Developing an Inclusive Web Survey Design for Respondents with Disabilities

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Presentation Overview

- Background
- Case Study: Library of Congress National Library Service for the Blind and Physically Handicapped (NLS)
  - Challenge 1: Design
  - Challenge 2: Time
  - Challenge 3: Testing
  - Challenge 4: Technical issues
- Practical Tips

Background

Background: Disability Prevalence

- 18.7% of Americans have a disability (Brault, 2012)
- 508 compliance:
  - Who must comply?
  - What counts as compliance?

% of adults* … (CDC, 2013)	
… with hearing trouble	16%
… with vision trouble	9.2%
… with any physical functioning difficulty	16.2%
… with at least one basic actions difficulty or complex health limitation**	32.9%
… 65 and older with at least one basic actions difficulty or complex health limitation**	62.0%

* 18 and older unless otherwise noted

**A basic actions difficulty is defined as having one or more of the following difficulties: movement, emotional, sensory (seeing or hearing), or cognitive. A complex activity limitation is defined as having one or more of the following limitations: self-care (activities of daily living or instrumental activities of daily living), social, or work.

Background: Assistive Technologies

- People with blindness or visual impairments may use any of more than 30 types of assistive technology (AT) or accommodations[1]
  - There are more than a dozen vendors of screen reading software[2] and at least 7 different commonly used screen readers. In a recent international survey of 1782 screen reader users[3]:
    - *49% indicated JAWS was their primary screen reader*
    - *27.7% used Braille output with their screen reader*
    - *17% also used one or more visual features*
    - *40% indicated web content accessibility has not changed, while 25% indicated web content has become less accessible.*
    - *54.2% indicated social media sites are very or somewhat accessible*

[1] http://askjan.org/cgi-win/OrgQuery.exe?Vis11

[2] http://askjan.org/cgi-win/OrgQuery.exe?Vis11

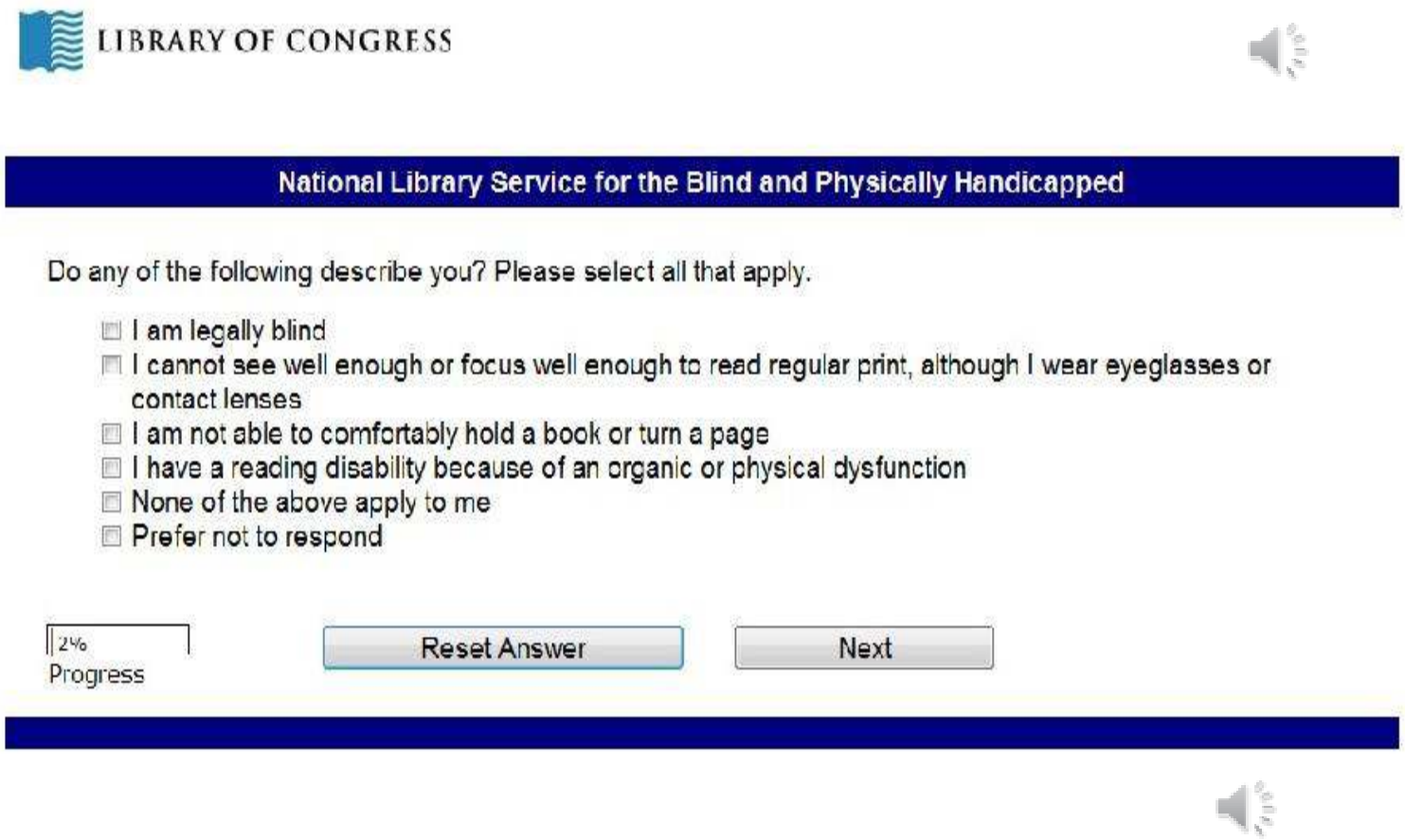
[3] http://webaim.org/projects/screenreadersurvey4

