedded inside the first AOI to examine the number of fixations on the "Our Staff" link.

The screenshot shows the Dallas Region Contact Us page. The header includes the U.S. Census Bureau logo and navigation links: People, Business, Geography, Newsroom, Subjects A to Z, and Search@Census. The main heading is "Dallas Region". Below this is a breadcrumb trail: "You are here: Census.gov > Regional Offices > Dallas Region > Contact Us". A navigation menu includes: Dallas Region Main, Programs & Surveys, Resources & Services, Partner Information, Local Jobs, Contact Us (highlighted), and All Regions.

The "In this Section:" sidebar contains three links: "How to Identify a Census Firm" (with a "LeftSidebar" AOI box), "Visiting Our Office", and "Our Staff" (with an embedded AOI box). The main content area is titled "Contact Us" and lists Gabriel A. Sanchez, Regional Director. It provides contact information for the Dallas Regional Office and the Dallas Regional Census Center (2010 Census).

At the bottom, the footer includes the U.S. Census Bureau logo, the tagline "Helping You Make Informed Decisions", and various links: Privacy Policy, 2010 Census, Data Tools, Information Quality, Product Catalog, Contact Us, and Home. A source note at the very bottom reads: "Source: U.S. Census Bureau | Partnership and Data Services Branch | fid_pds_web_support@census.gov | Last Revised: Thursday, 22-Jul-2010 16:41:37 EDT".

Figure 37: AOI mapping of the Dallas Region's Contact Us web page

Table 21 shows five participants fixated upon the left sidebar in an average of 5.912 seconds. Out of these five participants, only Participants 3 and 7 fixated upon the “Our Staff” link. However, the lack of a fixation does not indicate that participants did not see the link. The links in the left sidebar are short and grouped together, which may result in participants’ using their peripheral vision to process the other links. The first fixation duration was under a second for most individuals, indicating that participants were scanning the page relatively quickly.

The Visit Count table shows that most participants made less than 4 visits to the links on the left. Participant 3 had 9 visits, the highest among the five participants, while Participant 6 only had 1 visit. The total visit duration showed that most participants examined the left sidebar for several seconds, except for Participant 6. Participant 6 only fixated upon the left sidebar for 0.17 seconds. Out of the five participants, only three clicked the “Our Staff” link. Participants 3 and 6 did not. The average time before a participant clicked the link was 13.33 seconds with Participant 7 taking the shortest amount of time, 9.25 seconds to click on “Our Staff.”

Table 21: Eye-tracking data for the Contact Us web page (n = 5)

	Time to First Fixation (sec)		First Fixation Duration (sec)		Visit Count		Total Visit Duration (sec)		Time to First Mouse Click (sec)
	Left Sidebar	Our Staff	Left Sidebar	Our Staff	Left Sidebar	Our Staff	Left Sidebar	Our Staff	Our Staff
P01	6.87	-	1.68	-	4	-	4.41	-	16.64
P02	7.12	-	0.13	-	2	-	1.22	-	14.12
P03	2.61	10.9	0.18	0.45	9	1	4.48	0.67	-
		6							
P06	10.56	-	0.17	-	1	-	0.17	-	-
P07	2.4	3.32	0.48	0.95	3	3	5.24	3.71	9.25
AVG.	5.91	7.14	0.53	0.7	3.8	2	3.10	2.19	13.34

It was also possible to find the partnership and data services staff contacts from the Partner Information web page. To find the information users had to click the “Partnership and Data Services Staff Contacts” PDF link. Alternatively, users could see the contact information at the bottom of the “How to Become a Partner” web page. Only one participant found the contact information through that path. Three participants clicked the “Partnership and Data Services Staff Contacts” link, one participant clicked the “Contact Your Regional Census Center” PDF link, and another participant clicked the “How to Become a Partner” link. Figure 38 shows the pattern of mouse clicks made on this page.

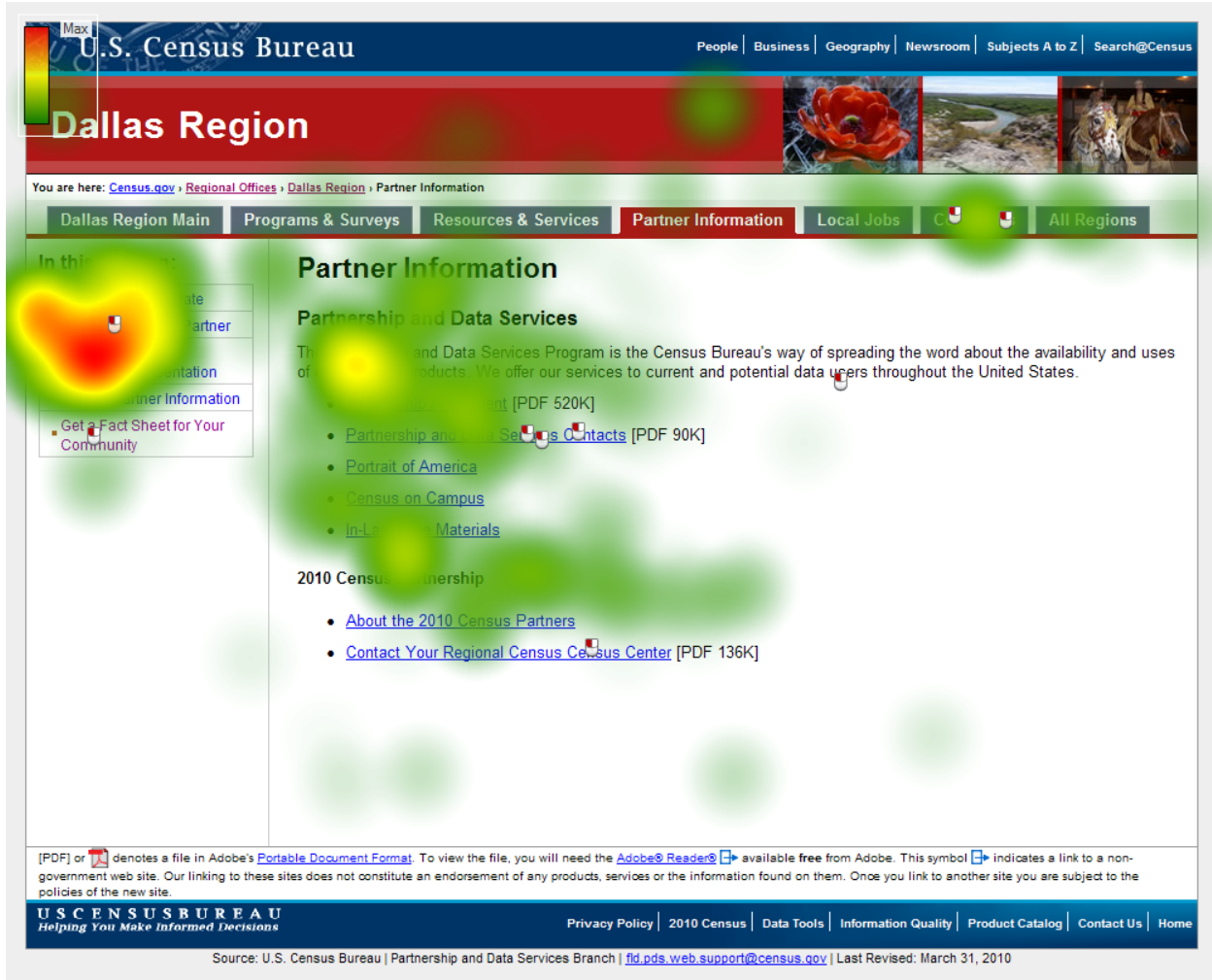


Figure 38: Heat map of the Partner Information screen for the Dallas Regional office (n = 6)

The gaze opacity screen shot, Figure 39, shows that participants again looked at the links in the middle of the home page before moving towards the navigational tabs. The large majority of fixations focused on the links, addresses, and the “Partner Information” tab. One participant clicked the Facebook icon. This participant reported using Facebook to keep track of birthdays, friends, and work. It is possible that he assumed that the Facebook icon indicated a link to the person’s contact information.

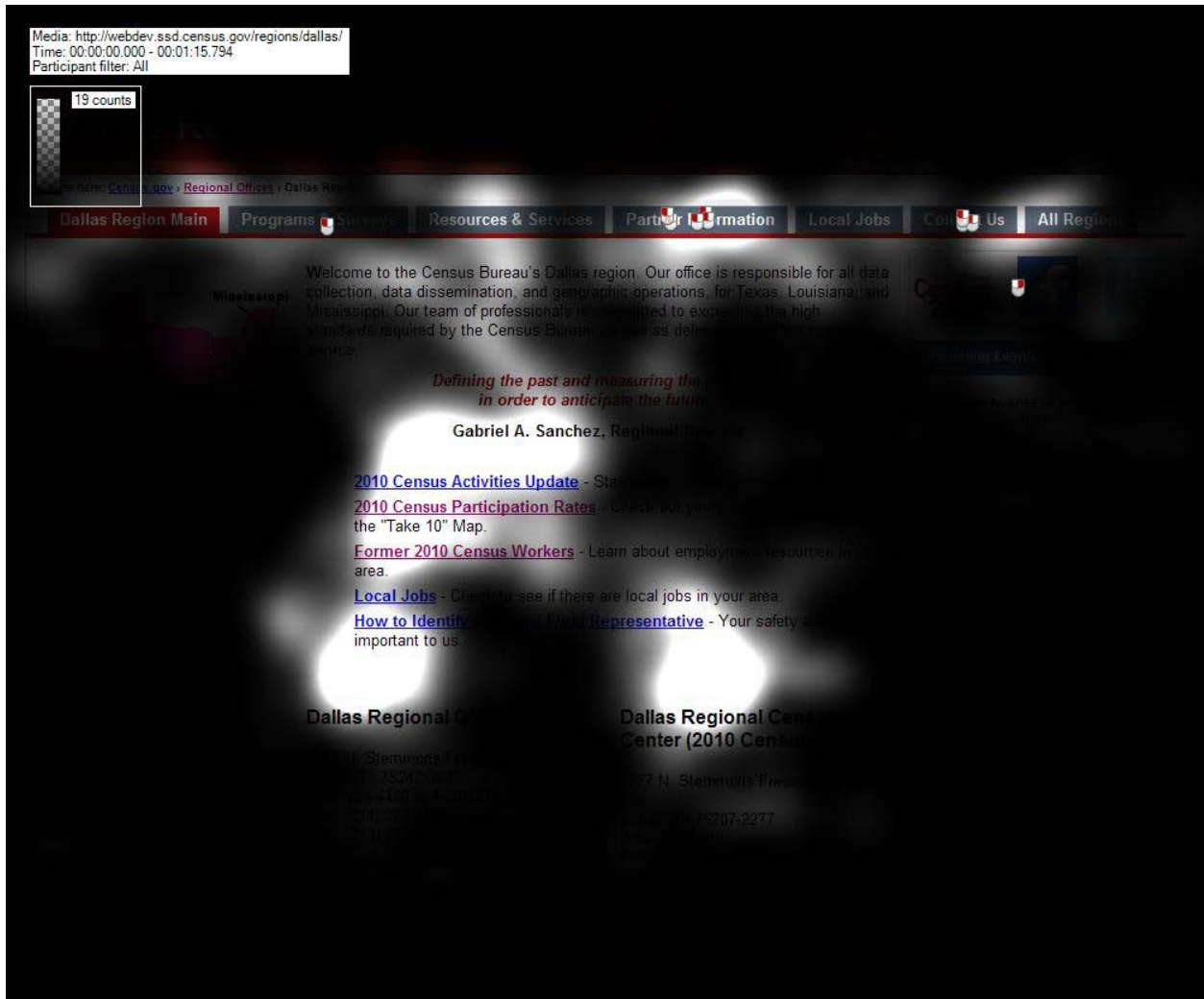


Figure 39: Gaze opacity screenshot of the Dallas Region home page (n = 8)

Figure 40 shows the gaze plot screenshot of the first 8 seconds revealed that the majority of the eight participants started by looking at the links in the middle of the page. Other participants started by looking at the image or welcome text before moving onto the links in the middle.

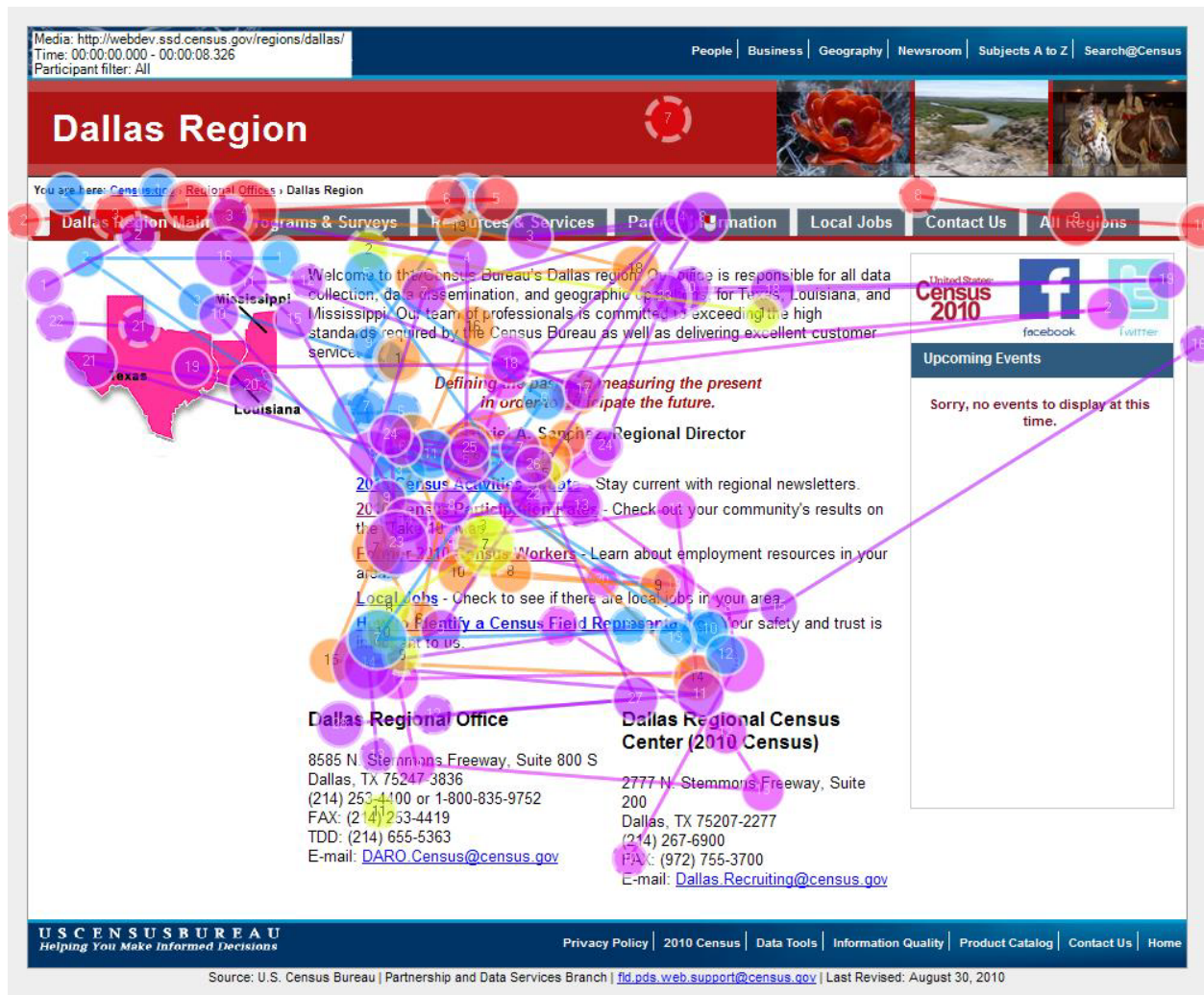


Figure 40: Gaze plot screenshot of the first 8 seconds of the Dallas Region home web page (n = 8)

Figure 41 shows the gazes made in the first 3 seconds of seeing the Dallas Region’s Contact Us page reveals that the five participants started around the Contact Us header before moving onto the addresses of the two offices. Eventually all users looked at the left column.

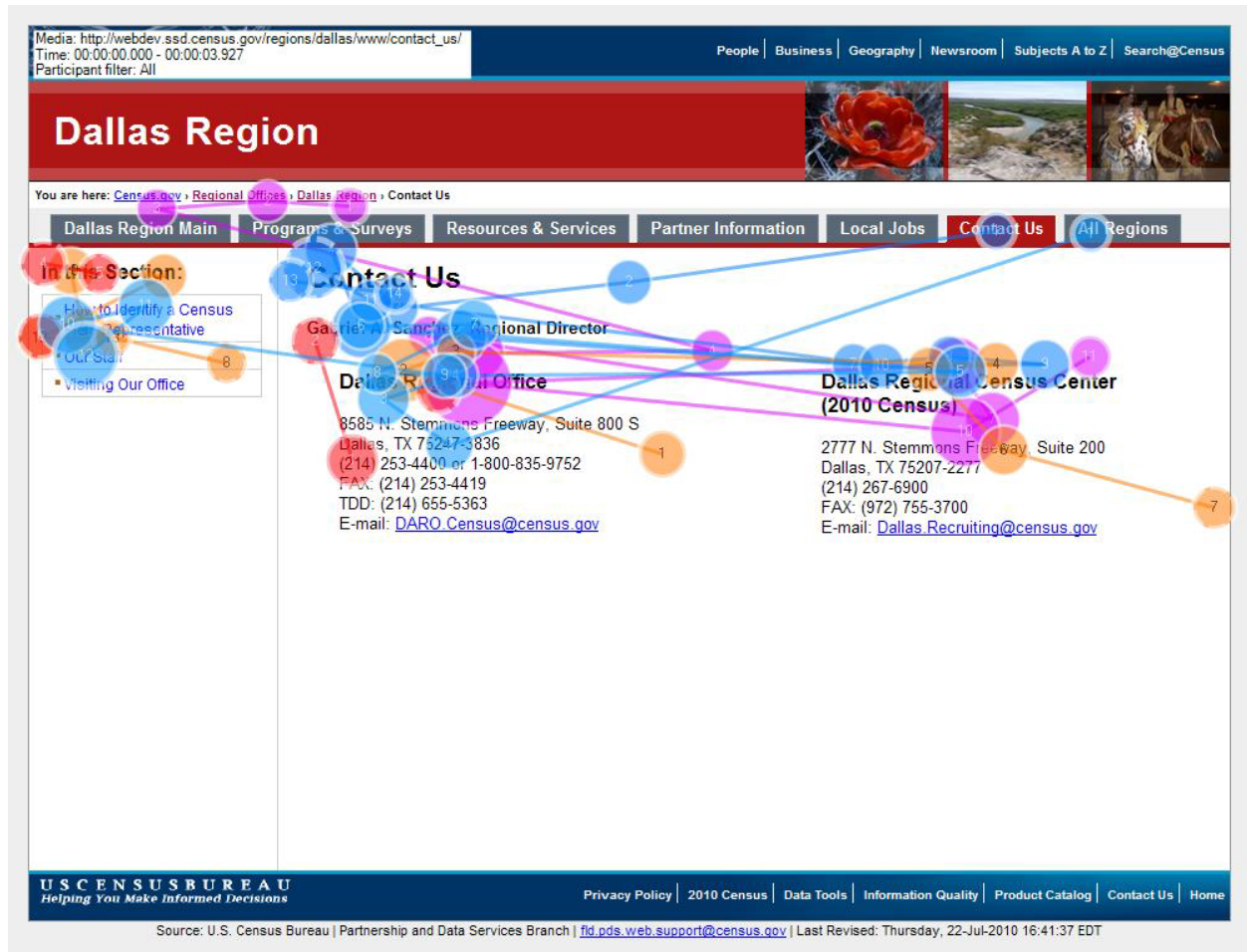


Figure 41: Gaze plot of the first 3 seconds of the Dallas Contact Us web page (n = 5)

Figure 42 depicts a heat map of five participants' fixations. It shows that the highest number of fixations occurred on the left column, followed by the header area of the Dallas Regional Office (bold text, larger font).

