Accessible Web Survey Design

Presented at the FedCasic Conference

March 16, 2006

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

Good morning, today I'd like to share with you lessons learned in the course of testing Census Bureau web survey applications for accessibility.

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Relevance of Accessibility

Ability for persons with disabilities to have access comparable to the access available to others.

Section 508 applies to Census Bureau Internet & Intranet web sites, forms, surveys, and desktop applications.

Since June 2001, Section 508 of the Rehabilitation Act requires that federal agencies make their electronic & information technology accessible. (per Section 508, 29 U.S.C. ' 794d)

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Accessibility has been the law since June 2001.

It is (bullet 1)

Federal agencies, including the Census Bureau, must make their internal and external web sites, and web surveys accessible. Inaccessible technology interferes with an individual's ability to obtain and use information.

Overview

Properties of Accessible Surveys

Scope & Method

Application Types

Examples

Tables

Portable Document Format (PDF)

Recommendations

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

1. Here's what I'm covering in today's talk. First I'll give you some details on what makes a survey accessible

2. Scope – limited to blind users; Method - Used Insight/InFocus 4.2.2 and the JAWS 7 screen reader.

3 List types of applications tested.

4. Situations and remedies.

5. Describing navigable and accessible tables.

6. Compare use of PDF files versus HTML for documentation.

7. Guidelines.

Properties of Accessible Surveys

Must be usable.

Adherence to Section 508.

Same visual sequence of questions, answer choices, skip patterns and instructions.

One version of the survey that is accessible, not separate versions.

Accessibility part of the design process.

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1. Usability testing would need to be done with test subjects performing typical tasks with reported issues addressed.

2. Applications must adhere to paragraphs A-P of section 508 guidelines.

3. Does the text read in the same order when accessed by tabbing/arrow keys as a sighted person would read it?

4. It is more efficient to create one accessible survey application rather than two versions, such as "text only" and "regular". Any changes would need to be made to both versions instead of just one.

5. Accessibility should be part of the design process from the beginning.

Scope & Method

Limited to persons with visual impairments.

Performed accessibility evaluation with Insight/InFocus 4.2.2.

Used the Job Access With Speech (JAWS) 7 screen reader to verify accessibility findings.

Tested related elements, HELP, FAQs, etc., with JAWS & Adobe Acrobat 6.

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1. Low vision & blind; no screen magnifiers; ms-windows environment – win2000.

2. Web surveys and data dissemination sites.

3. Also evaluated the "directions and cues" to perform the task.

4. Necessary because respondents may browse this information at any time.

Application Types

Screen based web survey
Scrolling web survey

I tested two types of web surveys, screen based and scrolling. Rather than describe accessibility issues with each of these applications individually, the presentation will focus on common problems.

1. A screen based form has one question per screen. Navigation is done by using previous/next buttons.

2. A scrolling or paging web survey has all questions on one screen. Navigation is done by scrolling up or down the form.

Navigation Bars

Repetitive elements must have an option to be skipped.

Applies to site menus & navigation bars.

"Press enter to skip navigation bar."

Link destination

| Home | Contact | Help | FAQS | About Us |

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Navigation bars or menus are on every page. A sighted user can disregard them, so a JAWS user needs a similar capability which is accomplished by using a "skip link".

Skip links are needed wherever repetitive elements occur. The skip link is a transparent graphical link positioned prior to the navigation bar.

Managing Alternate Text

Bullets

Spacers

Line dividers

Montages

HOME

CONTACT

HELP

FAQS

ABOUT US

- Eastern Region
- Central Region
- Mountain Region
- Pacific Region
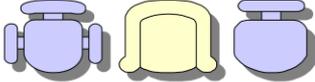
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Section 508 requires that graphics have a text description that can be accessed by a screen reader. Graphics should be tagged in such a way to not add additional meaning. Not all graphics should be tagged.

- Use text, rather than graphic bullets, to avoid repetitive alt text such as "decorative bullet image".

- A sighted user skims over spacers, so a screen reader user should not have to hear this verbiage.