Background: Assistive Technologies

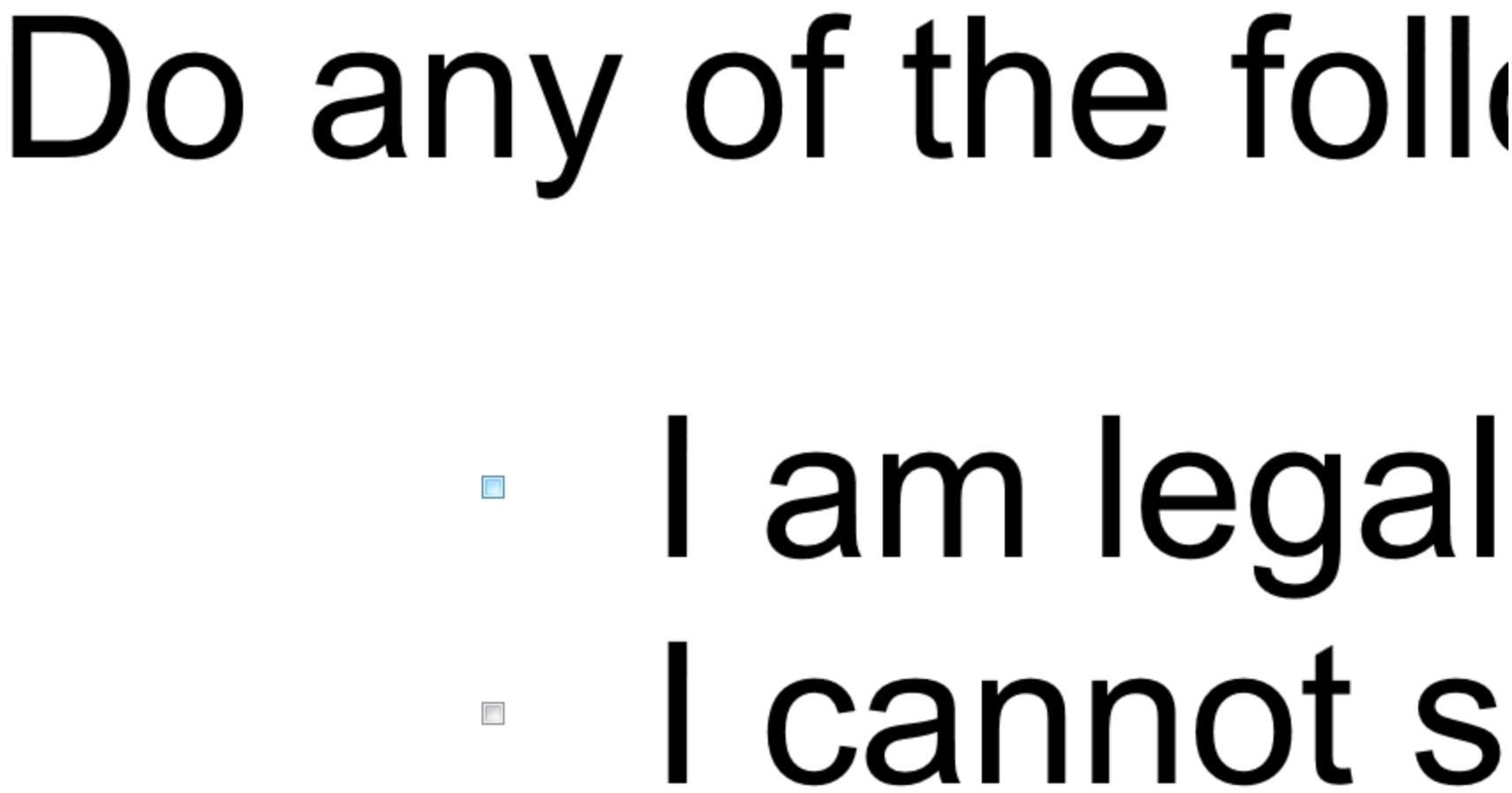
- Individuals with learning disabilities who have difficulty reading (e.g., dyslexia) may use several different ATs or devices to access on-screen text and several other ATs to read printed text[4]
- Individuals with other physical disabilities that limit dexterity/ upper limb mobility use a variety of ATs to assist with keyboarding/data entry, writing, using the telephone, gripping items, lifting items, and filing papers[5]