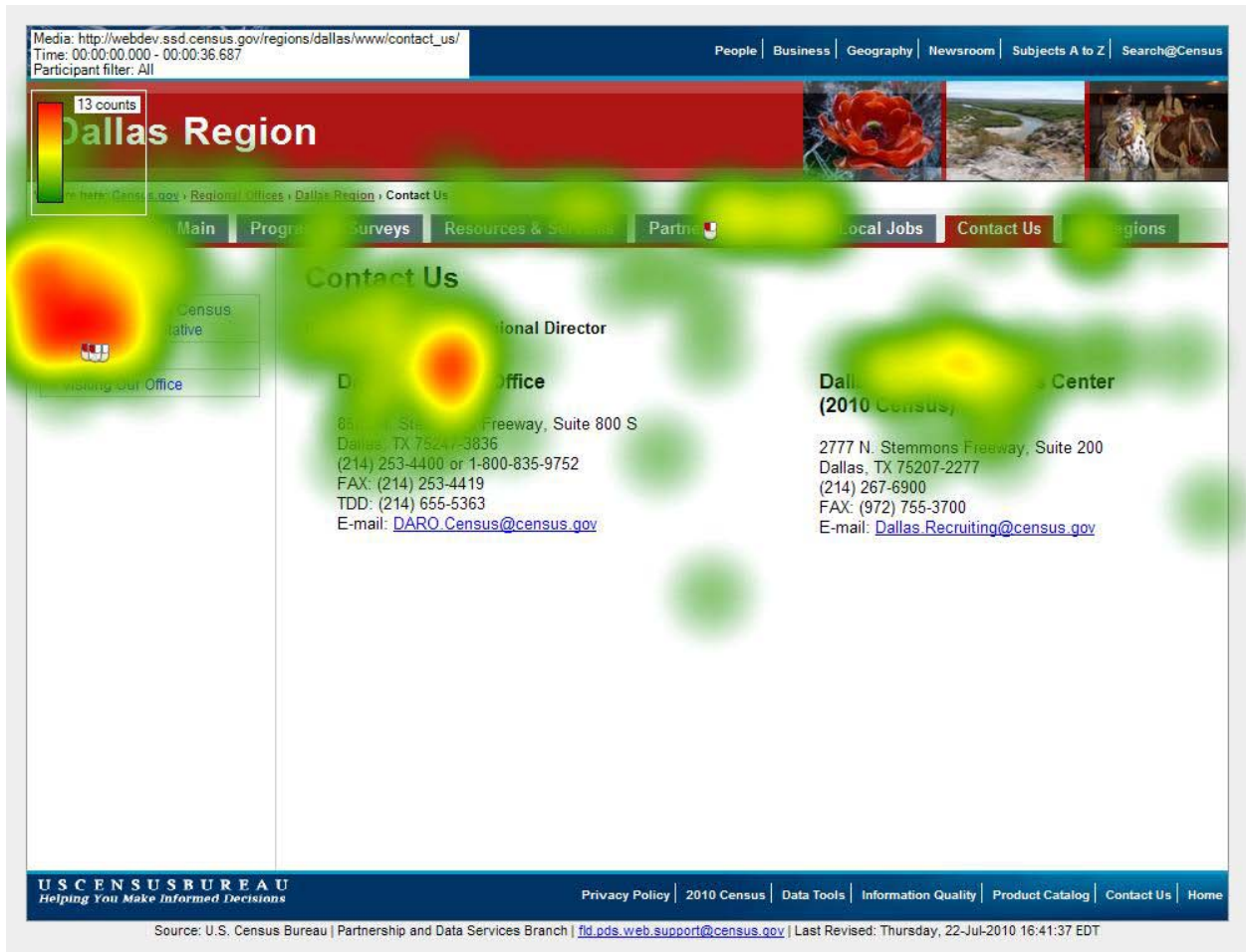


Figure 42: Heat map of the Dallas Region's Contact Us web page (n = 5)

Task 5

In Task 5 we asked participants to request a workshop with the Philadelphia Regional office. There were two ways to complete this task: Navigate to the Resources & Services web page; or go to the Partner Information web page. Most participants navigated to the Resources and Services web page. Figure 43 shows the AOI mapping designated on the Philadelphia Region’s “Resources & Services” webpage.



Figure 13: AOI mapping of the Philadelphia’s Regional Office’s Resource & Services page

Table 22 shows the participants' times to first fixation in seconds for the AOIs mapped out previously in Figure 43 (above). Participants often look at the "Get a Fact Sheet" link first on this page. Participants then read down the right column to the "Request a Workshop" link. Three participants (P04, P06, and P08) looked at the data requests contact information and Participants 4 and 6 mentioned that they would e-mail the contact to request a workshop.

Table 22: Time to first fixation in seconds (n = 8)

	Data Requests Contact	Get a Fact Sheet	Request a Workshop Link
P01	-	8	-
P02	-	3.54	11.9
P03	-	6.17	10.05
P04	23.44	1.57	20.28
P05	-	2.17	3.03
P06	37.83	5.86	34.95
P07	-	-	6.71
P08	43.75	9.73	34.09
AVG.	35.01	5.29	17.29

Table 23 shows the first fixation duration in seconds. The times are all near or below half a second, indicating that participants first scanned the various elements on a web page before making a decision. The low numbers across the table indicates that participants didn't have difficulty understanding the links.

Table 23: First fixation duration in seconds (n = 8)

	Data Requests Contact	Get a Fact Sheet	Request a Workshop Link
P01	-	0.22	-
P02	-	0.1	0.22
P03	-	0.23	0.33
P04	0.18	0.2	0.35
P05	-	0.27	0.18
P06	0.55	0.17	0.8
P07	-	-	0.07
P08	0.23	0.78	0.22
AVG.	0.32	0.28	0.31

Table 24 shows the total visit duration in seconds. Participant 8 had the longest visit duration, 10.7 seconds, on the “Get a Fact Sheet” link. In comparison she spent 8.31 seconds on the “Request a Workshop” link and 0.93 seconds on the Data Requests Contact. A glance at Table 25 reveals that she had 13 visit counts for the “Get a Fact Sheet” link and 19 visit counts for the “Request a Workshop” link. Participant 8 seems to have had difficulty in deciding which link to select. Table 26 provides more evidence for this conclusion as the participant took 53.24 seconds before clicking on the “Get a Fact Sheet” link before realizing the solution to the task wasn’t there. She then clicked the “Request a Workshop” link 39.23 seconds later.

Table 24: Total visit duration in seconds (n = 8)

	Data Requests Contact	Get a Fact Sheet	Request a Workshop Link
P01	-	0.38	-
P02	-	0.1	0.22
P03	-	0.88	1.83
P04	2.15	1.05	2.05
P05	-	0.27	1.15
P06	0.55	4.23	0.8
P07	-	-	0.07
P08	0.93	10.7	8.31
AVG.	1.21	2.52	2.06

Like Participant 8, Participant 4 also had a high number of visit counts across the three AOIs. This participant also had difficulty in deciding which link to select. Eventually she told us that she would just e-mail the contact listed. Other participants accomplished the task more easily.

Table 25: Number of visits (n = 8)

	Data Requests Contact	Get a Fact Sheet	Request a Workshop Link
P01	-	2	-
P02	-	1	1
P03	-	1	3
P04	8	4	6
P05	-	1	2
P06	1	5	1
P07	-	-	1
P08	2	13	19
AVG.	3.67	3.86	4.71

Table 26 shows the time before a participants' first mouse click in seconds. Five of the eight participants clicked the "Request a Workshop" link, while Participant 8 was the only participant to click "Get a Fact Sheet." No participants clicked on the Data Requests Contact.

Table 26: Time to first mouse click in seconds (n = 8)

	Data Requests Contact	Get a Fact Sheet	Request a Workshop Link
P01	-	-	12.42
P02	-	-	-
P03	-	-	14.83
P04	-	-	-
P05	-	-	9.39
P06	-	-	-
P07	-	-	6.56
P08	-	53.24	92.47
AVG.	-	53.24	27.13

As noted previously, there were two ways to complete this task: Navigate to the Resources & Services web page; or go to the Partner Information web page. Only one participant completed the task by navigating through the Partner Information web page. This participant first navigated to the Resources & Services web page, scanned it briefly before moving onto the Partner Information web page. Figure 44 shows this participant's gazes across the Resources & Services page. He briefly scanned the right column before looking down the left. After concluding that the answer wasn't on this page he moved onto the next page.



Figure 44: One participant's gaze plot

The gaze plot in Figure 45 shows the majority of the eight participants started by reading the left column in the first 10 seconds of seeing the Resources & Services web page. Participants generally started from the left column before moving onto the right column.

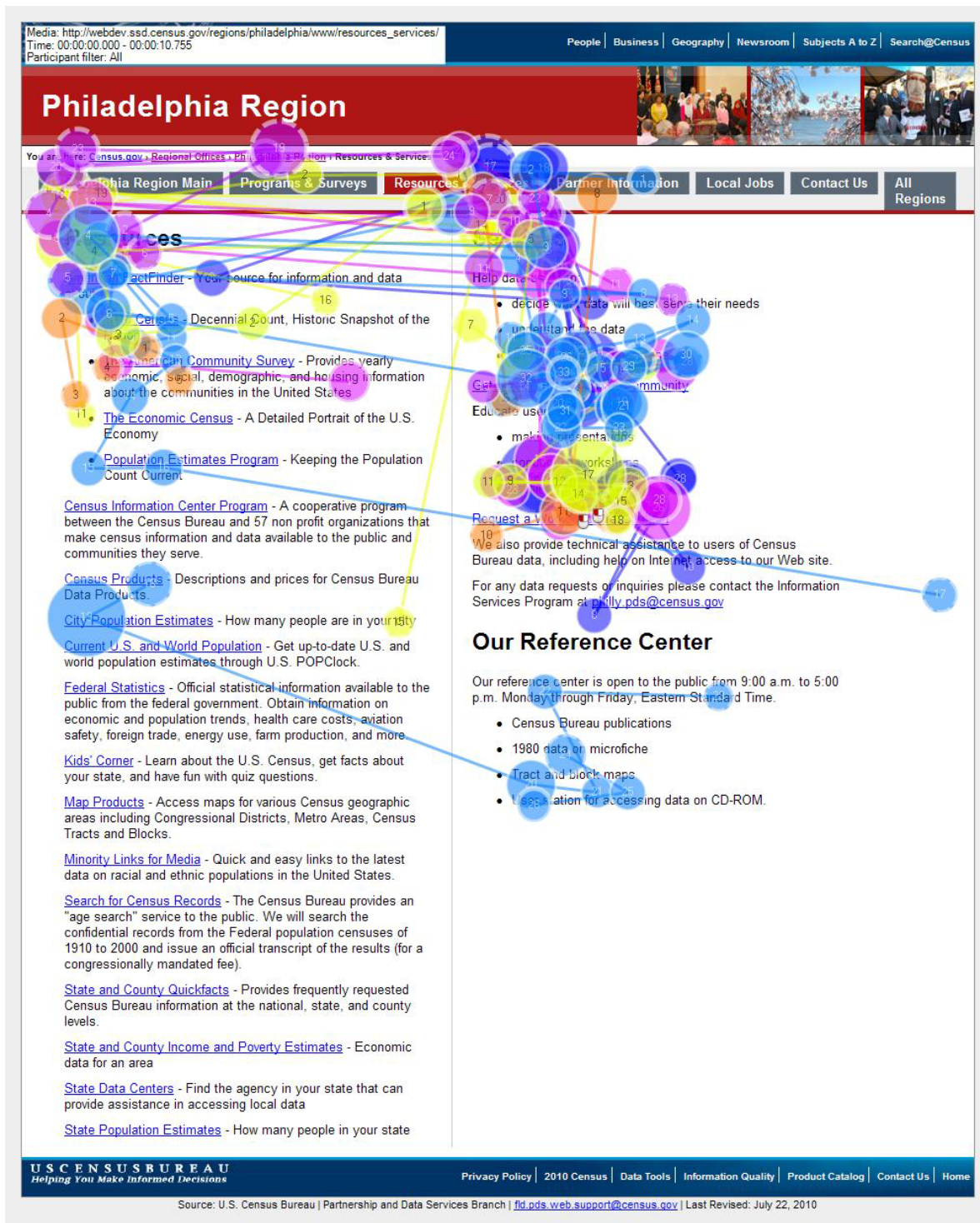


Figure 45: Gaze plot of the first 10 seconds in of the Philadelphia Region’s Resource and Services web page (n = 8)

The heat map in Figure 46 shows that the greatest number of fixations occurred around the “Get a Factsheet” and “Request a Workshop” links.

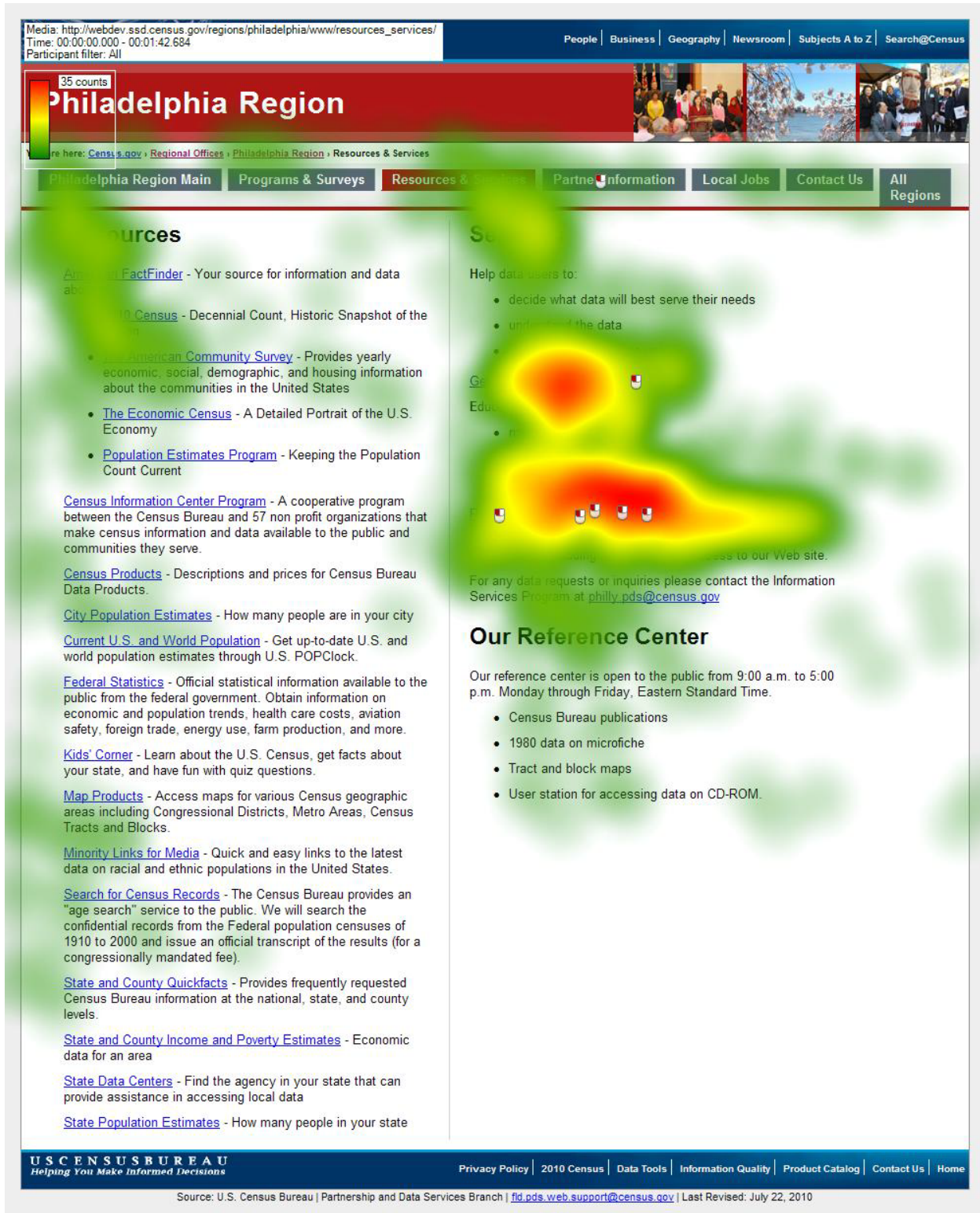


Figure 46: The heat map of the Philadelphia Region’s Resources & Services page (n = 8)

Task 6

In Task 6, we asked participants to find the directions to the Charlotte Regional Office. Figure 47 shows the AOI mapping of the address and Contact Us link. To successfully complete this task, participants had to find the directions under the “Contact Us” link.

