



Benefits of Usability Testing with JAWS and Eye-Tracking Users on the Census Regions Web Site

Presented at the FedCASIC Conference

March 24, 2011

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Overview

- Purpose of the Census Regions Web Site
- Methodology
 - Eye Tracking
 - Screen Reader
- Selected Task Findings
- Summary

Purpose of the Census Regions Web Site

- Find a job
- Find out about upcoming events
- Driving Directions
- Contact the local Director
- Authenticate a Census Taker
- Enter/update Partnership information
- Schedule a workshop



Methodology

- Test ten tasks with 13 users
 - 5 blind Job Access With Speech (JAWS) screen-reader users for Section 508 conformance
 - 8 eye-tracking users with normal vision
 - All users navigation is tracked
 - Background survey
 - Debriefing Interview



Eye-Tracking

- Tobii X120 with Tobii Studio software
- Tracks where users look
- Shows
 - what path the eye follows
 - how long users were looking at an item
- No definitive starting point, unconstrained



Screen-Readers

- Used by persons with a vision deficit: low vision and blind
- Reads aloud text, links, and labels for radio buttons, buttons, check-boxes, data entry fields, and combo boxes
- Users' navigation path recorded on videotape
- Navigation determined by the programmed tab order on screen and keys pressed
- Fixed Path



Selected Task Findings

- Task 1: Verify credentials for a Census Taker in the Commonwealth of the Northern Mariana Islands (CNMI)
- Task 2: Find a job in Puerto Rico
- Task 3: View 1980 microfiche data
- Task 4: Find driving directions to the Charlotte, NC office



Task 1

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?

Regional Offices Main Page

Regional Offices - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://www.census.gov/regions/

Most Visited Getting Started Latest Headlines Windows Marketplace WTOP.com CNN.com - Breaking N... TWC National and Local W... IMDb The Internet Movie D...

Regional Offices

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Regional Offices

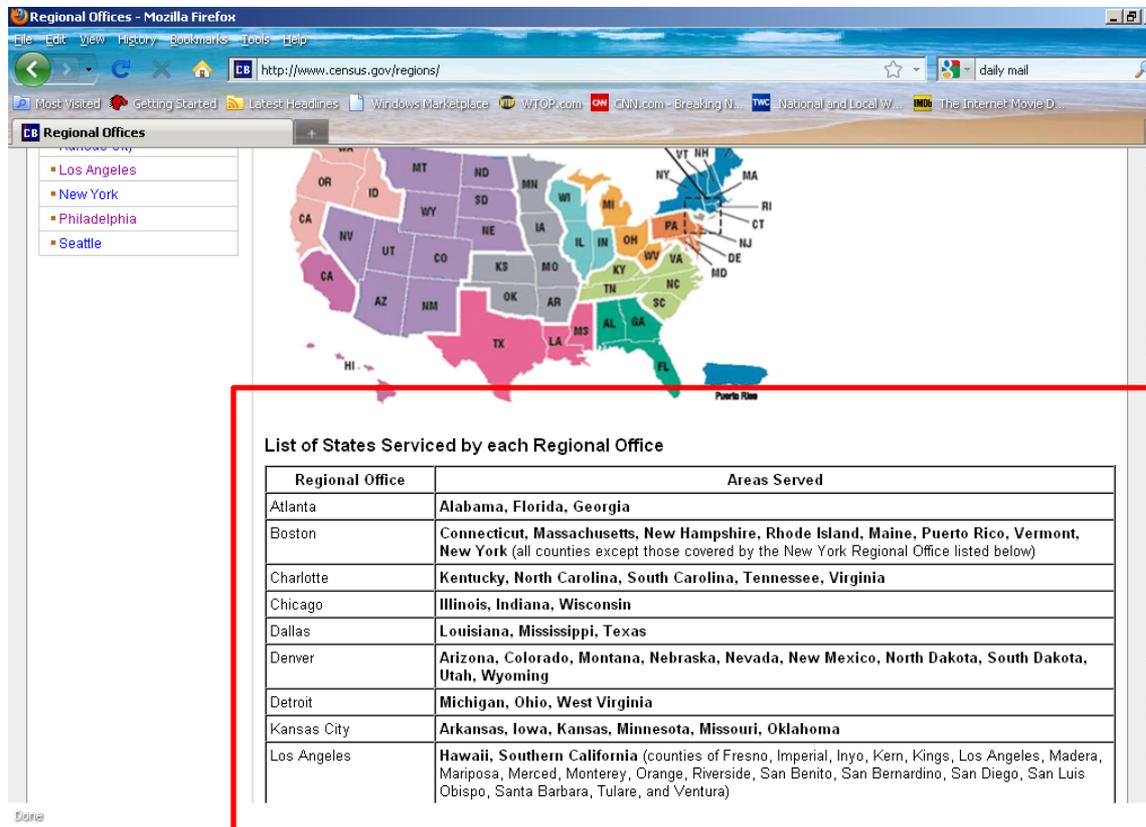
You are here: [Census.gov](#) > Regional Offices