[4] http://askjan.org/soar/LD/reading.html
[5] http://askjan.org/media/ampu.htm

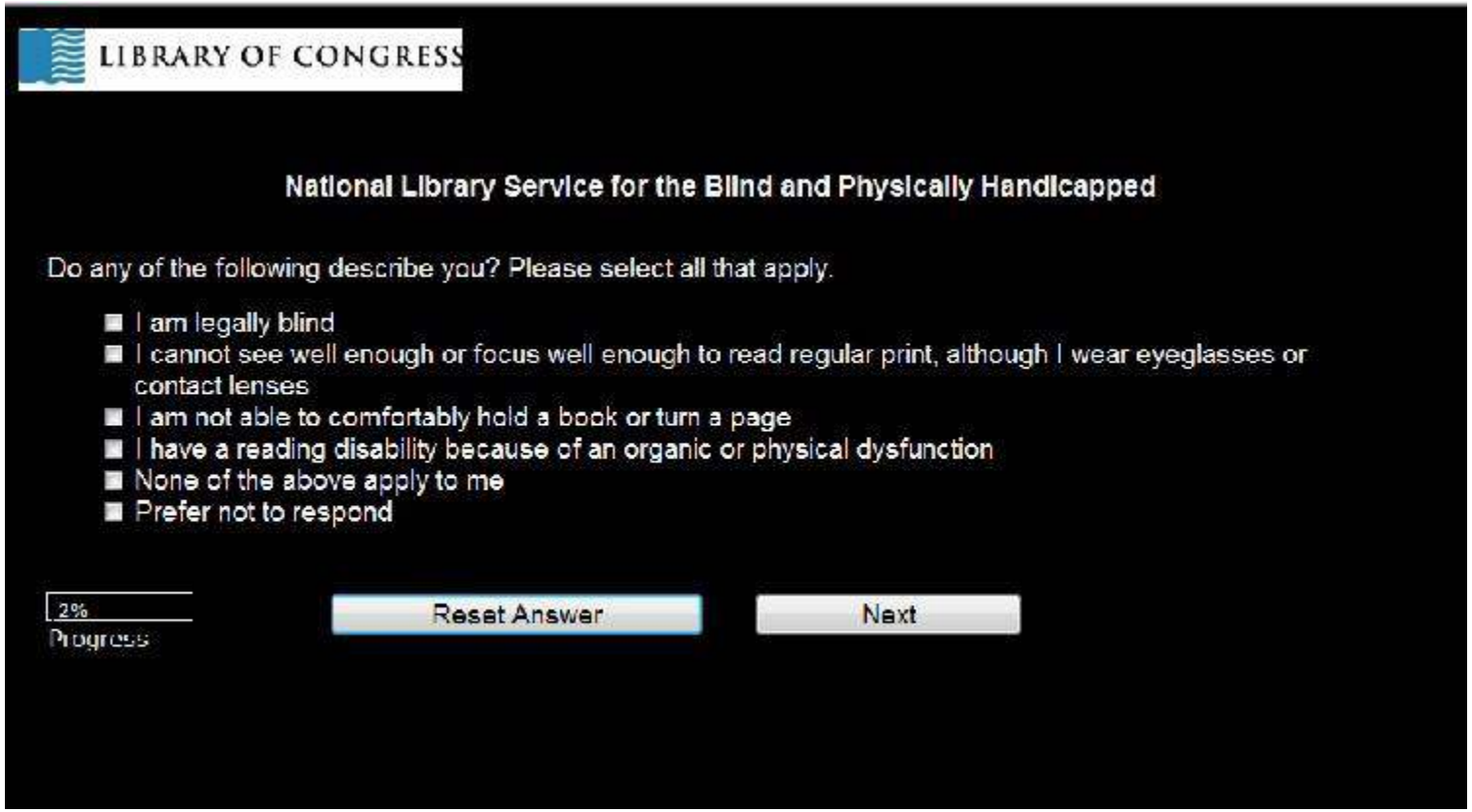
Background: Assistive Technologies
Screen Readers