The screenshot shows the U.S. Census Bureau website for the Charlotte Region. The header includes the U.S. Census Bureau logo and navigation links for People, Business, Geography, Newsroom, Subjects A to Z, and Search@Census. The main heading is 'Charlotte Region'. Below this is a breadcrumb trail: 'You are here: Census.gov > Regional Offices > Charlotte Region'. A navigation menu contains links for 'Charlotte Region Main', 'Programs & Surveys', 'Resources & Services', 'Partner Information', 'Local Jobs', 'Contact Us link' (highlighted in red), and 'All Regions'. The main content area includes a map of the region, a welcome message, a quote from the Regional Director, and several links for updates, participation rates, former workers, local jobs, and field representatives. On the right, there are social media icons for Facebook and Twitter, and an 'Upcoming Events' section. At the bottom, there is contact information for the Charlotte Regional Office and the Charlotte Regional Census Center (2010 Census). The footer contains the U.S. Census Bureau logo, tagline, and various links including Privacy Policy, 2010 Census, Data Tools, Information Quality, Product Catalog, Contact Us, and Home. The source is cited as 'U.S. Census Bureau | Partnership and Data Services Branch | fd_pds_web_support@census.gov | Last Revised: August 30, 2010'.

Figure 47: AOI mapping of the Charlotte Region’s main page

Table 27 contains the participants' time in seconds to first fixation, first fixation duration, and total fixation duration. Data from the participants' time to first fixation shows that almost all participants with the exception of Participant 3 looked at the address at the bottom of the page before looking at the "Contact Us" link. Participant 8 took the longest amount of time, 45.21 seconds, before fixating upon "Contact Us." Results from the first fixation duration column show that the first fixation made by participants lasted less than half a second for most participants. In comparison, the total fixation duration, or the total amount of time spent on the AOI, shows that participants often looked at the address for long durations. As mentioned earlier in the findings, a few participants commented that they expected to see a link to directions near the address.

Table 27: Time to first fixation, first fixation duration, and total fixation duration in seconds (n = 8)

	Time to First Fixation		First Fixation Duration		Total Fixation Duration	
	address	Contact Us link	address	Contact Us link	address	Contact Us link
P01	2.12	4.07	0.38	0.32	9.44	3.15
P02	-	9.33	-	0.75	-	2.32
P03	9.33	3.57	0.32	0.23	3.78	2.18
P04	2.55	-	0.23	-	1.83	-
P05	2.38	25.91	0.22	0.15	3.76	0.98
P06	10.2	26.33	0.62	0.2	2.05	1.85
P07	18.48	15.98	0.22	0.32	9.36	0.77
P08	5.3	45.21	0.32	0.97	30.49	6.21
AVG.	7.19	18.63	0.33	0.42	8.67	2.49

Table 28 shows the number of visits made to each AOI. Participants made numerous revisits to each AOI indicating that participants may have double checked if directions were located near the addresses. The number of revisits for the "Contact Us" link indicates that participants on the first few fixations didn't know if directions would be located there.

Table 28: Visit count (n = 8)

	address	Contact Us link
P01	7	8
P02	-	4
P03	3	7
P04	2	-
P05	13	4
P06	3	4
P07	4	2
P08	33	17
AVG.	9.29	6.57

Table 29 shows the number of seconds before a participant clicked on an AOI. The address AOI is deleted from the table since no participants clicked on the address AOI. Table 29 also shows the number of seconds from the participants' first fixation to the participants' first mouse click. The times in the table range from a minimum of 8.16 seconds for Participant 4's time to first mouse click to 70.95 seconds for Participant 8's first mouse click. The majority of times are higher than 20 seconds, indicating that participants searched for directions on the main page before clicking the "Contact Us" link. The time from fixation to first mouse click column shows a gap between the first fixation and time to the first mouse click for some participants. This may be further evidence that participants have to exert more time and effort to identify where the directions are.

Table 29: Time to first mouse click and time from first fixation to first mouse click in seconds (n = 8)

Contact Us		
	Time to First Mouse Click	Time from First Fixation to First Mouse Click
P01	68.21	64.14
P02	21.95	12.62
P03	26.79	23.22
P04	8.16	-
P05	68.92	43.01
P06	33.23	6.91
P07	51.46	35.48
P08	70.95	25.74
AVG.	43.71	30.16

The heat map in Figure 48 shows that the majority of the 8 participants' fixations were located near the "Programs & Surveys" and "Contact Us" Tabs. Fixations were also equally spread among the links on the center of the page, the address of the Charlotte Census Regional Office, and other tabs.

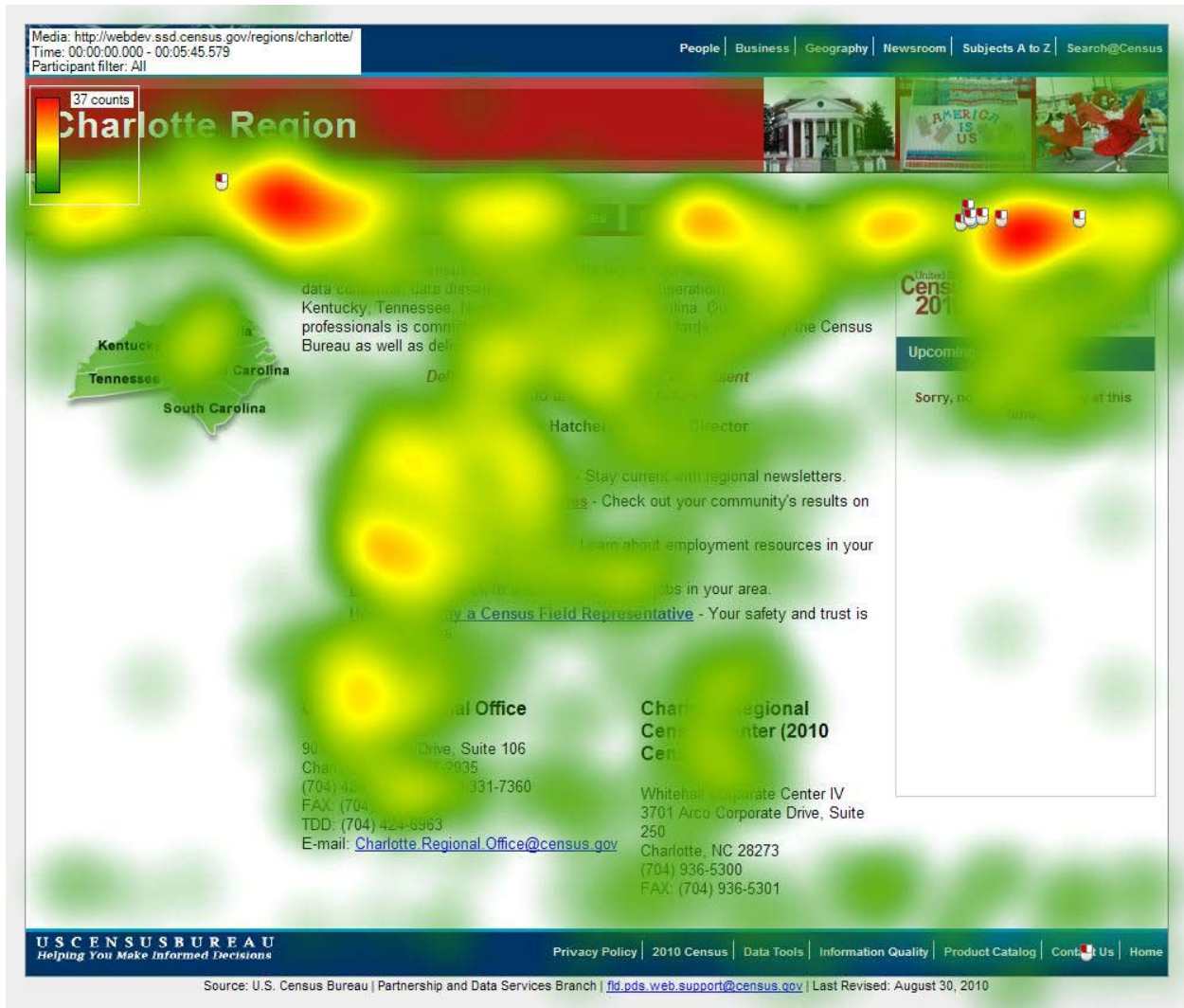


Figure 48: Heat map of Charlotte Region's Home page (n = 8)

Figure 49 shows the gaze plot of the first five seconds of eight participants' gazes across the Charlotte Regional Office's home page.

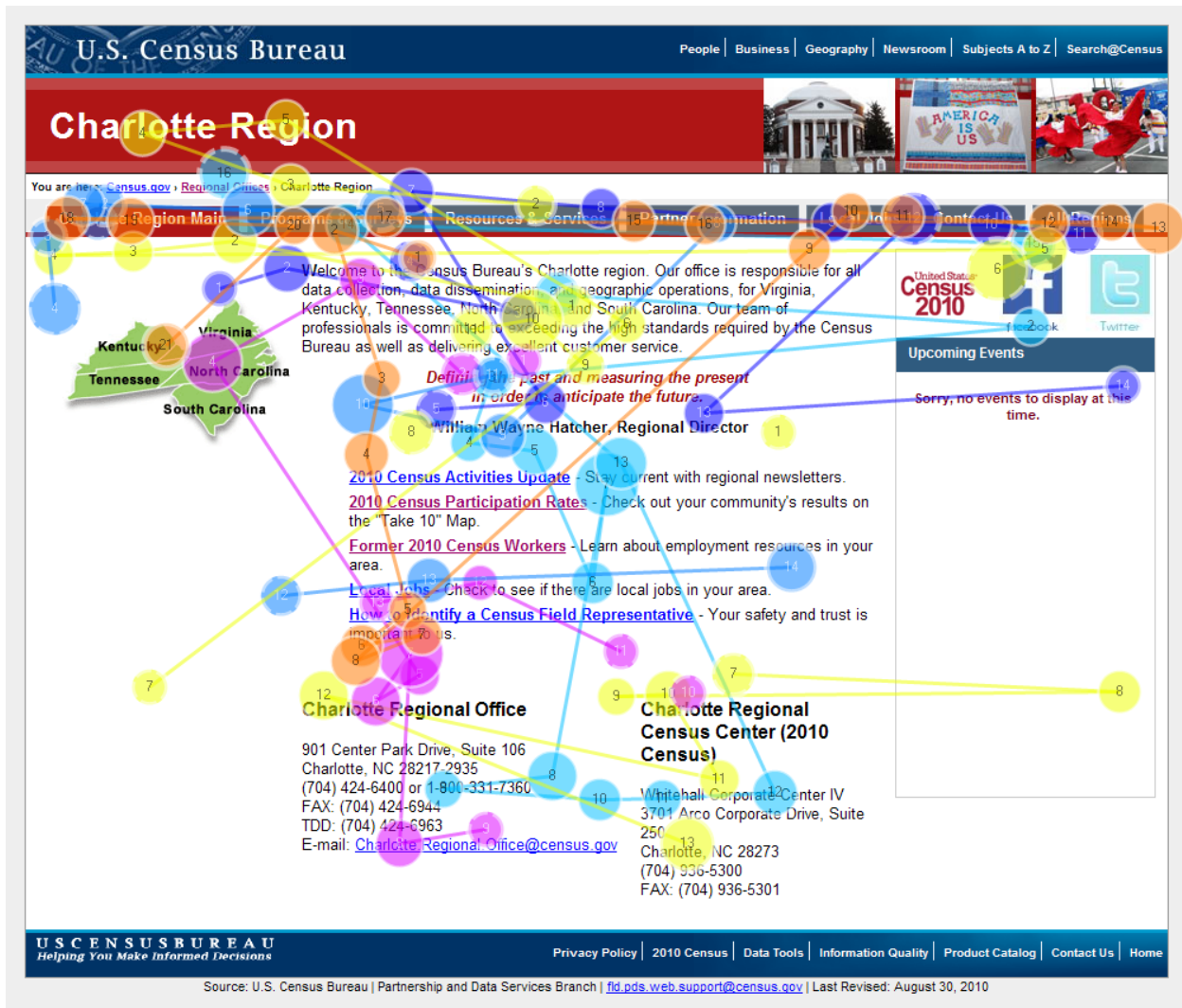


Figure 49: Gaze plot of the first five seconds of the Charlotte Regional home page (n = 8)

Figure 50 shows the four AOI mappings on the Contact Us web page. The Left AOI comprises all links in the left column. The Visiting AOI comprises the area around “Visiting Our Office.” The Left AOI is included since participants may see the “Visiting Our Office” link in their peripheral vision while fixating upon other links in the left column. Address1 and Address2 forms the two address AOIs comprising of address, phone number, fax, TDD, and e-mail.

The screenshot shows the U.S. Census Bureau website for the Charlotte Region. The header includes the U.S. Census Bureau logo and navigation links: People, Business, Geography, Newsroom, Subjects A to Z, and Search@Census. The main heading is "Charlotte Region" in a red banner. Below this is a breadcrumb trail: "You are here: Census.gov > Regional Offices > Charlotte Region > Contact Us". A secondary navigation bar contains links for "Charlotte Region Main", "Programs & Surveys", "Resources & Services", "Partner Information", "Local Jobs", "Contact Us" (highlighted in red), and "All Regions".

The "Contact Us" section is titled "Contact Us" and lists "William Wayne Hatcher, Regional Director". It is divided into two columns:

- Charlotte Regional Office:** 901 Center Park Drive, Suite 106, Charlotte, NC 28217-2935. Phone: (704) 424-6400 (Address1: 936-5360). Fax: (704) 424-6963. TDD: (704) 424-6963. E-mail: Charlotte.Regional.Office@census.gov.
- Charlotte Regional Census Center (2010 Census):** Whitehall Corporate Center IV, 3701 Arco Corporate Drive, Suite 250, Charlotte, NC (Address2: 936-5360). Phone: (704) 936-5360. Fax: (704) 936-5301.

On the left side, under "In this Section:", there are links: "How to Identify a Census Field Representative", "Our Staff" (Left), and "Visiting Office".

The footer contains the U.S. Census Bureau logo with the tagline "Helping You Make Informed Decisions", and navigation links: Privacy Policy, 2010 Census, Data Tools, Information Quality, Product Catalog, Contact Us, and Home. A source note at the bottom reads: "Source: U.S. Census Bureau | Partnership and Data Services Branch | fd.pds.web.support@census.gov | Last Revised: July 22, 2010".

Figure 50: AOI mapping of the Charlotte Region’s Contact Us page.

Table 30 shows the number of seconds before a participant made a fixation on an AOI designated in Figure 50 (above). The majority of participants first fixated on the Address1 AOI, perhaps looking for directions. Some participants then looked at the second address, Address2, while other participants decided to look at the left column. Although not all participants fixated upon the Visiting AOI, it was possible for them to see the link in their peripheral vision when fixating upon the links in the left column.

Table 30: Time to first fixation in seconds (n = 8)

	Address1	Address2	Left	Visiting
P01	0.62	1.24	4.82	-
P02	-	-	0.2	-
P03	0	2.57	0.97	-
P04	0.45	1	1.68	3.12
P05	0.53	-	1.1	3.13
P06	-	-	4.89	-
P07	0.05	-	1.36	2.59
P08	1.51	2.87	3.74	-
AVG.	0.53	1.92	2.35	2.95

Table 31 shows the number of seconds the participants' first fixation lasted. The majority of the first fixations lasted less than a second. Averages across participants for AOIs show that participants spent 0.82 seconds on the left column compared to the 0.24 seconds on Address1 and 0.48 seconds on Address2.

Table 31: First fixation duration in seconds (n = 8)

	Address1	Address2	Left	Visiting
P01	0.35	0.27	1.8	-
P02	-	-	0.25	-
P03	0.04	0.33	0.47	-
P04	0.23	0.68	1.43	0.25
P05	0.17	-	0.7	0.67
P06	-	-	0.42	-
P07	0.4	-	1.23	1.96
P08	0.25	0.62	0.27	-
AVG.	0.24	0.48	0.82	0.96

Table 32 shows the total number of visits made by a participant. Overall, the majority of visits made by participants are less than four, indicating that participants quickly understood that the addresses didn't contain a link to the directions. Participant 3 had the highest number of visits to the left column.

Table 32: Visit count

	Address1	Address2	Left	Visiting
P01	2	1	2	-
P02	-	-	3	-
P03	4	2	6	-
P04	1	1	3	1
P05	3	-	3	1
P06	-	-	3	-
P07	1	-	1	1
P08	1	2	2	-
AVG.	2.00	1.50	2.88	1.00

Table 33 shows the total number of seconds a participant spent visiting each AOI. The left column was examined the longest, and the second address listing was examined the least.

Table 33: Total visit duration in seconds (n = 8)

	Address1	Address2	Left	Visiting
P01	0.73	0.53	1.86	-
P02	-	-	1.12	-
P03	1.34	0.63	3.25	-
P04	0.55	0.68	2.93	0.88
P05	0.4	-	2.27	0.67
P06	-	-	1.75	-
P07	0.62	-	3.2	1.96
P08	0.48	1.27	1.33	-
AVG.	0.69	0.78	2.21	1.17

Table 34 shows the number of seconds before a participant clicked on the Visiting AOI. Address1 and Address2 were deleted from the table since no participants clicked on them. The Left AOI was also deleted since all participants clicked on the Visiting AOI. The majority of participants clicked on the link to directions in less than 6 minutes. However, Participant 1 took 7.52 seconds while Participant 6 took 11.82 seconds.

Table 34: Time to first mouse click in seconds (n = 8)

Visiting	
P01	7.52
P02	6.09
P03	9.1
P04	5.16
P05	3.86
P06	11.82
P07	4.42
P08	-
AVG.	6.85

The gaze plot in Figure 51 of the Contact Us web page shows the first 4 seconds of eight participants' gazes. Three participants examined the "Contact Us" tab before moving onto the Contact Us header. Overall it seems that all eight participants examine the addresses listed on this page before moving to the links in the left column.