- 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.

Done

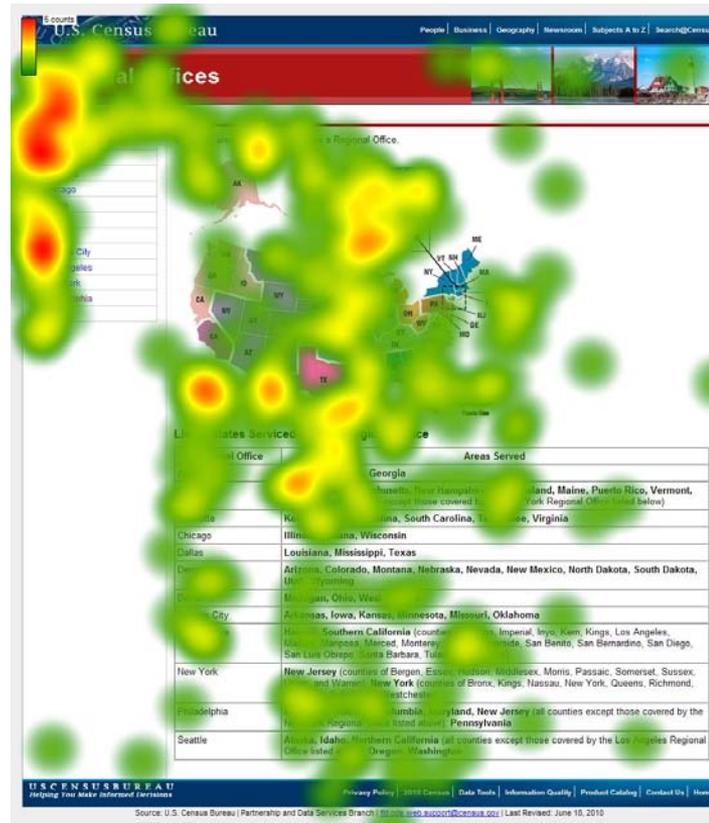
Regions are determined by population instead of state boundaries, so areas served are described in a table



The screenshot shows a web browser window titled "Regional Offices - Mozilla Firefox" with the URL "http://www.census.gov/regions/". The page displays a map of the United States with regional offices highlighted in various colors. A sidebar on the left lists the regional offices: Los Angeles, New York, Philadelphia, and Seattle. Below the map, a table titled "List of States Served by each Regional Office" provides details for each 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)

Eye-tracking Users looked all over the map and table listing for CNMI



Only one eye-tracking user came to this page and did not see CNMI in the paragraph.

Media: http://webdev.asst.census.gov/regions/los_angeles/
Time: 00:00:00.000 - 00:01:57.454
Participant files: 0/1

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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 Marianas 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 10th 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

[PDF] or [DOC] denotes a file in Adobe's [Portable Document Format](#). To view the file, you will need the [Adobe Reader](#) available free from Adobe. This symbol indicates a link to a non-government web site. 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.