Background: Assistive Technologies
Magnification Software



Background: Assistive Technologies
Contrast Coloring

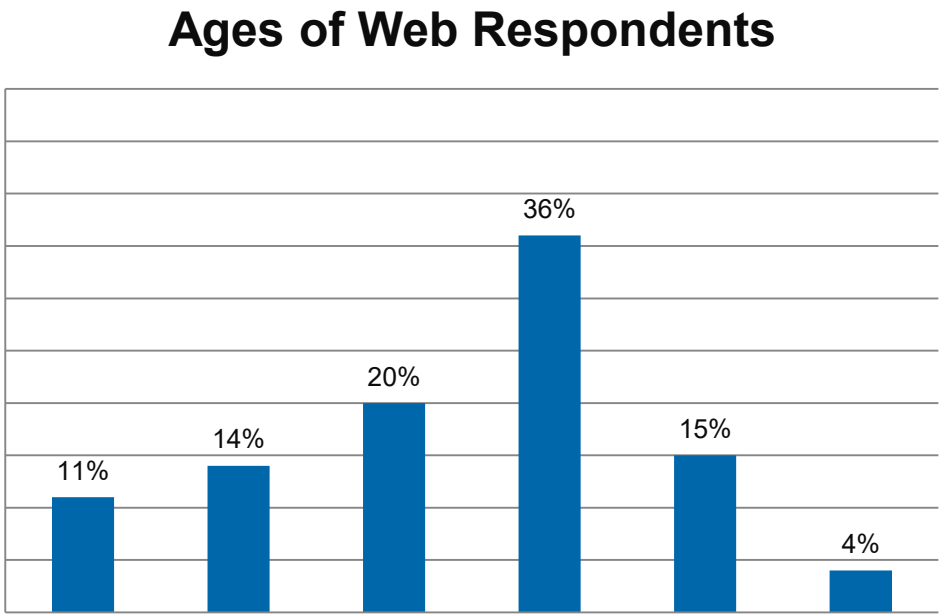


Background: Assistive Technologies
Computer Braille Display

Case Study: Library of Congress National Library Service for the Blind and Physically Handicapped (NLS)

Case Study: Background

- Inclusive, multi-mode (web and phone) survey
  - Visual, physical, and cognitive/reading impairments
- 2,741 respondents
  - 86% responded by web
  - 91% blind/visual impairment
  - 91% accessed the internet in the past week
  - 70% use screen readers