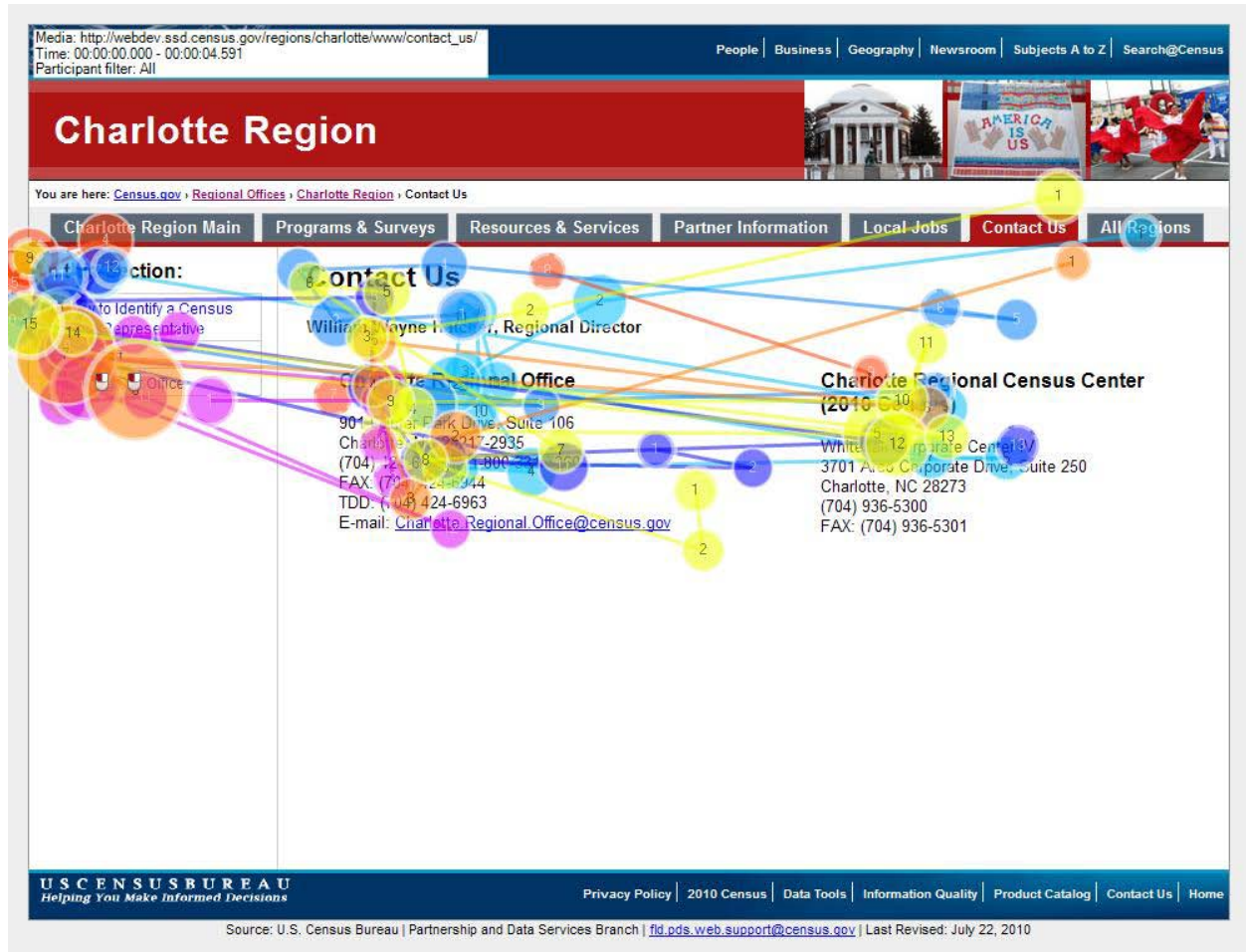


Figure 51: Gaze plot of the first 4 seconds of the Charlotte Region Contact Us Web page (n =8)

The gaze plot image shown in Figure 52 presents one participant's gaze over 43 seconds. The participant looked at the address and glanced at the column before examining the Census Bureau links on the top right, before returning to the tabs. From there, this participant returned to the left column followed by the address of the Charlotte Regional Census Center.

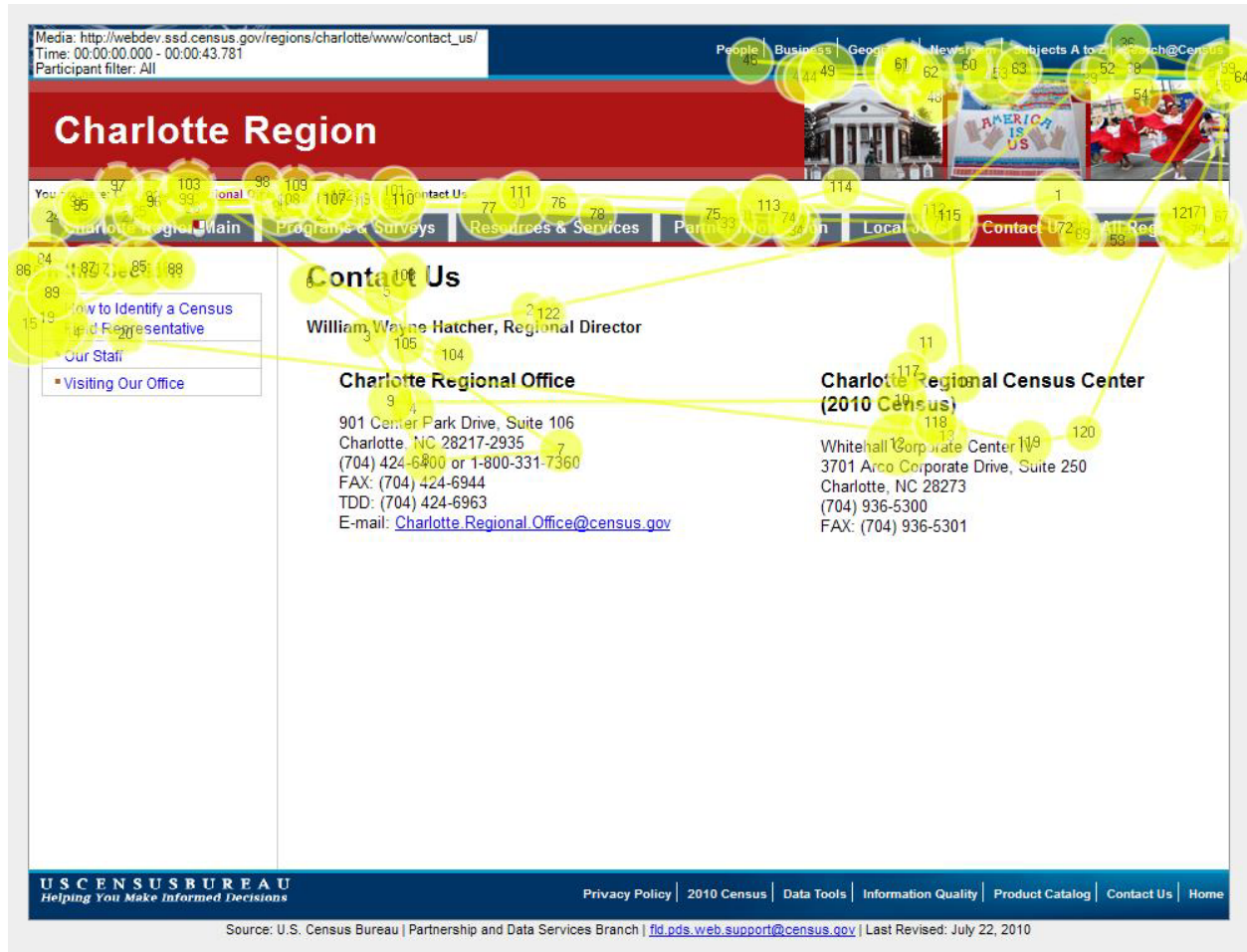


Figure 52: One participant's gaze plot of the first 43 seconds of seeing the Charlotte Regional Office's Contact Us page

The heat map in Figure 53 shows that the greatest number of fixations occurred in the left column for the eight participants. However, the heat over the addresses may indicate that participants expected to find a link to the directions. Participant comments and debriefing questions found that users expected to find a link to directions near the address on the home page.

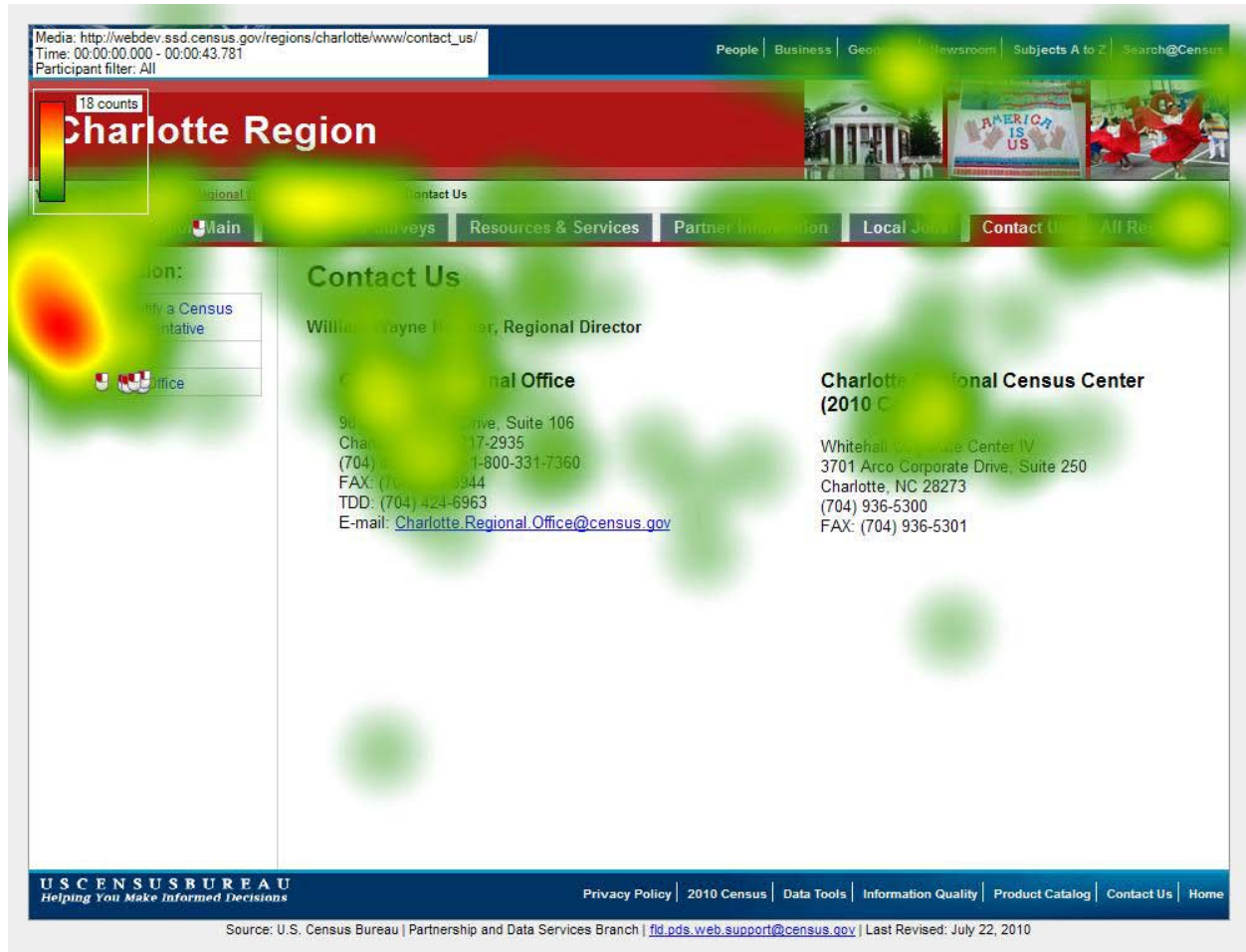


Figure 53: Heat map of Charlotte Region Office’s Contact Us page (n = 8)

Task 7

In Task 7 we asked participants to identify whether an appointment was necessary to physically view 1980 Census microfiche data. Figure 54 shows the AOI mapping on the Resources and Services web page. Links, a header, and text were designated as AOIs a participant might see to complete task 7.

The screenshot shows the U.S. Census Bureau website for the Boston Region. The page is divided into two main columns: Resources and Services. The Resources column contains several text-based links and descriptions, while the Services column includes a list of help data users, educational activities, and technical assistance options. Various elements are highlighted with colored boxes to indicate Areas of Interest (AOIs).

Resources

- [American FactFinder](#) - Your source for information and data about:
 - [2010 Census](#) - Decennial Count, Historic Snapshot of the Nation
 - [The American Community Survey](#) - Provides yearly economic, social, demographic, and housing information about the communities in the United States
 - [The Economic Census](#) - A Detailed Portrait of the U.S. Economy
 - [Population Estimates Program](#) - Keeping the Population Count Current
- [Census Information Center Program](#) - A cooperative program between the Census Bureau and 57 non profit organizations that make census information and data available to the public and communities they serve.
- [Census Products](#) - Descriptions and prices for Census Bureau Data Products.
- [City Population Estimates](#) - How many people are in your city
- [Current U.S. and World Population](#) - Get up-to-date U.S. and world population estimates through U.S. POPClock.
- [Federal Statistics](#) - Official statistical information available to the public from the federal government. Obtain information on economic and population trends, health care costs, aviation safety, foreign trade, energy use, farm production, and more.
- [Kids' Corner](#) - Learn about the U.S. Census, get facts about your state, and have fun with quiz questions.
- [Map Products](#) - Access maps for various Census geographic areas including Congressional Districts, Metro Areas, Census Tracts and Blocks.
- [Minority Links for Media](#) - Quick and easy links to the latest data on racial and ethnic populations in the United States.
- [Search for Census Records](#) - The Census Bureau provides an "age search" service to the public. We will search the confidential records from the Federal population censuses of 1910 to 2000 and issue an official transcript of the results (for a congressionally mandated fee).
- [State and County Quickfacts](#) - Provides frequently requested Census Bureau information at the national, state, and county levels.
- [State and County Income and Poverty Estimates](#) - Economic data for an area
- [State Data Centers](#) - Find the agency in your state that can provide assistance in accessing local data
- [State Population Estimates](#) - How many people in your state

Services

Help data users to:

- decide what data will best serve their needs
- understand the data
- choose which format to use

[Get a Factsheet Link](#)

Educate users by:

- making presentations
- conducting workshops
- staffing exhibits

[Request a Workshop Link](#)

We also provide technical assistance to users of Census Bureau data, including help on Internet access to our Web site.

[Data Requests and Contact E-Mail](#)

[Our Reference Center](#)

[CenterHours](#) - Our reference center is open from 8:00 a.m. - 4:30 p.m., Monday through Friday, Eastern Standard Time.

- Census Bureau publications
- [1980 Microfiche](#)
- Tract and block maps
- User station for accessing data on CD-ROM.

US CENSUS BUREAU
Helping You Make Informed Decisions

Privacy Policy | 2010 Census | Data Tools | Information Quality | Product Catalog | Contact Us | Home

Source: U.S. Census Bureau | Partnership and Data Services Branch | fd_pds_web_support@census.gov | Last Revised: January 28, 2010

Figure 54: AOI mapping of Resources & Services web page

Table 35 shows the number of seconds before a participant fixated upon an AOI. In contrast to the other AOIs shown on other web pages, the times till first fixation are high for this page. However, these numbers are unsurprising given the layout of the web page. Most participants viewed this page by looking at the content in the left column before switching to the right column. The average times presented in the row below confirm this reading pattern. The quickest average time to first fixation was 35.59 seconds while the slowest average time to first fixation was 66.03 seconds. In Figure 56 (above), the “Get a Factsheet” link is at the top while the Microfiche text reference is at the bottom, thus long times before the first fixation are to be expected.

Table 35: Time to first fixation in seconds (n = 8)

	Center Hours	Data Requests and Contact E-Mail	Get a Factsheet Link	Microfiche	Our Reference Center	Request a Workshop Link
P01	8.96	46.47	67.76	9.19	30.11	-
P02	-	112.71	2.62	175.42	58.77	97.21
P03	138.56	5.91	130.05	144.24	137.89	-
P04	16.61	-	-	16.03	18.91	-
P05	16.19	16.3	2.33	-	12.55	-
P06	-	14.49	4.35	49.96	19.87	13.84
P07	62.47	59.62	-	56.99	60.7	-
P08	9.71	9.29	6.41	10.39	14.11	-
AVG.	42.08	37.83	35.59	66.03	44.11	55.53

Table 36 shows the number of seconds a participant spent looking at the AOI on the first fixation. The first fixation duration across the various AOIs is under one second. The data indicates that participants often looked around the web page before deciding what to do next. Longer first fixation durations may indicate areas that are difficult to comprehend; however, it seems no participants had difficulty in understanding the information on the web page.

Table 36: First fixation duration in seconds (n = 8)

	Center Hours	Data Requests and Contact E-Mail	Get a Factsheet Link	Microfiche	Our Reference Center	Request a Workshop Link
P01	0.23	0.48	0.33	0.2	0.25	-
P02	-	0.23	0.08	0.42	0.38	0.18
P03	0.77	0.22	0.25	0.2	0.25	-
P04	0.35	-	-	0.18	0.37	-
P05	0.12	0.57	0.02	-	0.15	-
P06	-	0.08	0.3	0.25	0.85	0.13
P07	0.32	0.22	-	0.45	0.35	-
P08	0.68	0.23	0.18	0.3	0.22	-
AVG.	0.41	0.29	0.19	0.29	0.35	0.16

Table 37 shows the number of seconds each AOI received by participant. The CenterHours and Our Reference Center AOIs had the longest fixations, with an average of more than three seconds each. Since participants were asked whether an appointment was necessary, they seemed to read the AOI text to identify whether they could just visit the office during its open hours. The “Our Reference Center” AOI also consists of three plain text words in a header. The long fixation on this simple text may be due to the processing of how the reference center differs from the other headers previously seen. The previous table, Table 36 (above) shows that the average first fixation duration for this AOI was 0.35 seconds which was the second longest among the various AOIs.