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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

One JAWS user found CNMI because he read every word on the screen

The screenshot shows a Mozilla Firefox browser window displaying the Los Angeles Region page on the Census Bureau website. The browser's address bar shows the URL http://www.census.gov/regions/los_angeles/. The page content includes a navigation menu, a welcome message, a map of Southern California and Hawaii, a quote from James T. Christy, and a list of regional activities. A sidebar on the right contains social media links and an 'Upcoming Events' section. Red arrows highlight several key elements: the navigation menu, the welcome message, the map, the quote, the 'Upcoming Events' section, and the contact information for the Los Angeles Regional Office and the Los Angeles Regional Census Center (2010 Census).

Los Angeles Region - Mozilla Firefox
http://www.census.gov/regions/los_angeles/
Los Angeles Region
You are here: [Census.gov](#) > [Regional Offices](#) > Los Angeles Region
Los Angeles Region Main | Programs & Surveys | Resources & Services | Partner Information | Legal Jobs | Contact Us | All regions

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James T. Christy, Regional Director

[Regional Census Activities](#) - View decennial newsletters and stay current with 2011 updates.

[Apportionment History and The Changing Population](#) - Check out the Census Bureau interactive map.

[Redistricting Data](#) - Decennial census data used to geographically define state legislative districts.

[New American FactFinder](#) - A fresh look, new tools and easier access to Census Bureau statistics.

[Data Products](#) - Learn about other census data products and releases.

[Request a Workshop](#) - Find out how to use census data products.

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

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15350 Sherman Way, Suite 400
Van Nuys, CA 91406-4224
(818) 267-1700 or 1-800-992-3530

Los Angeles Regional Census Center (2010 Census)
9301 Corbin Avenue, Suite 1000
Northridge, CA 91324
(818) 717-6700

United States Census 2010
facebook | Twitter

Upcoming Events

Reservation Economic Summit
Mon, Mar 14 to Thu, Mar 17, 2011 @ Las Vegas Hilton

Population Assn of America
Wed, Mar 30 to Sat, Apr 2, 2011 at 12:00am @ Marriott Warden Park Hotel

Amer Planning Assn
Sat, Apr 9 to Tue, Apr 12, 2011 @ Haynes Convention Center

Assn of Amer Geographers
Tue, Apr 12 to Fri, Apr 15, 2011 @ Washington State Convention Ctr

Coal Prep 2011
Mon, May 2 to Thu, May 5, 2011 @ Lexington Center Cor
Mon....



Task 1 Summary

- Users began their search for CNMI on the map and links on the main page but did not find it
- CNMI was not found in the table listing below the map
- The single eye-tracking user viewing the LA Region page did not find CNMI in the text
- One JAWS user found CNMI because all text was vocalized
- Concept of “Region” was confusing



Task 2

You are seeking a position as a Field Representative. You wish to find what qualifications are needed and the workload hours in Puerto Rico.

Path of JAWS users

The screenshot shows the 'Boston Region' page with the following elements and annotations:

- 4**: Callout pointing to the breadcrumb trail: 'You are here: [us.gov](#) > [Regional Offices](#) > [Boston Region](#) > [Jobs](#)'
- 10**: Callout pointing to the 'Local Jobs' link in the navigation menu.
- 11**: Callout pointing to the 'In this Section:' header.
- 18**: Callout pointing to the left navigation menu containing links for Connecticut, Maine, Massachusetts, New Hampshire, New York, Puerto Rico, Rhode Island, and Vermont.
- 19**: Callout pointing to the 'Forms' section.
- 24**: Callout pointing to the 'Former 2010 Census Workers' link.

Red arrows indicate the user path: from the breadcrumb trail to the 'Local Jobs' link, then to the 'Jobs' section, then to the left navigation menu, and finally to the 'Former 2010 Census Workers' link. A red box highlights the text: '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 off site to www.usajobs.opm.gov.'

A blue callout box with a green border contains the text: 'Select ...left navigation menu' with an arrow pointing to the left navigation menu.

Users saw State job links last

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Boston Region

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

[Boston Region Main](#) | [Programs & Surveys](#) | [Resources & Services](#) | [Partner Information](#) | [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 off-site 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.