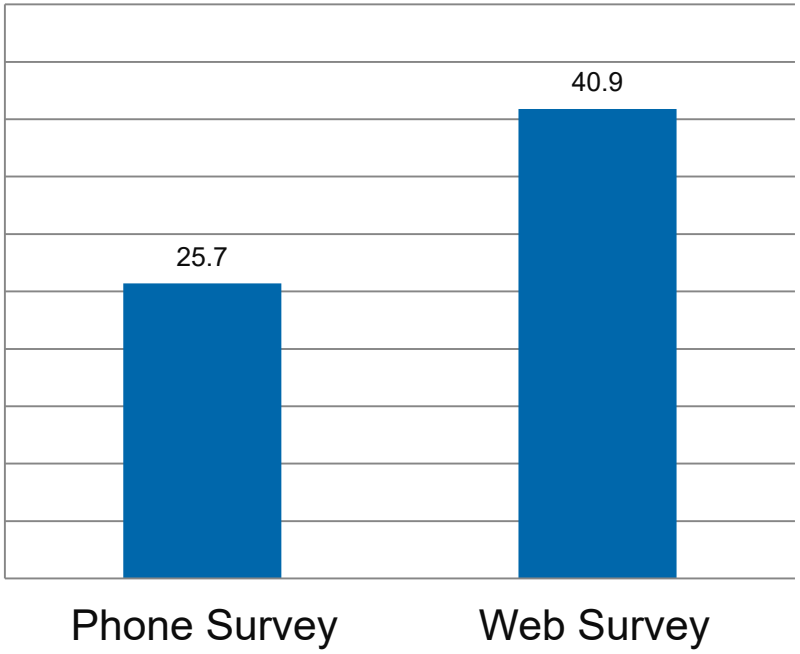
Challenge 1: Balancing web design

- Scrolling
- Underlining, italicizing, bolding, and using all capital letters
- Questions in grids
- Progress bars
- Logos, visual aids, coloring, and graphics

Challenge 2: Adjusting time requirements

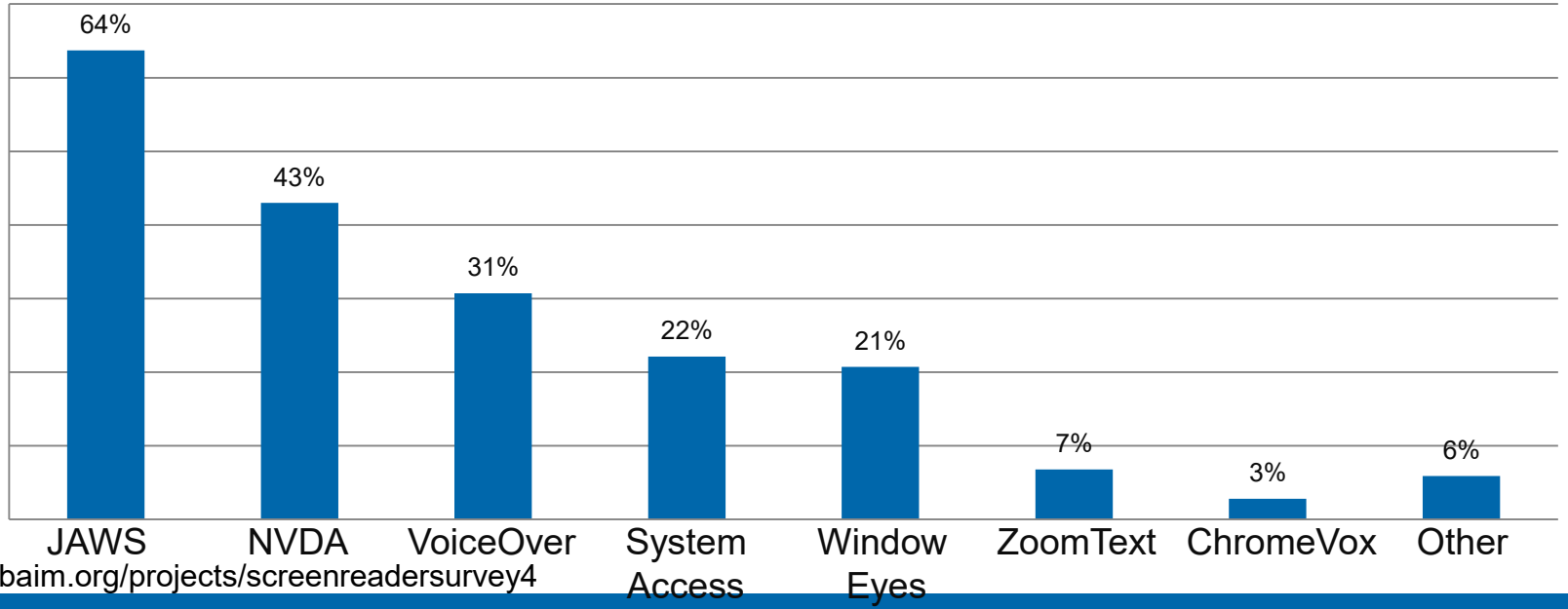
- Despite taking longer, 94% of respondents chose to complete the survey by web instead of phone
- Possible reasons for time differences:
  - Differing levels of experience in using accessible technology
  - Extra time to read instructions and response options that others might skim or ignore (e.g., question number, next button, etc.)
  - Technical issues with functionality of differing technologies (e.g., tab versus enter) causing logouts or incorrect navigation
  - Reading “hidden” code