Table 37: Total fixation duration in seconds (n = 8)

	Center Hours	Data Requests and Contact E-Mail	Get a Factsheet Link	Micro-fiche	Our Reference Center	Request a Workshop Link
P01	5.33	0.95	0.33	1.68	3.36	-
P02	-	0.23	0.3	0.42	0.78	1.18
P03	3.31	1.65	0.35	0.67	2.05	-
P04	4.88	-	-	1.6	2.71	-
P05	0.13	0.57	0.37	-	0.45	-
P06	-	6.94	0.68	0.25	6.06	0.7
P07	3.15	0.22	-	1.75	9.94	-
P08	4.18	2.6	0.67	1.15	4.36	-
AVG.	3.50	1.88	0.45	1.07	3.71	0.94

Table 38 shows the total number of fixations made per participant on each AOI. Higher numbers of fixations may indicate difficult understanding content or reading depending on the length and comprehensive level required to understand the text. Overall, the Centerhours and Our Reference Center AOIs received the higher number of fixations with an average of 11.33 for CenterHours and an average of 11.13 for the Our Reference Center. Participant 6 had the highest number of fixations, 27, on the Data Requests and Contact E-mail. This participant may have had difficulty deciding whether to e-mail the contact and ask about appointments considering he may not have seen the text indicating the hours that the office is open.

Table 38: Total fixation count (n = 8)

	Center Hours	Data Requests and Contact E-Mail	Get a Factsheet Link	Micro-fiche	Our Reference Center	Request a Workshop Link
P01	12	3	1	6	8	-
P02	-	1	3	1	2	3
P03	11	6	2	2	8	-
P04	19	-	-	5	11	-
P05	2	1	3	-	6	-
P06	-	27	3	1	14	3
P07	12	1	-	2	24	-
P08	12	11	2	3	16	-
AVG.	11.33	7.14	2.33	2.86	11.13	3.00

The mouse clicks on the Boston Region Main, Programs & Surveys, and Contact Us tabs in the gaze opacity screenshot in Figure 55 and the heat map screenshot in Figure 56 indicate that some participants were unsure if the Resources & Services web page contained information on the microfiche data. Some participants also opted to click on the State Data Centers link in the left column and the Data Services Program contact e-mail address above the Reference Center header. The two participants who clicked the “State Data Centers” link may have thought the microfiche data could be assessed from there given the link’s description of accessing local data. Some participants also clicked on the 1980 data on microfiche text despite there being no indication of a link.

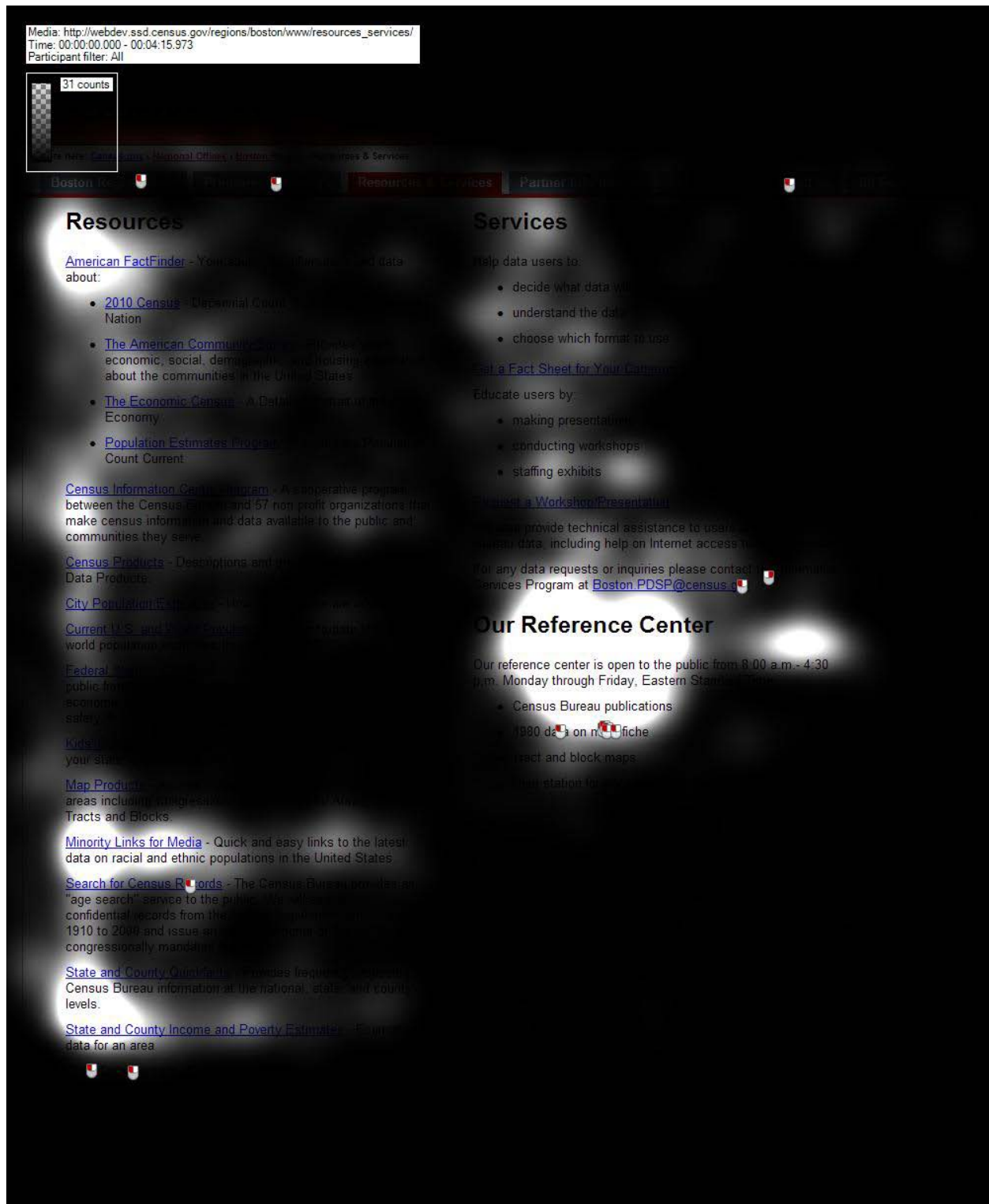


Figure 55: Gaze opacity screenshot of the Boston Region's Resources & Services web page (n = 8)

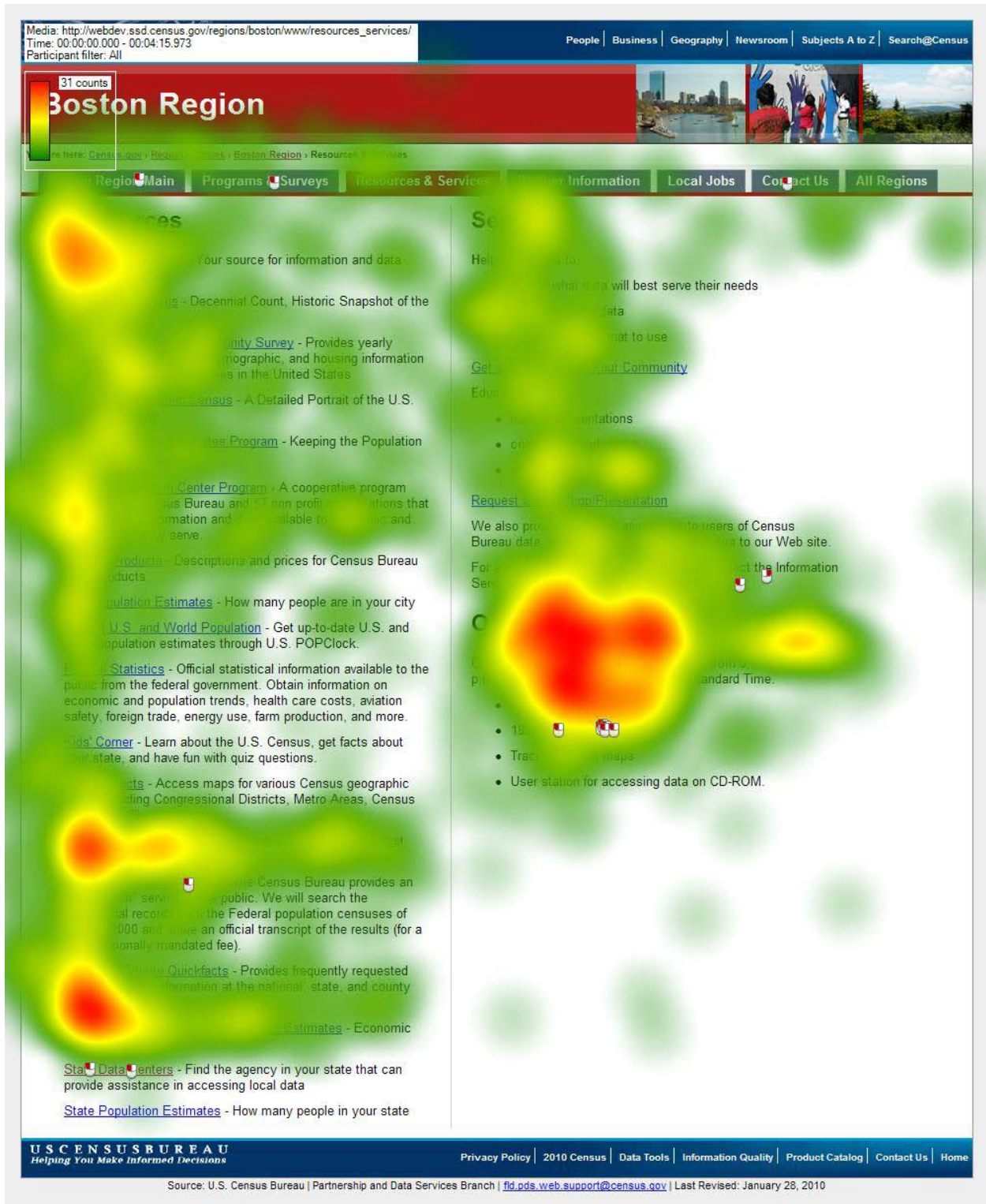


Figure 56: Heat map screenshot of the Boston Region's Resources & Services web page (n = 8)

Task 8

In Task 8 we asked participants to update their partner information with the Boston Regional office. If participants successfully completed Task 1 and Task 3, this would be their 3rd visit to the Boston Regional office web page.

The gaze plot of the Partner Information web page in Figure 57 shows the five participants (P1 to P5) who found the “Update Partner Information” link in less than a minute. The participants spent little time on the content in the middle of the page, and spent the majority of their time on the links in the left column.

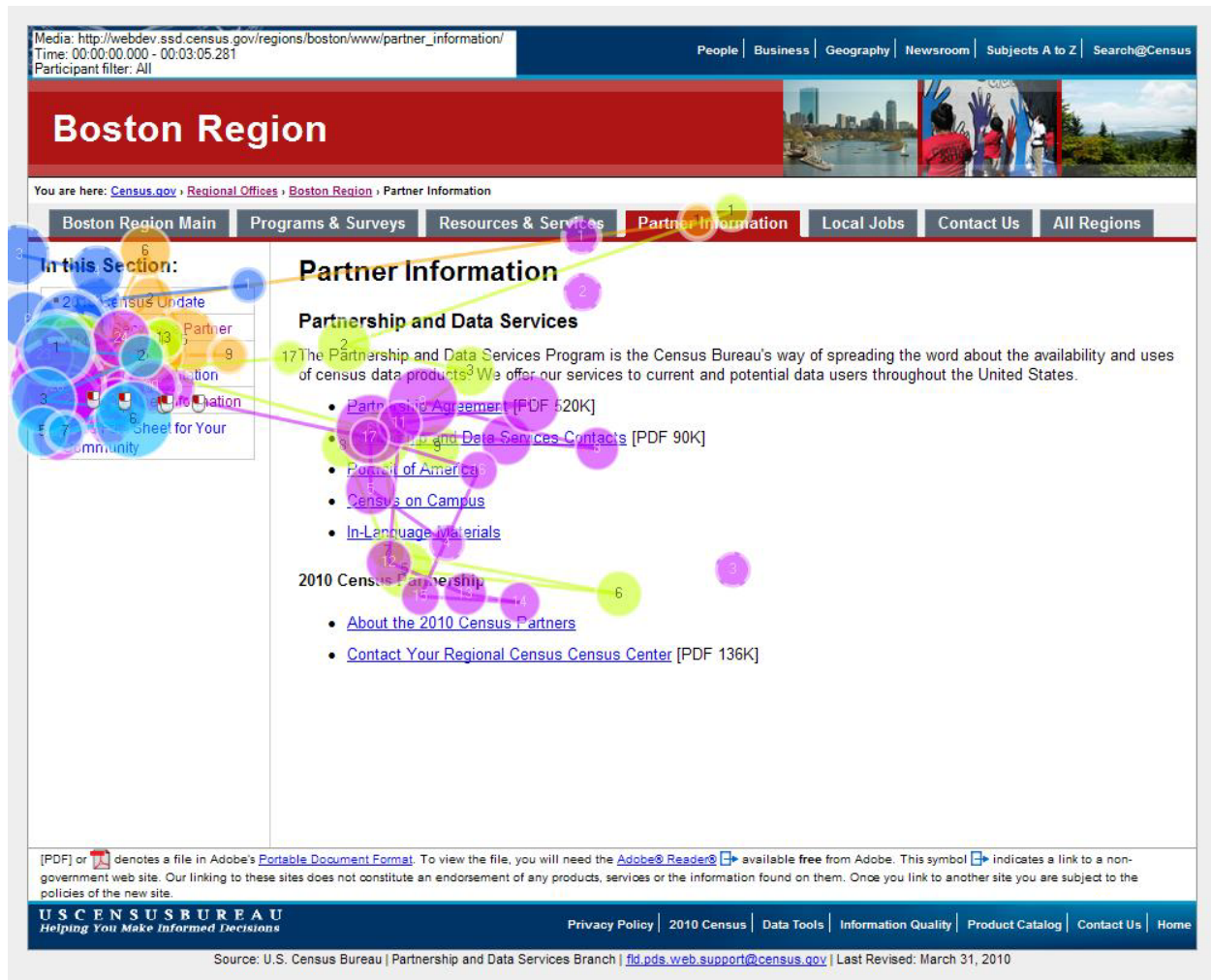


Figure 57: Gaze plot of the Partner Information web page on the Boston Region website (n = 5)

The gaze opacity screenshot in Figure 58 shows that majority of fixations from participants focused on the links in the left column and in the middle of the page.

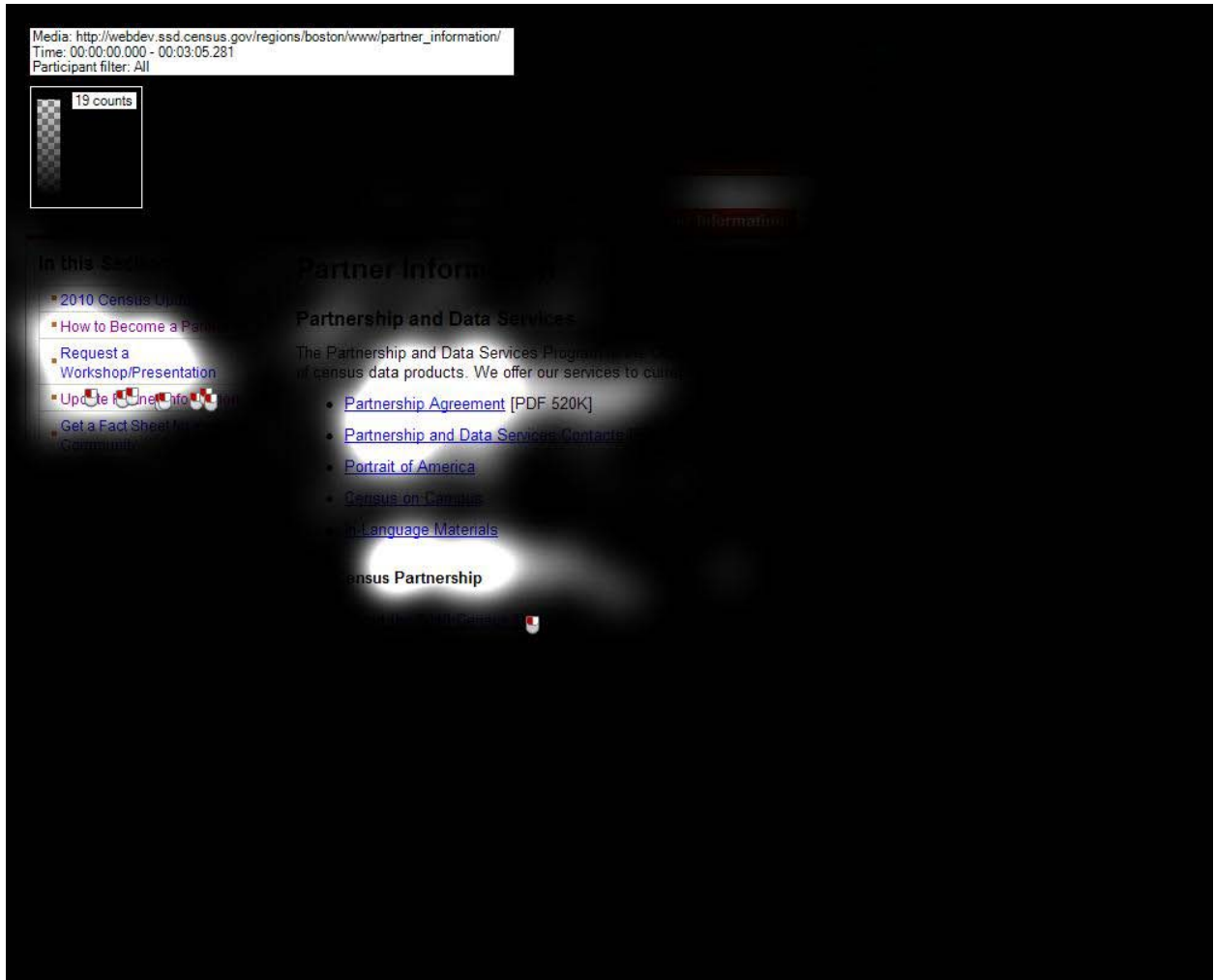


Figure 58: Gaze Opacity screenshot of the Boston Region's Partner Information web page (n = 8)

Although the participants made numerous fixations, they spent the majority of the time fixating upon the links in the left column. The majority of fixations when adjusted by time spent was focused around the “How to Become a Partner” link, however participants could successfully find the “Update Partner Information” link two spots below it with their peripheral vision. Figure 59 shows the relative duration spent on the same web page. Less time was spent on the middle of the page than the left side.



Figure 59: Gaze Opacity screenshot of the relative duration of fixations on the Boston Region's Partner Information web page (n = 8)

Task 9

In Task 9 we asked participants to find the Los Angeles Regional Director’s name and telephone number. Figure 60 shows the AOI mapping of the Los Angeles Contact Us web page. The LeftColumn AOI was created since it was possible for participants to see the “Our Staff” link in their peripheral vision when fixating upon the other links. The PhoneNumber, E-mail, PhoneNumber2, and E-Mail2 AOIs were created since participants were likely to look at them when searching for the Regional Director’s Contact information.