[Civilian Application for Federal Employment \(OF 612\)](#) [PDF 727k]

[Declaration for Federal Employment \(OF 306\)](#) [PDF 92k]

one second

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Boston Region

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

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[Special Application for Veteran Preference \(SF-15\)](#) [PDF 1.2Mb]

[Employment Application Information \(L9\)](#) [PDF 379k]

[Employment Package Check List](#) [PDF 8k]

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

three seconds

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Boston Region

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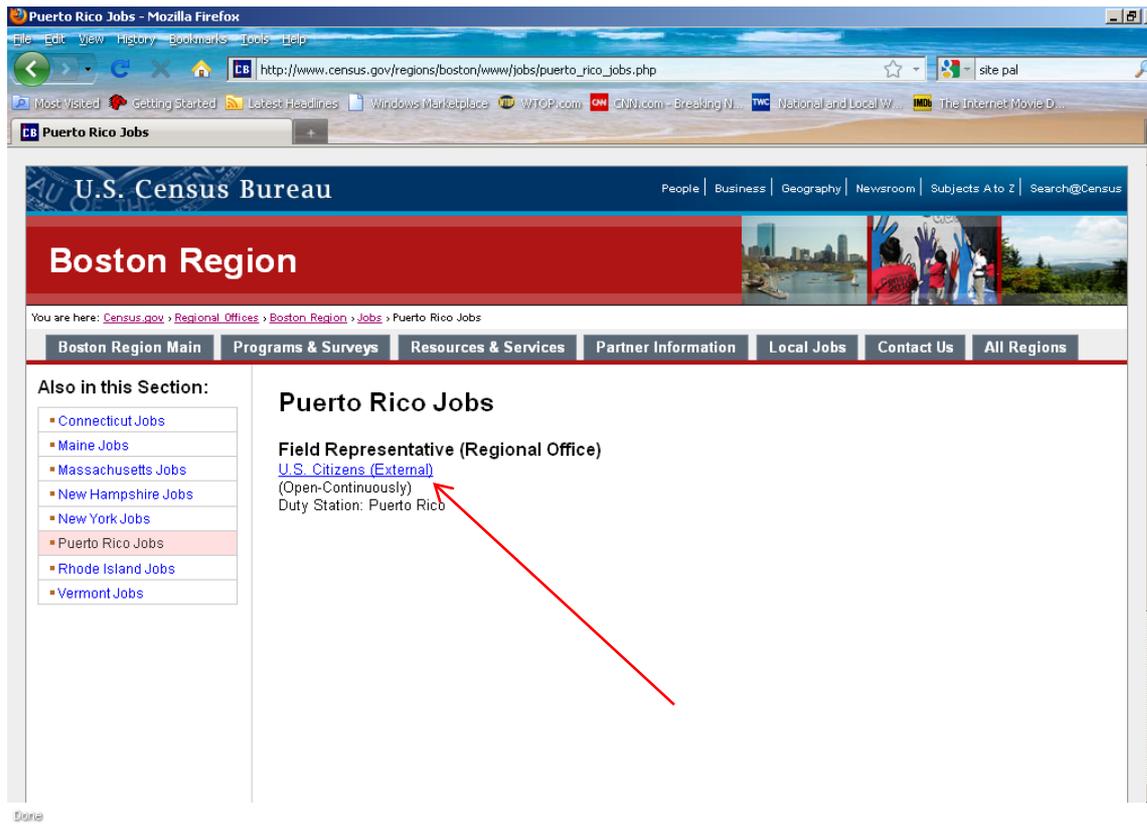
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[Employment Package Check List](#) [PDF 8k]

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six seconds

Some Users were confused by the term “External”