- No alt text is needed for line graphics – "decorative line".

- When 2 or more adjacent images occur, it is better to merge them into one image with brief alt text rather than alt text for each image. "office chairs" instead of computer chair, reception chair, typing chair

Question Structure & Short Term Memory

Lengthy instructions can interfere with recall of original question.

Better to list topic, instructions, question, then response data entry field or options, in that order.

Question?	Topic
•Instruction 1.	•Instruction 1.
•Instruction 2.	•Instruction 2.
•Instruction 3.	•Instruction 3.
response: [____]	Question? [____]

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1. Because speech is linear, the first items mentioned tend to be the first items forgotten. Sighted users do not have this problem because they can refer back to instructions easily.

2. Listing the question topic first sets up context for instructions. The question is asked with response options immediately following.

On the left is an example of a standard question, right is the new wording. The most important text directly precedes the question.

Use Inferences to Streamline the Questionnaire.

Instructions. Response options. Question phrases.	Please check all that apply to your residence: ❑Condition 1. ❑Condition 2. ❑Condition 3. Please tell us the number of rooms. •If condition 1, … •If condition 2, … •If condition 3, … number: ☐

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1. Based on earlier answers, instructions, response options, and question phrases could be eliminated.

2. In this example, if a respondent chose condition 2, they should not hear instructions for conditions 1 and 3 in the following question.

Use Inferences to Make the Questionnaire Less Impersonal.

Use of "his", "hers", "he", "she" is more engaging to the respondent.

Personal pronouns are preferable to a first name because they are less likely to be mispronounced by the screen reader.

How many children did this person have? number: ▭	How many children did she have? ▭

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If gender is asked, this information could be used to infer more personalized dialogue for later questions.

Tables

Data tables occur in help or FAQs.

Data cells must be associated with row & column stubs to aid navigation.

Multiple row & column headers must be correctly associated.

	California		
2nd language	Napa County	Sierra County	Lake County
Spanish	Victor Lopez	Maria Lopez	Juan Pena
Viet-namese	Jae Li	Kim Phong	Kia Lee
Chinese	Kwai Chang	Li Tso	Kim Lee

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1. We have a survey respondent who is blind looking for help in Vietnamese in Lake County. This respondent has gone to a table listed in Help.

2. A blind respondent cannot see row & column headers for context when browsing. This example is part of a much larger table, so a capability to hear table coordinates is essential,

3. Tables with multiple headers must be correctly associated with each other and the corresponding data cell.

HTML Is More Accessible Than Portable Document Format (PDF).

PDF, a.k.a. "text under glass", makes it difficult for screen readers to access tables, images, and equations.

When a PDF file is opened, the screen reader does not always detect text, depending on the version of Adobe Acrobat.

Screen readers perform better with HTML because there has been more time to integrate the technologies.

Cannot easily "retrofit" PDF files to be accessible

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1. PDF files are designed so they are not modified easily.

2. When a PDF link is clicked, the user exits browser mode and enters the Adobe Acrobat Reader mode with all new commands and structure. Sighted users have had difficulty accomplishing simple tasks, such as printing, because two print menu options are available.

3. PDF has not been available as long as HTML.

4. PDF files must be made accessible first before posting to a web site. It is impossible to make a table in a PDF file accessible after it was pasted in as an image.

Recommendations

Questions should be structured to accommodate short term memory issues.

Alt text should not add additional meaning beyond what an able-bodied user sees.

Create one accessible survey application instead of versions with & without graphics.

Infer question wording from earlier responses.

Don't use PDF files for documentation.

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Recommendations (2)

Accessibility to questions was similar on scrollable & screen based surveys, but a screen based form has the advantage of using inferences to customize the questions.

Use accessible design templates.

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Resources

Good web design – www.usability.gov

JAWS screen reader –

www.freedomscientific.com

Accessibility evaluation –
www.ssbtechnologies.com

Accessible Tables –

www.jimthatcher.com/webcourse9.htm

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