Figure 60: AOI mapping of Los Angeles' Contact Us web page

Table 39 shows the number of seconds before a participant fixated upon the AOIs designated in Figure 60 (above). No participants fixated upon the second e-mail address (E-Mail2) and only three participants fixated upon the e-mail address (E-mail). Only one participant fixated upon the “Our Staff” link but several participants fixated upon the links in the left column. Since five participants eventually clicked the “Our Staff” link, this also demonstrates that participants could see these links in their peripheral vision. Only three participants fixated upon the PhoneNumber AOI, and two participants fixated upon the second phone number listed on the page. Since participants were asked to identify the Regional Director and his/her phone number in order to file a complaint, all participants looked at the Regional Director’s name.

In terms of time, the majority of participants fixated upon the director’s name first, before fixating upon the left column. Participants’ inclination to look to the left column rather than the address on the page may be due to the previous tasks they have completed that required the use of the left column. Participant 7 had the longest times before fixating upon the E-mail and Our Staff AOIs, indicating she was searching elsewhere for the answer.

Table 39: Time to first fixation in seconds (n = 8)

	E-mail	E-Mail2	Left Column	Our Staff	Phone Number	Phone Number2	Regional Director	
P01	-	-	0.05	-	-	-		5.92
P02	-	-	1.99	-	-	-		0.39
P03	13.83	-	2.97	-		5.5		1
P04	-	-	1.58	-	-		1.32	0.08
P05	5.08	-	8.96	-		9.46		3.21
P06	-	-	-	-	-	-		6
P07	33.94	-	12.22	13.42	-	-		1.08
P08	-	-	-	-		0.87	23.25	5.01
AVG	17.62	-	4.63	13.42		5.28	12.29	2.84
.								

Table 40 shows the number of seconds a participants' first fixation lasts. Overall, no fixations lasted more than a second. The low times for the Left Column AOI indicate that participants looked at the Left Column AOI after seeing the Regional Director's name (see Table 39 above). However, despite looking at the left column they were still searching for the answer since they looked at the e-mail and phone number next.

Table 40: First fixation duration in seconds (n = 8)

	E-mail	E-Mail2	Left Column	Our Staff	Phone Number	Phone Number2	Regional Director
P01	-	-	0.3	-	-	-	0.24
P02	-	-	0.28	-	-	-	0.33
P03	0.43	-	0.12	-	0.23	-	0.17
P04	-	-	0.43	-	-	0.27	0.28
P05	0.3	-	0.05	-	0.02	-	0.58
P06	-	-	-	-	-	-	0.42
P07	0.23	-	0.67	0.2	-	-	0.4
P08	-	-	-	-	0.27	0.2	0.22
AVG.	0.32	-	0.31	0.20	0.17	0.24	0.33

Table 41 shows the total number of visits made by a participant for the duration of time they spent on the web page. Overall, there is a low number of visits, indicating that participants generally understood the content on the page. Participant 7 had the highest number of visits, 13, on the Regional Director AOI. She may have thought there would be a link to the Regional Director's phone number or address near the AOI.

Table 41: Visit counts

	E-mail	E-Mail2	Left Column	Our Staff	Phone Number	Phone Number2	Regional Director
P01	-	-	2	-	-	-	1
P02	-	-	1	-	-	-	1
P03	1	-	3	-	1	-	3
P04	-	-	4	-	-	1	1
P05	1	-	1	-	1	-	3
P06	-	-	-	-	-	-	2
P07	2	-	3	2	-	-	13
P08	-	-	-	-	2	1	6
AVG.	1.33	-	2.33	2.00	1.33	1.00	3.75

Table 42 shows the total number of seconds a participant spent on each AOI. Overall the Left Column AOI and RegionalDirector AOI received the longest visit durations. The e-mail addresses and phone numbers received the lowest visit durations. Again Participant 7 had the longest total visit, with 10.66 seconds on the Regional Director's name.

Table 42: Total visit duration in seconds (n = 8)

	E-mail	E-Mail2	Left Column	Our Staff	Phone Number	Phone Number2	Regional Director
P01	-	-	3.51	-	-	-	0.24
P02	-	-	0.28	-	-	-	0.77
P03	0.43	-	1	-	0.23	-	1.18
P04	-	-	3.01	-	-	0.27	0.28
P05	0.3	-	0.05	-	0.02	-	1.43
P06	-	-	-	-	-	-	2.42
P07	1.25	-	4.91	3.03	-	-	10.66
P08	-	-	-	-	0.42	0.2	2.33
AVG.	0.66	-	2.13	3.03	0.22	0.24	2.41

Table 43 shows the number of seconds before a participant clicked on the Our Staff link. The E-mail, E-Mail2, PhoneNumber, PhoneNumber2, and the RegionalDirector AOIs were removed from the table since they were plain text and no participants clicked on them. In addition the LeftColumn AOI is deleted since all participants clicked on the "Our Staff" link located inside the Left Column AOI. There was a wide range among the five participants who clicked on the link. Participant 1 had the fastest time, clicking the link in 5.95 seconds. In contrast, Participant 7 took 42.92 seconds before clicking on the link.

Table 43: Time to first mouse click in seconds (n = 8)

	OurStaff
P01	5.95
P02	15.06
P03	18.2
P04	8.29
P05	-
P06	-
P07	42.92
P08	-
AVG.	18.08

The gaze opacity screenshot in Figure 61 shows that eight users fixated mainly upon the Regional Director’s name, title, and the address of the Los Angeles Regional Office. Four of the eight participants eventually clicked on the Our Staff link, while the other four decided that the information presented on this page was the Regional Director’s contact information.¹²

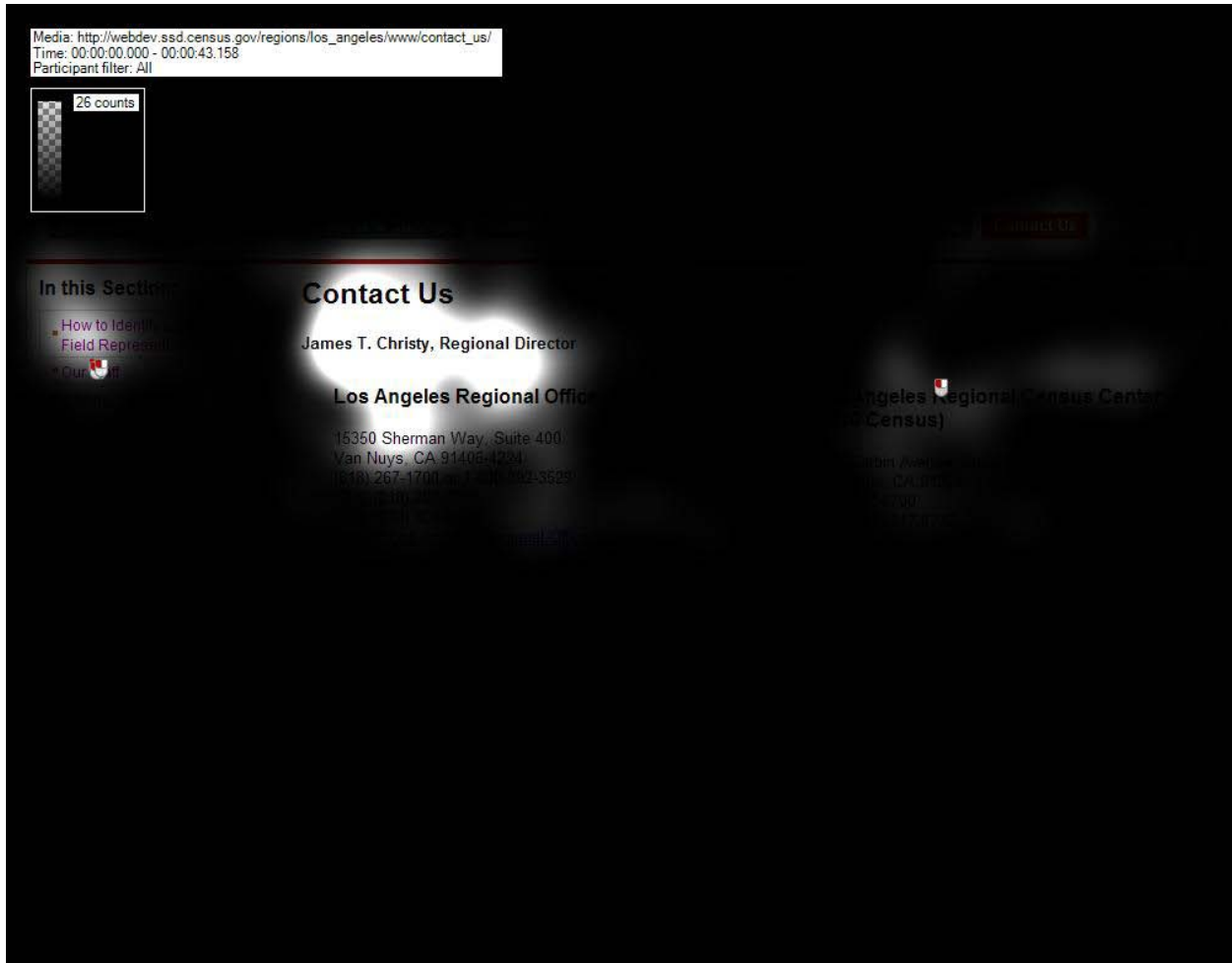


Figure 61: Gaze opacity screenshot of the Los Angeles Regional Office’s Contact Us page (n = 8)

¹² A later examination of this task revealed that for the LA Regional Office, the phone number of the Regional Director and the Regional Office are the same. However, for other offices, the phone numbers were different. We decided to mark participants’ answers wrong if they did not visit the “Our Staff” page since the listed phone number could be different in other scenarios.

Task 10

In Task 10, we asked participants to find the population of the state of Kansas with the caveat that the actual population estimate was not necessary. Participants often clicked on “2010 Census,” “State and County QuickFacts,” “State Population Estimates” in the left column. One participant clicked the “Get a Fact Sheet for Your Community” link in the right column. Only the “State Population Estimates” and “Get a Fact Sheet for Your Community” links would optimally lead the user to the population of Kansas in two steps. Figure 62 shows the AOI mapping for links that would best lead participants to the population of Kansas.

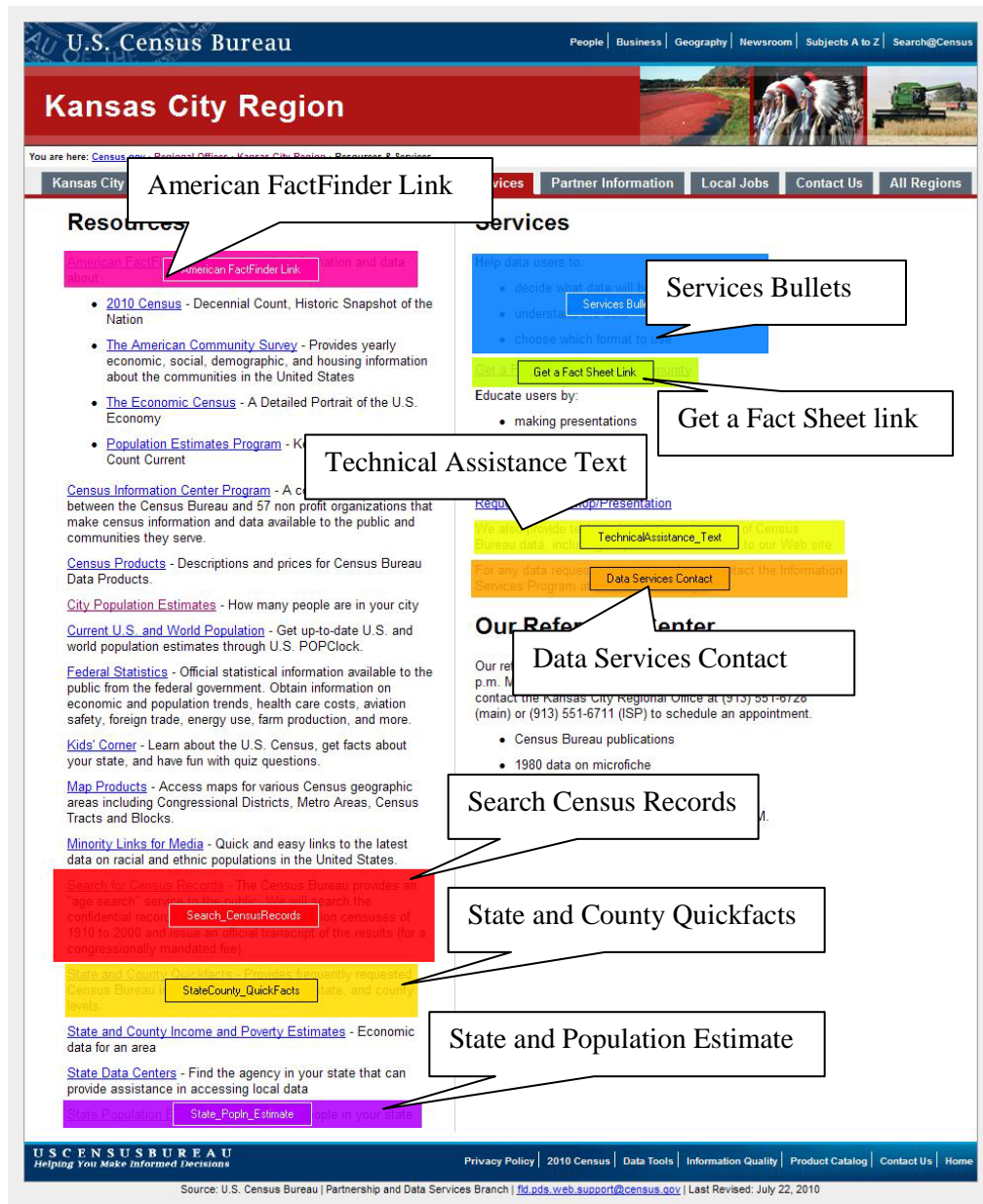


Figure 62: AOI mapping for the Kansas Regional offices’ Resources & Services web page

The State and County Quickfacts AOI is not shown in the tables below since no participants fixated upon it. Only seven participants are reported in the tables below since Participant 4 never visited the Resources & Services web page.

Table 44 shows the number of seconds between when the participants first visit the page until they fixate upon an AOI as defined in Figure 62 (above). Excluding the Services Bullets and American Factfinder Link AOIs, all other AOIs had an average time to first fixation exceeding 27 seconds. Given the amount of text and links on the page, increased time before first fixation is unsurprising since participants have no indicator as to where to begin their search.

Overall, participants seemed to look at the American Factfinder link or the Services Bullet link first before moving onto the Get a Fact Sheet link. It seems that participants look across the screen before going down the columns.

Three participants clicked on the State_Popln_Estimate link (an AOI), demonstrating that fixations are not necessary to see the content. Given the link's description and short summary, it is feasible that participants could have seen it in their peripheral vision when looking at links in the surrounding area.

Table 44: Time to first fixation in seconds (n = 7)

	Amer- ican Fact Finder Link	Data Services Contact	Get a Fact Sheet Link	Search Census Records	Ser- vices Bullets	State Popln Estimate	State County QuickFacts	Technical Assistance Text
P01	29.55	97.47	47.82	10.96	3.23	-	16.69	73.97
P02	0.47	-	-	8.08	3.05	-	61.55	-
P03	0.43	-	4.74	14.67	3.96	-	15.65	-
P05	-	-	4.76	16.57	1.35	-	15.83	-
P06	20.82	38.88	84.96	46.21	55.28	-	46.34	45.52
P07	-	-	0.72	-	0.45	-	-	-
P08	1.27	72.42	19.47	107.33	0.73	-	110.67	-
AVG.	10.51	69.59	27.08	33.97	9.72	-	44.46	59.75

Table 45 shows the number of seconds a participant's first fixation lasted. Across all participants and all AOIs, there were no first fixation durations that lasted longer than 0.8 seconds. Participants in general seem to look around the content on the web page before deciding where they should go. For AOIs below the fold (the immediate visible area on a web page) participants still spent little time on their first fixation on an AOI such as StateCounty_QuickFacts, despite taking over a minute to see it for the very first time.

Table 45: First fixation duration in seconds (n = 7)

	Amer- ican Fact Finder Link	Data Services Contact	Get a Fact Sheet Link	Search Census Records	Ser- vices Bullets	State Popln Estimate	State County QuickFacts	Technical Assistance Text
P01	0.22	0.22	0.57	0.3	0.28	-	0.18	0.62
P02	0.22	-	-	0.55	0.35	-	0.12	-
P03	0.73	-	0.13	0.67	0.78	-	0.32	-
P05	-	-	0.02	0.02	0.15	-	0.07	-
P06	0.2	0.2	0.92	0.13	0.3	-	0.15	0.68
P07	-	-	0.25	-	0.27	-	-	-
P08	0.45	0.33	0.31	0.2	0.35	-	0.27	-
AVG.	0.36	0.25	0.37	0.31	0.35	-	0.19	0.65

Table 46 shows the number of visits to the various AOIs on the Resources & Services web page. Participant 8 had the highest number of visits for the American Fact Finder link and the Services Bullets. A visit is counted after a participant fixates upon an area outside of an AOI after initially fixating upon an AOI. Higher number of visits indicates that users may be re-visiting an AOI to re-process information. Alternatively a high number of visits spread across AOIs may indicate that participants do not know where to look.

Table 46: Visit count (n = 7)

	Amer- ican Fact Finder Link	Data Services Contact	Get a Fact Sheet Link	Search Census Records	Ser- vices Bullets	State Popln Estimate	State County QuickFacts	Technical Assistance Text
P01	7	1	6	3	16	-	4	2
P02	2	-	-	3	5	-	1	-
P03	1	-	1	2	2	-	2	-
P05	-	-	4	3	7	-	3	-
P06	1	3	1	3	3	-	1	3
P07	-	-	6	-	3	-	-	-
P08	18	5	4	3	17	-	2	-
AVG.	5.80	3.00	3.67	2.83	7.57	-	2.17	2.50

Table 47 shows the total number of seconds participants spent visiting each AOI. Overall the majority of participants spent around one to two minutes on the various AOIs. The American FactFinder Link and Services Bullets had the highest average time. Participants may have spent more time on the American FactFinder link since they were unsure if they should click it for Kansas' state population. Participants also spent a lot of time on the Services Bullets, which indicates they spent time reading the bullet points.