Task 2 Summary

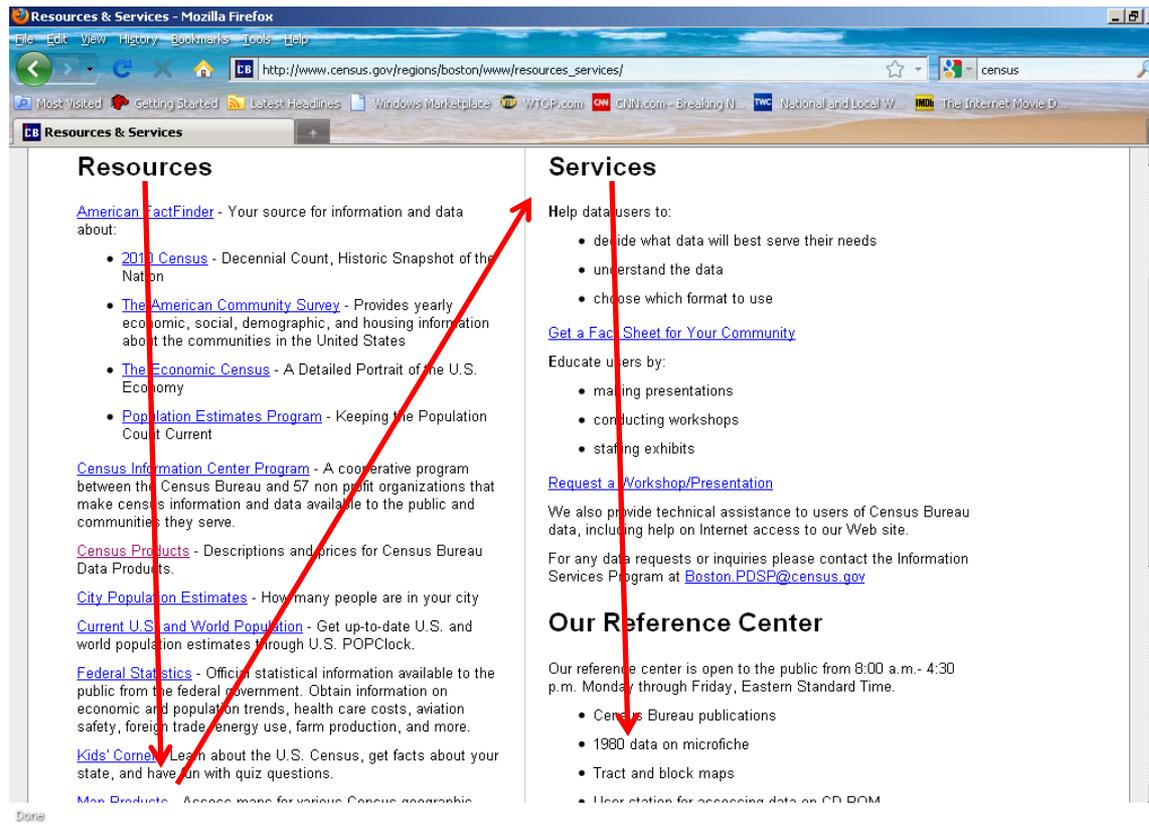
- Users had difficulty locating Puerto Rico because it is in the Boston region
- Instructions to look to the left for job links are problematic for all users because sighted users see the page center first, but JAWS users hear the left panel first
- The word “External” was confusing to JAWS users, and all other users did not care if the link took them off-site
- Confusion between Job and Partnership