Table 47: Total visit duration in seconds (n = 7)

	Amer- ican Fact Finder Link	Data Services Contact	Get a Fact Sheet Link	Search Census Records	Ser- vices Bullets	State Popln Estimate	State County QuickFacts	Technical Assistance Text
P01	3.68	0.87	1.98	1.6	7.86	-	4.91	0.97
P02	1.07	-	-	1	2.68	-	0.12	-
P03	0.73	-	0.13	5.83	1.18	-	0.53	-
P05	-	-	0.53	0.15	1.7	-	0.15	-
P06	0.2	1.52	0.92	1.12	1.65	-	0.15	1.6
P07	-	-	2.6	-	1.37	-	-	-
P08	12.07	1.27	1.39	2.25	7.38	-	1.05	-
AVG.	3.55	1.22	1.26	1.99	3.40	-	1.15	1.29

Table 48 shows the number of seconds before a participant clicked on an AOI. The Services Bullets and TechnicalAssistance_Text AOIs were deleted from the table since they were not links and no participants clicked on them. For AOIs that were below the fold, such as State_Popln_Estimate, participants often clicked on the links shortly after seeing them for the first time (see Table 44 [above] for Time to first fixation). As noted earlier, three participants clicked on the StateCounty_QuickFacts despite not fixating upon the link.

Table 48: Time to first mouse click in seconds (n = 7)

	American FactFinder Link	Data Services Contact	Get a Fact Sheet Link	Search_ Census Records	State_Popln_ Estimate	StateCounty_ QuickFacts
P01	-	-	-	-	16.97	-
P02	-	-	-	-	66.77	-
P03	-	-	-	-	26.49	22.45
P05	-	-	-	-	-	20.93
P06	-	-	-	-	-	103.91
P07	-	-	7.09	-	-	-
P08	-	-	-	-	-	-
AVG.	-	-	7.09	-	-	49.10

For most participants, this was their first visit to the Kansas City Regional office web page. However, since the design of each Regional office web page is similar to the others, the participants have learned the layout of the page. The highest number of fixations centered on the Regional Director's name and the first two to three links on the page. Figure 63 shows a heat map of the main page.

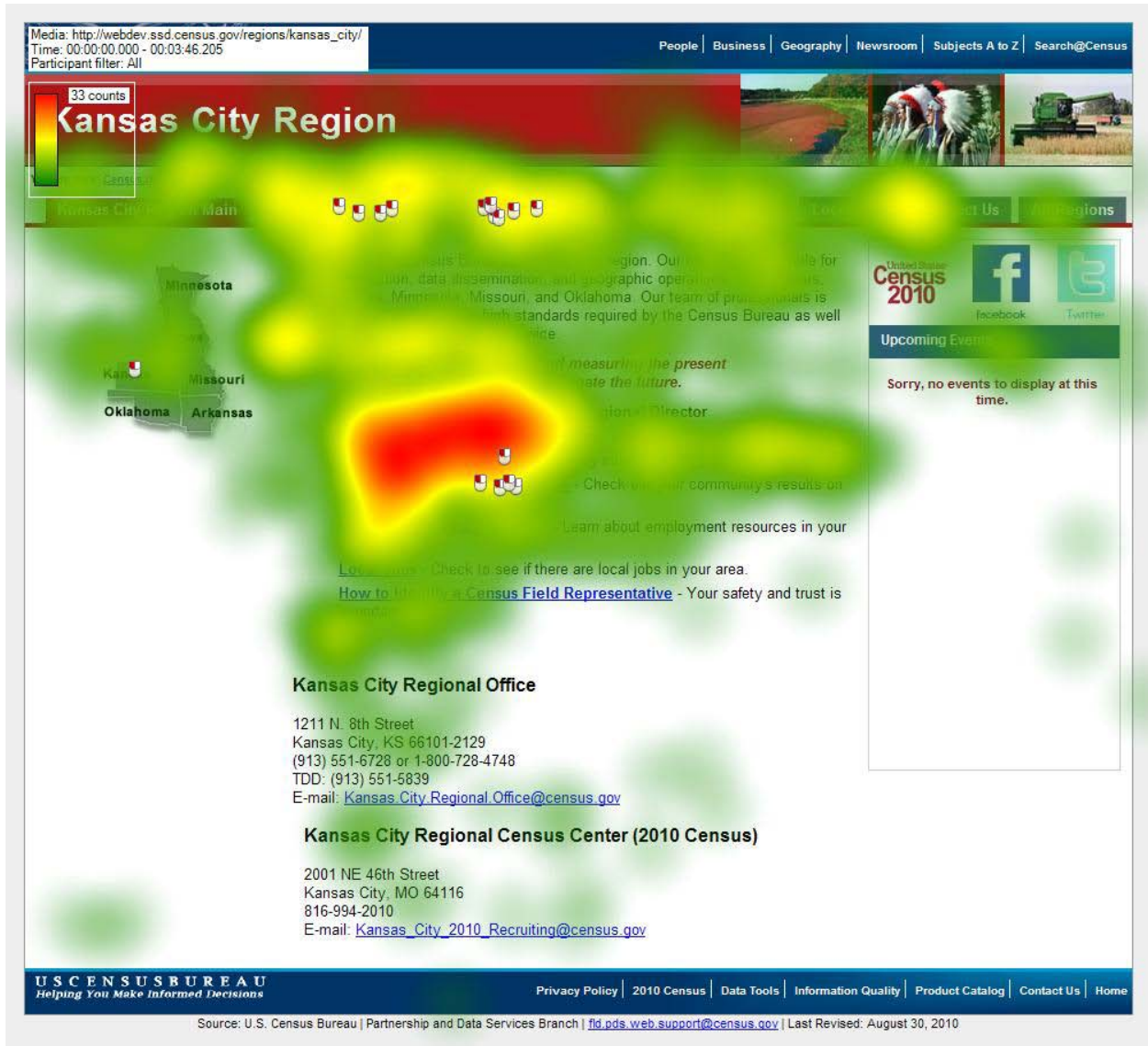


Figure 63: Heat map of the Kansas City Regional office page (n = 8)

The first 42 seconds of seven participants' gazes reveal that the majority of participants go down the left column looking for links that would provide a state population estimate. The gaze plot in Figure 65 shows that the majority of participants exhausted the links in the left column before moving on to the right.



Figure 65: Gaze plot of the first 42 seconds of the Kansas City Regional Office Resources and Services page (n = 7)

Debriefing¹³

Social Networking

After participants completed the satisfaction questionnaire they were asked questions about the Census Regional website to evaluate the functionality and assess future design possibilities. In addition, the developers wanted to gauge the participants' use of Facebook and Twitter, if they would interact with the Census Bureau's Facebook fan page and Twitter page, and what they expected from the interaction. The background information collected showed the youngest eye-tracking participant was 25 while the oldest was 61. Their average age was 43.5 years. JAWS participants were older as a group, and showed the youngest being 29, and the oldest was 66. The average age for JAWS participants was 47 years. Results from the debriefing may change if another age range is consulted.

The majority of eye-tracking participants, 6 out of 8, indicated that they noticed the Facebook and Twitter icons on the landing page of each Regional office's web page. Three participants mentioned that they saw them but did not pay attention to them. Participants then had a wide range of responses when asked if the icons were clickable. Some participants didn't think they were links, for example: one participant said, "It looked more like an image than something to click" and another participant said, "I didn't think they were [links]." This participant thought it was linked to upcoming events. One participant said that the icons looked like advertisements so she [mentally] blocked them out. The remaining participants indicated that they thought they were links. Four JAWS users said they "saw" the Facebook and Twitter icons, meaning they were vocalized. Out of these four participants, two participants thought the icons were clickable. One JAWS participant said no, and another said "I don't know." Interestingly the title of the link "This link, facebook.com, is not part of the Census Bureau Web site and does not imply endorsement of any particular product, company, or content" (United States Census Bureau, 2009) is read by JAWS, thus all participants should identify it as a link.

Seven of the 8 eye-tracking participants indicated that they used Facebook for a wide variety of activities. Only one participant used Twitter. The majority of activities fell into networking with friends; however, some participants had different reasons. For example, one participant said that she was a victim of identity theft and she keeps a Facebook profile to see any activity associated with her name. Another participant said that she only used Facebook to keep in touch with her nephew. Finally, a participant mentioned that she had a Facebook account but had not used it actively over the past month. One participant said he used Twitter as an information source, and rarely updated his status on Twitter. Among the JAWS participants, three participants said they use Facebook and one did not.

We then asked participants whether they would "friend" the Regional Office's Facebook page. Three eye-tracking participants declined with varying answers from "No" to "Probably not." Another participant indicated that she would at least visit the page to see what was there. The other two participants said that they would; however, social desirability bias may be influencing their answers. The only participant to use Twitter said he might follow the Census Regional office since it might be useful. None of the JAWS participants said they would "friend" the Regional Office. Two of the four JAWS users who received the

¹³ One JAWS participant did not receive a debriefing because he had to leave early.

debriefing were Census Bureau employees. It seems even Census Bureau employees do not perceive much value in “friending” the Regional Office.

Participants were then asked what they expected out of interacting with the Regional Office’s Facebook page. Two eye-tracking participants were confused as to why the Regional Office had a Facebook page, and another participant assumed that the office wanted the same information that Facebook asks users to write on their profiles. One of the participants who was confused as to why there was a Facebook page was the same participant who indicated that he would “Most Definitely” friend the Regional Office’s Facebook page. The other participants indicated that they expected to see information regarding the progress of a survey, information about the survey itself, and general information. One participant commented that she did not want to see a lot of status updates cluttering her wall. This participant indicated that she had added an animal organization as a friend and received a constant deluge of information on a daily basis that led the participant to remove the animal organization as a friend. One participant said he expected information about any events in that region, reminders about product information or features of the Census Regional website. Among the four JAWS participants, the two internal employees indicated they expected to see updates from Facebook interaction, while the third participant expected help on a survey. The fourth participant did not respond.

Jobs

State versus Regional

The Census Bureau often hires temporary and permanent field workers to conduct various surveys throughout the year. Hiring is often done at the regional office level, thus each regional office maintains a web page with unique job listings. In the initial planning of the study the developers pointed out that jobs are listed by state level but are available on a regional basis. Jobs that are available for one state are not necessarily unique to that state. Jobs listed in a state may also require travel outside of the state’s boundaries.

One solution proposed by the developers was to list the jobs at the regional level instead of the state level. Participants had mixed responses when asked if they would prefer to see the job listings at a state level or region level. Four eye-tracking participants said they would prefer to see jobs listed on a state level; however, some of these participants were confused about whether the jobs were unique to the state. One participant was confused about the header “Maine Jobs” since the jobs seem to be listed on a regional level. She eventually decided that if jobs were not unique to that state then it should be listed on a regional level. Two participants indicated that they would prefer job listings by the regional level, indicating they seemed to understand the breakdown from region to state. Another participant said she would like to see both. Specifically, she would prefer to have a way to narrow down jobs so state level jobs are unique. One participant was initially indecisive, but eventually decided that he preferred listings by state since he frequently searches by state when trying to access information. Listing jobs by region may go against an expectation users have when trying to narrow down information. JAWS participants were mixed; two participants (both internal Census Bureau employees) wanted a state level listing, while the two external participants preferred a region level listing.

Overall, participants seemed to think that jobs listed on a state level would be limited to that state. Six of the eye-tracking participants indicated that they would expect jobs listed on a state level to be unique to that state. Other participants gave mixed answers, such as expecting the head office to be in the listed state, and that the participant would spend the majority of her time in the listed state. Only one participant was not concerned that jobs may require traveling out of state. He commented that “state lines are arbitrary” when looking at the overall map of the various regions. He also said that he would prefer to see jobs that were available outside of the state at the state level as well. Thus it seems that listing jobs on a state level when jobs are not unique to the state confuses participants. Similarly, all JAWS participants thought jobs would be unique to that state.

The only indicator of a job listing spanning various states is the duty station text found below each job listing. Results from the eye-tracking sessions show that most of these participants did not fixate upon the text, and the following debriefing responses indicated that most were unaware of the text. One participant said he hopes “they would let you know on screen” indicating that the duty station text was not seen. On the opposite end, another participant pointed out the duty station text and indicated that he would read that. Other participants gave mixed answers, such as they would have to find out more information of where the home office and areas of service are. JAWS participants said it was ok if the job required traveling outside of the state, but one participant said it should be specified. The placement of the duty station text may be insufficient to inform JAWS users of the travel requirements for a job.

California

Another concern raised about the website’s interface was the breakdown and listing of California in two different regional offices. Northern California is serviced by the Seattle regional office, while South California is serviced by the Los Angeles regional office. The jobs page on each website list California jobs as a link and as a header on the California jobs web page on each respective local jobs web page. Similar to the previously mentioned duty station text, the only indicator a participant has is found in the duty station text. All eye-tracking participants made remarks indicating that it would be confusing to see California listed in both areas in its current form, while one participant said that he would “figure it out eventually.” The majority of suggestions to reduce this confusion often involved listing the counties or areas served on the job listing page. These suggestions indicate that the duty station text was not processed by participants. Two participants specifically mentioned that indicating Northern or Southern California jobs [on the header or link] would reduce confusion.

JAWS participants had similar difficulty understanding why California is listed within two regional offices. While one eye-tracking participant said it was “ok as it is,” the other eye-tracking participants indicated that it should be clearly marked. One JAWS participant suggested using “North California and South California” while another JAWS participant suggested showing the city names. Another JAWS participant suggested showing the counties and cities in the current region. Two JAWS participants’ comments suggest that they did not see the duty station text. One of these participants was confused about what region meant. Regions as defined by the website are wide swaths of the United States, while some participants seem to think region means part of a state.

USAJobs

Job listings will link to USAJobs.gov in the future. Users are not informed they are navigating away from the Regional Office web site unless they notice a reference to USAJobs on the local jobs page or see the word “external.” Eye-tracking participants often missed the reference to USAJobs.gov but several participants noticed the (external) text in the link. However, this confused a few participants. For example, one participant mentioned that “it says external, but I don’t think so.” She also said she found the US citizens and then external terminology confusing, before suggesting that it should say “You’ll be visiting another site to fill out a job form.” Another participant said, “I would not have guessed that” before suggesting we put a reference to going off-site in the link. One participant said, “No, I don’t know if I care if it takes me off-site.” He also said “It says external, but I don’t know what that means.” Another participant said, “I have no idea [what external means].” She then wondered if it would take you to [web] site to prove US citizenship. She then wondered what external means, thinking that it would tell you more about Idaho [the state listed on the viewed web page] jobs.” Another participant said, “I wouldn’t have a sense that’s where I would eventually be going,” indicating that he did not think the link would take him off-site either. Only one participant understood what was meant by external.

All JAWS participants found the term “external” confusing.

Partnership

Each regional office has a page where users can sign up for a partnership with the Census Bureau to promote surveys, as well as a separate page to update existing partner information. The similarities of the layout between the sign-up and update web pages were examined in the debriefing. All eye-tracking participants noticed the similarity between the two pages and users did not have difficulty with the similarity between the two forms. Some participants even appreciated the similarity since it confirmed that they had found the right page. All JAWS participants noticed the similarity, and none were bothered by it.

Request Facts

The Resources & Services web page on each regional office provides links to Census collected data. We asked participants how often they request facts to gauge how useful the Resources & Services web page would be for users. Eye-tracking participants had a large range in the frequency in which they looked at data. Some participants never looked at the data collected by the Census Bureau. However, one participant did say she looked at housing values on other websites. Two participants indicated that they use it for work occasionally, and another participant indicated that she uses it heavily at the beginning of a year for data on population, schools, activity, and housing. Another participant said he occasionally uses it on rare occasions. On the extreme end, one participant said he views crime, population, and economic data frequently. The majority of JAWS participants indicated that they did not request facts. One JAWS participant said he requested them sometimes.

Use of Images

An unattributed saying often mentions an image is worth a thousand words. Due to developer interest in increasing the usage of images on the website, we asked participants if placing images with descriptive text on the website would help users. Users were receptive to the idea, indicating that it would help clear up confusion. Two eye-tracking participants pointed out that an image would be useful for identifying external websites. Another participant said that “some people respond to images better.” Another participant said that as long as images were not obtrusive they could help. He then said he sometimes finds information via images before text on a web page. Overall, participants’ responses varied from “it would be helpful” to indifference over the addition of images. JAWS participants largely said images would not be helpful. Only one JAWS participant thought they would be helpful. Since JAWS users only hear the alt text of images, they are less likely to benefit from them. Careful placement of images on the website can enhance the usability of the website without impacting accessibility as long as descriptive alt text describes the image and its purpose.

Expectations of home page

The last debriefing question focused on users’ expectations of content on a regional office’s home page. Two eye-tracking participants indicated that they wanted to see more images on the website. One participant found it odd that she couldn’t click on the individual states in a region to receive more information about them. Overall, these participants expected links to important content on the page. The same participant said “it feels to me there’s a lot of writing,” this participant may have wanted something she could quickly scan through. Another participant said he wanted to see the Regional Director’s name and how to contact him. Oddly, the Regional Director’s name is on the main page, so this participant perhaps skimmed the home page and missed the Regional Director’s name. Nevertheless, a link to the director’s contact information would be helpful for this participant. This participant also assumed the blue links on the home page were common questions. Due to a misunderstanding, one participant was asked for his opinions about the main Census Regions website. He said the website, consisting of the links in the left column, clickable map, and table was user friendly and straight forward. Overall, it seems that participants didn’t want to change the home page drastically.

Two of four JAWS participants commented on the events section of the home page. One participant said events should be for a specific region only while another participant said that there were no events included. The first participant’s comments might indicate a gap between the Census Bureau’s use of region and the participants’ perception of it. The third participant expected information about job fairs while the fourth participant had no suggestions.

Unscripted debriefing questions

Throughout usability testing we asked participants additional questions in a debriefing if we noticed an odd behavior. These questions were often not part of the standard list of debriefing questions used, thus they were not asked of all participants. No unscripted debriefing questions were asked to JAWS participants.

One participant oddly did not see the identify Census Field Representative link on the home page. When asked about it she said “who wants to see activity and participant rates, [place] the identify a Census field representative [link] higher.” When asked about the “Our Staff” link she said she “Never noticed that, I don't know why I didn't see it.” The organization of links may need to be re-ordered by usefulness to users visiting the website.

Another participant had difficulty understanding the terminology used on the website. When asked what terminology he thought was too technical, he said that he didn't think non-Census employees could promote the Census. He also said finding the state population (we ask participants to find the population of the state of Kansas in Task 10) should have been easier. The vast number of links and text on the Resources & Services page makes it difficult to decide which link should be used to find the population.

Another participant was asked about her understanding of the Resources & Services Tab and links on the Contact Us web page. Resources & Services meant information that she might be interested in. For the links on the Contact Us page she said she expected to see contact information for specific services for the “Our Staff” link or a hierarchy or structure of the organization. For the “visiting our office” link she expected to see the hours the office is open. Overall, her comment about the left column on the Contact Us web page, “I didn't pay attention on this side,” indicates that there may be a mental disconnect between the content in the left column and their importance to the participant.

Discussion

Overall, there were no significant problems with the Census Regional Website. The majority of task failures centered on Task 2 which was extremely difficult for participants due to scant information on the location of the CNMI. Other task failures were due to participants' misconceptions of where the solution to a task was located. Within its current design, minor modifications to the web pages could lead to increased efficiency and satisfaction. For example, ordering links in terms of relevancy to the majority of users, adding links to directions or staff contact pages, and clarifying ambiguous terminology increase the users' efficiency without significantly increasing development time. The current version of the Census Regional Website works well for most tasks. However, a future re-design may be needed as user expectations of Web interfaces change. For example, users may prefer to find their regional office via their zip code or town name rather than clicking through perceived arbitrary methods of organizations states and territories. Users may also opt to receive status updates by viewing the website rather than adding the Census Bureau accounts to their Facebook and Twitter accounts.

References

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Appendix A: General Introduction

Protocol for Testing of the Census Regional Website

Thank you for your time today. My name is XX. I work here with the Human Factors and Usability group and I will be working with you today. We will be evaluating the design of the Census Regional Website by having you complete a series of tasks. Your experience with the website is an essential part of our work. I did not create the website, so please share both your positive and negative reactions to it. We are not evaluating you or your skills, but rather you are helping us see how well the website works. The entire session should last around an hour. Your comments and feedback will be given to the developers of the website and may be used to improve it.

First, I would like to ask you to read and sign this consent form. It explains the purpose of today's session and informs you of your rights as a participant. It also tells you that we would like to videotape the session, with your permission. Only those of us connected with the project will review the tape and any other data collected during the session. The data will be used solely for research purposes. We may also use clips from the tape to illustrate key points about the website to the Web design team. In addition, there may also be observers from the project team observing this session in another room.

Hand the participant the consent form; give time to read and sign; sign own name and date if you have not already done so.

Start the tape.

While you are completing the tasks, we will record the movements of your eyes with our eye-tracking equipment to get a record of where you are looking on the screen. *[note: does not apply for JAWS participants].*

Now I am going to calibrate your eyes for the eye-tracking.

After Calibration

I would like you to tell me your impressions and thoughts about the website as you look at it. In other words, I would like you to "think aloud" and talk to me about your impressions. If you expect to see some piece of information or expect something to happen, tell me whether or not it was met.

I am going to go around to the other room to do a sound check. While I am doing that, please take a moment to complete this questionnaire.

[Bring up Background Questionnaire in Firefox].

Pull up www.wtop.com in Firefox.

Before we get started, let's practice thinking aloud, since it's not something that you would normally do while working online. Pretend that you wanted to sign up for Alerts from WTOP. Walk me through your thought process as try to sign up.

Ok, that's exactly what I would like for you to do throughout the session. If at any time during the session you get quiet, I may remind you to talk to me. This is not to interrupt your thought process, but simply to remind you to keep talking to me. Please focus on verbalizing what you are thinking as you complete the survey.

Do you have any questions about the think aloud technique that we just practiced?

At the beginning of each task we will start the eye-tracking session, and let you know when you can begin the task. Please read the task aloud, and when you believe you have found the answer, please state it out loud. Please avoid using search engines like Google throughout this study.

I will remain in the other room for the rest of the study and I will let you know when you can begin on the tasks. We will be able to communicate through the microphone and speakers located near the computer.

Leave room. Once in control room do a sound check and Start the eye-tracking software: Tobii Studio. The mouse tracing software will start when Tobii Studio opens Internet Explorer. Start recording if you have not done so already.

Encourage R to think aloud while completing the tasks. Ask probe questions about what they are thinking if they are having trouble.

After the participants complete the tasks

[Show them the QUIS in Firefox and ask them to complete it]

[Go through debriefing questions and ask participants about any unusual behavior or navigation]

Appendix B: Consent Form



Consent Form

Usability Study of the Census Regional Website Form

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, online surveys, and letters sent through the mail in order to obtain the best information possible from respondents.

You have volunteered to take part in a study to improve the usability of the Census Regional Website. 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. We also plan to perform an eye-tracking analysis of your session. 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.

Participants Name: _____

Participants Signature: _____ Date: _____

Researcher's Name: _____

Researcher's Signature: _____ Date: _____

Appendix C: Background Questionnaire¹⁴

Experimenter Page (Background Start)

Experimenter, please enter the participant number below

Participant Number:

Experimenter, please enter code below

Code:

Begin button will take participant to the first page

Begin

Background Questionnaire

Please enter numerical values to respond to the the following three questions (Q1 to Q3)

1) During the last month, about how many hours did you use the Internet **during a typical week**?

2) Six months ago, about how many hours did you use the Internet **during a typical week**?

3) Five years ago, about how many hours did you use the Internet **during a typical week**?

Next

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¹⁴ JAWS participants were read these questions due to technical problems with MySQL.

Background Questionnaire

4) How much experience have you had with computers to use the Internet?

- A great deal
- A lot
- A moderate amount
- A little
- None

5) How much experience have you had with computers to do things other than use the Internet?

- A great deal
- A lot
- A moderate amount
- A little
- None

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Background Questionnaire

6) During the last year, how many times did you complete a survey on the Internet?

7) During the last month, where were you when you used the Internet? Please select all places.

- Home
- Work
- School
- Library
- Another Place

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Background Questionnaire

8) Do you have a computer at home?

- Yes
- No

8a) What type of internet connection do you use at home? *Please check all that apply.*

- Cable Service
- Dial-up Service
- DSL Service
- Satellite Dish Service
- Fiber-Optic Service
- Mobile Broadband Plan for a Computer or Cell Phone

8b) Browsers are software on a computer used to surf the Internet. Last month, which Internet browser did you typically use at home? *Please check all that apply.*

- Firefox
- Google Chrome
- Internet Explorer
- Safari
- Other Please specify:

8c) What operating system does your home computer run in? *Select all that apply*

- Linux
- Mac OSX
- Microsoft Windows
- Other

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Background Questionnaire

9) During the last week, what are all the things you did on a computer? (Check all that apply.)

- Budget Expenses
- Conducted Statistical Analyses
- Looked at and/or edited photos
- Played Video Games
- Typed Documents
- Used the Internet
- Other (Specify) Please specify:
- Other (Specify)
- Other (Specify)
- Other (Specify)

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Background Questionnaire

10a) During the last week, how many times did you use the Internet to find information about:

- A hobby
- Church
- Finances (e.g., stocks, mutual funds)
- Health or medicine
- Housing
- Legal issues
- Local community activities (e.g., public events)

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Background Questionnaire

10b) During the last week, how many times did you use the Internet to find information about:

- Movie Listings
- News
- Organizations (e.g., political groups, American Medical Association)
- Other people (e.g., home addresses, phone numbers, email addresses)
- Personal social activities (e.g., friends' parties)
- Places (e.g., museums, hotels)
- Public transportation

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Background Questionnaire

10c) During the last week, how many times did you use the Internet to find information about:

- Recipes
- Sports
- Stock Reports
- Television shows
- The government
- Travel
- Weather

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Background Questionnaire

11a) During the last week, how many times did you use the Internet to:

- Access social networking sites
- Buy things
- Conduct personal banking
- Contact people via email
- Contact people via instant Messaging/chat
- Contact people via video chat

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Background Questionnaire

11b) During the last week, how many times did you use the Internet to:

- Download music
- Download, look at, order, and/or edit photos
- Gather information for work
- Join mailing lists
- Make travel reservations
- Pay bills

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Background Questionnaire

11c) During the last week, how many times did you use the Internet to:

- Play games
- Read news
- Search library holdings or databases
- Sell things
- Visit discussion groups
- Watch shows or videos

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Background Questionnaire

12) In addition to the items in questions 10 and 11, during the last week, what are all the other things you did on the Internet? (e.g., read emails; sent emails; booked travel; posted blogs; used Facebook)

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Background Questionnaire

13) How difficult is it for you to learn to use Web sites that you have not visited before?

- Extremely difficult
- Very difficult
- Moderately difficult
- Slightly difficult
- Not difficult at all

14) Computer windows can be minimized, resized, and scrolled through. How difficult is it for you to manipulate a computer window?

- Extremely difficult
- Very difficult
- Moderately difficult
- Slightly difficult
- Not difficult at all

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Background Questionnaire

15) How difficult is it for you to use the Internet?

- Extremely difficult
- Very difficult
- Moderately difficult
- Slightly difficult
- Not difficult at all

16) Not including email, how *uncomfortable* are you with providing personal information on Internet forms and surveys?

- Extremely uncomfortable
- Very uncomfortable
- Moderately uncomfortable
- Slightly uncomfortable
- Not uncomfortable at all

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Background Questionnaire

For the following question (Question 17) please enter numbers into the response area

17) During last month, how many times did you do complex analyses of data (e.g., using SAS, SPSS, Excel) using a computer?

18) How familiar are you with the Census Bureau Web site, www.census.gov (e.g., location, tools, terms, data)?

- Extremely Familiar
- Very Familiar
- Moderately Familiar
- Slightly Familiar
- Not Familiar At All

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Background Questionnaire

19) In what month and year were you born?

Month:

YYYY

20) What is the highest level of education you have completed?

- Less than high school
- Completed high school
- Some college, no degree
- Associate's degree (AA/AS)
- Bachelor's degree (BA/BS)
- Post-Bachelor's degree

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Background Questionnaire

21) Are you male or female?

- Male
- Female

22) Are you of Hispanic, Latino, or Spanish origin?

- Yes
- No

23) What is your race? Choose **one or more** races.

- White
- Black or African American
- American Indian or Alaska Native
- Asian
- Native Hawaiian or Other Pacific Islander

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Submit

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Appendix D: Satisfaction Questionnaire¹⁵

Questionnaire for User Interaction Satisfaction (QUIS)

Please circle the numbers that most appropriately reflect your impressions about using the Census Regional Website.

- | | | | | | | | | | | |
|--|--------------|---|---|---|---|---|---|---|------------|----------------|
| 1. Overall Reactions to the Census Regional Website: | terrible | | | | | | | | wonderful | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | not applicable |
| 2. Arrangement of information on the Census Regional Website: | illogical | | | | | | | | logical | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | not applicable |
| 3. Use of terminology throughout the Census Regional Website: | inconsistent | | | | | | | | consistent | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | not applicable |
| 4. Tasks on the Census Regional Website can be Performed in a straight-forward manner: | never | | | | | | | | always | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | not applicable |
| 5. Steps to complete a task on the Census Regional Website follow a logical sequence: | never | | | | | | | | always | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | not applicable |
| 6. Census Regional Website layouts were helpful | never | | | | | | | | always | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | not applicable |
| 7. Going back to a previous page on the Census Regional Website | Impossible | | | | | | | | Easy | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | not applicable |
| 8. Performing an operation leads to a predictable result | difficult | | | | | | | | easy | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | not applicable |
| 9. Additional Comments: | | | | | | | | | | |

¹⁵ The experimenter assisted JAWS participants for this questionnaire. All other participants filled out the questionnaire on a computer.

Appendix E: Debriefing Questions

Debriefing Questions

On any Regional Office Website:

- Did you see the Facebook and Twitter icons?
- Did you think they were clickable?
- Do you use services like Facebook and Twitter?
 - o If yes: Would you follow/friend the Regional offices to get updates?
 - How do you use Facebook/Twitter?
 - What would you expect from Facebook/Twitter interaction?

On the “Local Jobs” Web page:

- Imagine you were looking for a job as a Field Representative. Would you prefer listings by Region or by State?
 - o Do you expect the jobs listed by state to be specific to that state?
 - o What if the jobs listed by state required traveling out of state?

- Imagine you are looking at this webpage during the peak of the Census. During this time, a lot of job listings would be on this webpage. Would you prefer jobs to be listed by region or by state?
- [Under the California and Seattle Region Local Jobs tabs], the state pages for Los Angeles and Seattle both show California jobs.
 - o How can this information be indicated to show the difference?

- o Would seeing California listed in both regional offices be confusing?
- There will be job postings that link directly to announcements on the USAjobs website. Is the related text currently listed sufficient to inform site visitors?

On the “Partner Info” Web page:

- When updating the partnership information, did you notice the similarity to the original form?
 - o If yes: What do you think of the similarity?

How often do you request facts about your community?

Would images placed along with the descriptive text on the page be helpful for navigating through the Website?

What would users expect on the home page of a Census Regional Website?

- In the Upcoming Events, what would you expect to see here?

- o Where do you think these events are located?

Appendix F: List of Tasks

1. You are interested in becoming a Census Bureau partner in order to promote the Census. How would you submit your information for a partnership with the Boston Regional Office?
2. Suppose you live in the Commonwealth of the Northern Mariana Islands. How would you find out if the Census Field Representative at your door is from the Census Bureau?
3. You are seeking a position as a Field Representative. You wish to find what qualifications are needed and the workload hours in Puerto Rico.
4. Locate the phone number for the partnership and data services staff contacts in the Dallas region.
5. How would you request a workshop at the Philadelphia Regional Office Website?
6. Find the directions to the Charlotte Regional Office via their Website.
7. You are interested in viewing microfiche data from the 1980 Census and are wondering if you need an appointment with the Boston Regional office to physically see the data. Where would you find this information?
8. After submitting your information to the Boston Regional Office, you wish to update your partner information. How would you do it?
9. You have a complaint and wish to speak to the director of the Los Angeles Regional Office. What is this person's name and telephone number?
10. You wish to find the population of the state of Kansas. How would you find it on the Website? *[note: for this question you do not need to provide the actual population estimate]*

Appendix G: Satisfaction Comments

Comments for eight of the participants are directly copied from what the user wrote in the comment sections in the Satisfaction Questionnaire. Comments from participants with an –AC suffix, are transcribed by the experimenter.

SATQ1: Overall Reactions to the Census Regional Website

P3: The main difficulty I encountered was in figuring out where to access Northern Mariana Islands information. In general, the site was clearly designed.

P4: I was unable to answer a few questions which was frustrating because I am a professional prospect researcher and grantwriter conducting internet research all the time! I wanted to go to "search" and was not allowed!¹⁶

P5: home page a little too busy

P6: seemed user friendly

P7: Overall, it was fairly easy to find the answers to the questions. However, a few of the pages were kind of hard to understand because there was so much information there. For example, the page with data about Kansas. It was hard to locate the population of Kansas.

P8: If I am more familiar with the questions, such as partner (?), I think I'd find the website much easier to use than I am.

P1-AC: Why aren't the Northern Mariana Islands listed in the table below the thematic map?

P2-AC: Directions to a Regional office were not next to the address like I expected.

P3-AC: Specific items are so difficult to find, like a "Lewis and Clark exploration", that I would just wait until the next day to call for help during office hours.

SATQ2: Arrangement of information on the Census Regional Website

P1: Some of the tasks; information was easier to find than others like finding information on field rep. or contact information on staff.

P2: Hard to configure at first. But it gets understanding.

P3: It took me a while to become acclimated to how the site is laid out, but my initial difficulties seem to me to reflect my own idiosyncratic approach to searching as well as my unfamiliarity with the site, not any deficiencies in site design, perhaps apart from the one geographic confusion I encountered regarding finding N. Mariana Islands info.

P5: same as question 1

¹⁶ We asked users not to use search engines like Google, theoretically any task could be answered with a search engine.

P7: I felt that I had to explore all over the place to find the answers to some questions. Once I got used to the website it got easier.

SATQ3: Use of terminology throughout the Census Regional Website

P6: some of the terminology was a little "technical " I tend to think of the census data as being straightforward i.e. population employment rates spending etc.

P4-AC: I was confused about what the difference was between Programs versus Resources. Also confused about the meaning of the word "external" in the link to jobs.

SATQ4: Tasks on the Census Regional Website can be performed in a straight-forward manner

P3: There was one geographic issue that seemed confusing, re: accessing N. Mariana Islands info.

P5: Found it easier than expected

P7: Some tasks required a lot of searching around.

P8: as long as special regional information e.g. the islands or reserves are properly provide in that manner

SATQ5: Steps to complete a task on the Census Regional Website follow a logical sequence

P1: If searching through the website and clicking on different links or reading the info... It has a logical sequence that might be understandable

SATQ6: Census Regional Website layouts were helpful

P3: see geographic concerns re: N. Mariana Islands, already noted

P7: The map on the first page was helpful. All I had to do was click on the state I wanted.

SATQ7: Going back to a previous page on the Census Regional Website

P1: It was easy either by clicking on the topic headings or basck buttom

P6: no problem

SATQ8: Performing an operation leads to a predictable result

P5: Had a couple of unexpected accidental finds

P6: usually and if nothing else there is the office phone no. for further assistance

P7: Some links led me to pages that I wasn't expecting. One link led me to a different website offsite and I wasn't expecting that because it looked like part of the census bureau's website.

SATQ9: Additional Comments

P2: The web site was very helpfull. I learned alot, wondering if, when I'm able to go on, to find out info in the near future...

P3: The site is well-designed and provides an abundance of information, delineated into a range of logical categories.

P5: More side bars instead of main body busyness.

P7: I prefer links that are simple and easy to read at a glance, like a button with one or two words on it. When the link is a whole sentence with a long description after it, I usually get bored and impatient and give up on the website. At that point, I would probably just look for a phone number to call for information because it would be a more efficient use of my time than reading a lot of words on the website. I know that sounds lazy, but I kind of expect short, sweet, and simple these days.

P8: Perhaps a message warning that this link will get us out of the census website will help us navigate back where we were later on, after viewing the other organization's link page.