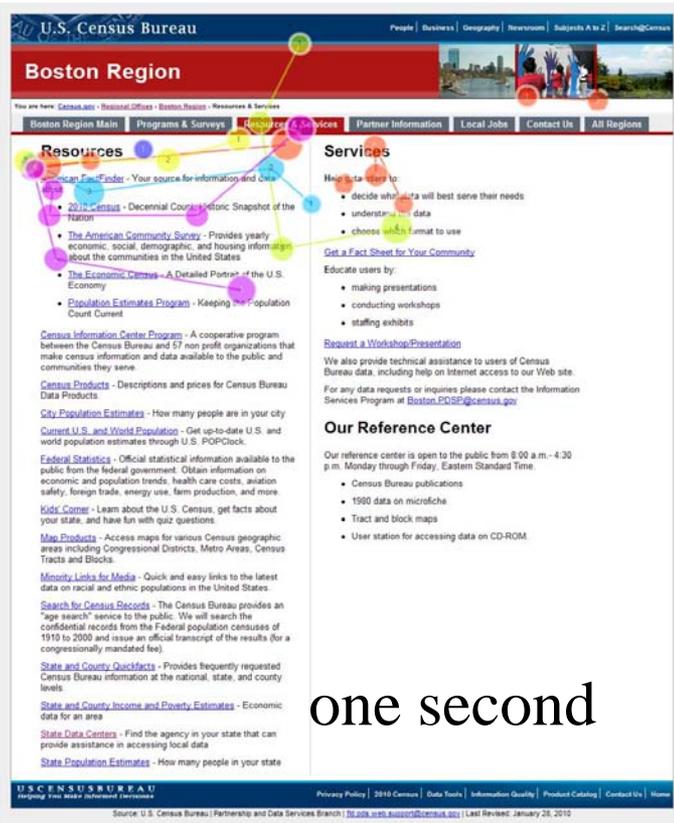
Task 3

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?

JAWS users had to tab through all left column links to complete the task on the Resources & Services page.



Eye-tracking users gaze moved from left to right.



U.S. Census Bureau
Boston Region

Resources

- [American FactFinder](#) - Your source for information and data on the U.S. economy, social, demographic, and housing information about the communities in the United States
- [2010 Census - Decennial Census](#) - 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

Services

Make sure you to:

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

Get a Fact Sheet for Your Community

Educate users by:

- making presentations
- conducting workshops
- stating exhibits

Request a Workshop/Presentation

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

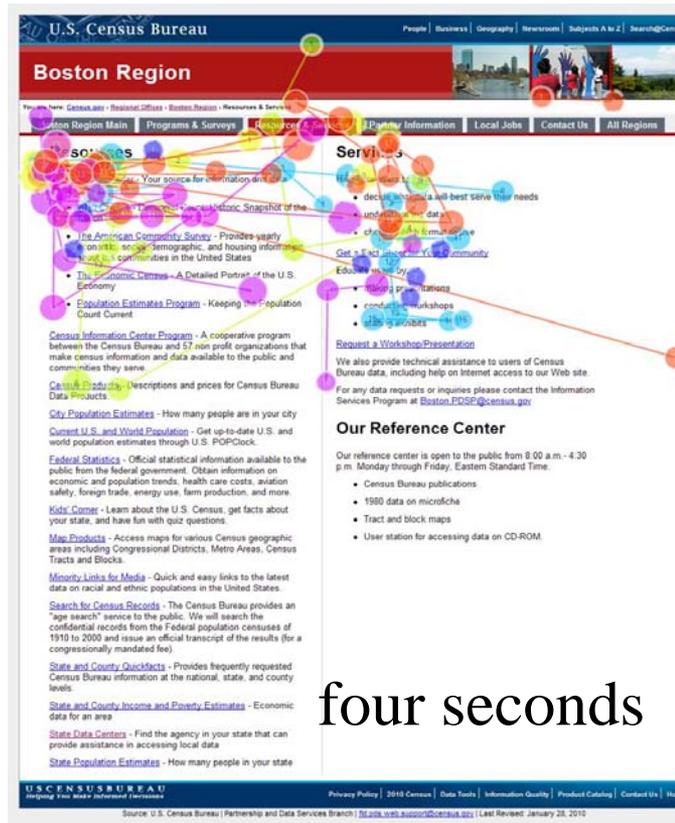
For any data requests or inquiries please contact the Information Services Program at Boston.FOSE@census.gov

Our Reference Center

Our reference center is open to the public from 9:00 a.m. - 4:30 p.m. Monday through Friday, Eastern Standard Time.

- Census Bureau publications
- 1990 data on microfiche
- Tract and block maps
- User station for accessing data on CD-ROM

one second



U.S. Census Bureau
Boston Region

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four seconds



Task 3 Summary

- Some confusion between the “Resources & Services” and “Programs & Surveys” tabs: Services and Programs seem similar
- Resources links hindered all users from finding the answer
 - JAWS users had to navigate through all the Resources links before finding their answer
 - Eye-tracking users gaze moved left to right to locate the answer

Task 4

**Find the directions to the
Charlotte Regional Office via their
Web Site.**

A region's main page lack directions near the address

U.S. Census Bureau

Charlotte Region

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

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

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William Wayne Hatcher, Regional Director

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[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.

[Local Jobs](#) - Check to see if there are local jobs in your area.

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

Charlotte Regional Office
 901 Center Park Drive, Suite 106
 Charlotte, NC 28217-2935
 (704) 424-6400 or 1-800-331-7360
 FAX: (704) 424-6944
 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 28273
 (704) 936-5300
 FAX: (704) 936-5301

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ten seconds

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Charlotte Region

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two seconds

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A region's contact page lack directions near the address

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Charlotte Region

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

In this Section:

- How to Identify a Census Field Representative
- Our Staff
- Visiting Our Office

Contact Us

William Wayne Hatcher, Regional Director

Charlotte Regional Office

901 Center Park Drive, Suite 106
Charlotte, NC 28217-2935
(704) 936-5300 | 1-800-331-7360
FAX: (704) 936-5344
TDD: (704) 424-6963
E-mail: Charlotte.Regional.Office@census.gov

Charlotte (2010 Census)

Whitehall
3701 Arc
Charlotte
(704) 931
FAX: (704)

USCENSUS BUREAU
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Privacy Policy | 2010 Census | Data Tools | Info

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

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Whitehall
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five seconds

Users must navigate down 2 levels to find driving directions

The image illustrates the navigation path through the U.S. Census Bureau website to find driving directions. It consists of four overlapping screenshots from an Internet Explorer browser window.

- Top Screenshot:** Shows the 'Charlotte Region' main page. The navigation menu includes 'Charlotte Region Main', 'Programs & Surveys', 'Resources & Services', 'Partner Information', 'Local Jobs', 'Contact Us', and 'All Regions'. A 'Contact Us' link is highlighted.
- Second Screenshot:** Shows the 'Contact Us' page. The 'Visiting Our Office' link is highlighted.
- Third Screenshot:** Shows the 'Visiting Our Office' page. The 'DIRECTIONS TO THE CHARLOTTE REGIONAL OFFICE' link is highlighted.
- Bottom Screenshot:** Shows the full 'DIRECTIONS TO THE CHARLOTTE REGIONAL OFFICE' page. The directions are listed below the heading.

DIRECTIONS TO THE CHARLOTTE REGIONAL OFFICE

From Charlotte-Douglas International Airport

- From the Airport Terminal Building, take the Airport Exit road. Follow signs leading to Billy Graham Parkway. (From rental car lots or parking lots, take the airport loop road back to the terminal building and start from there. If you follow airport exit signs from places other than the terminal building, you may be led astray.)
- Exit right onto Billy Graham Parkway South towards I-77.
- Go 1 mile to the second traffic signal at West Boulevard, which also is NC Highway 160. Turn right onto West Boulevard.
- Go 1 mile to the first traffic signal at Yorkmont Road. Turn left onto Yorkmont Road.
- Go .6 miles to the first traffic signal at Beam Road. Turn right onto Beam Road. (There is a Phillips 66 convenience store at this intersection.)
- Go 1.2 miles to Center Park Drive. Turn left onto Center Park Drive. (Coffey Creek Café is on the corner.)
- The Regional Office is in the second building on the right. It is a one-story brick building.
- Turn right into the driveway past the building. Bear right into the parking lot in front of the building. Look for the black mailbox labeled "Bureau of the Census."



Task 4 Summary

- Directions were not provided as users might expect near the address on a region's main and contact us pages
- Users had to navigate down 2 levels to access directions



Lessons Learned

- All users had difficulty navigating to find “buried” information
 - Directions
 - Verify A Census Worker’s credentials
- The two column screen design impacted a user’s success
 - Resources & Services Tab
 - Local Jobs Tab
 - Contact Us Tab



Summary

- List Pacific Territories on the map and table below on the main page and on the map on the LA Region page
- Use zip code or city & state to locate the nearest Census office
- Place links to directions and staff near the address on Regional Office pages
- Use a 1 column design to place instructions and links to jobs together
- Place a link to verify any Census Taker's credentials on the main screen



Benefits of Testing with Screen-Reader and Eye-Tracking Software

- Track blind and sighted users experiences with a Web Page
- Complement each other: unconstrained and fixed path navigation can be evaluated
- Instruction text can be modified for usage with unconstrained and fixed path navigation



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