Average time between beginning and completing the survey, in minutes



Challenge 3: Testing

- In a recent international survey of 1782 screen reader users[6]:
  - 67% see free or low-cost screen readers such as NVDA or VoiceOver as viable alternatives to commercial screen readers
  - 72% use screen readers for mobile phones or mobile devices
  - 59% use Apple iPhone, iPad or iPod Touch as their primary mobile platform



[6] http://webaim.org/projects/screenreadersurvey4

Challenge 3: Testing

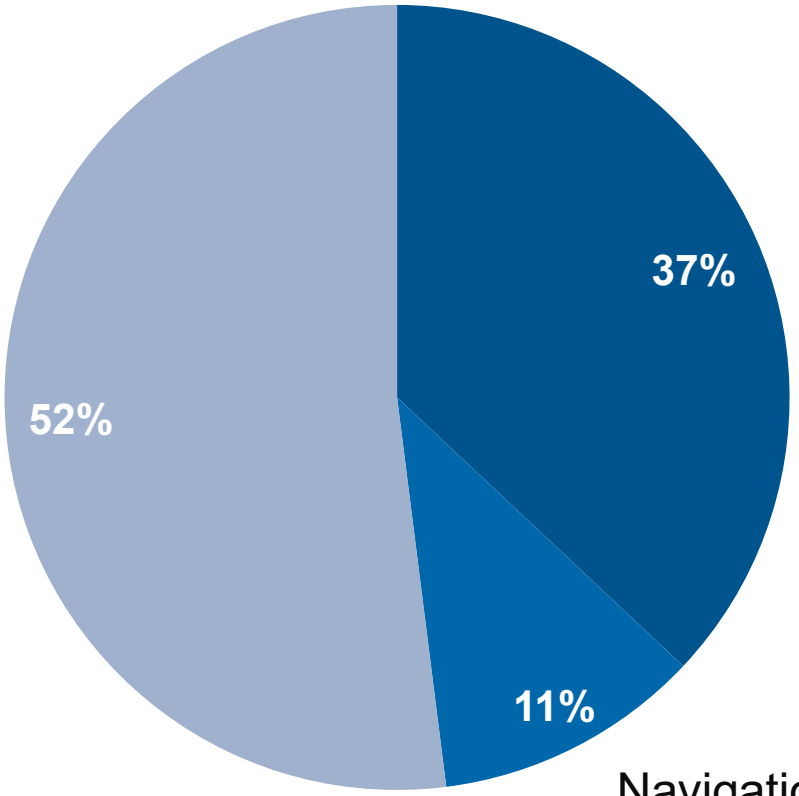
- **Do** advanced research
- **Don't** design to one particular type of screen reader
- **Do** test with several types of assistive devices/software
- **Do** test with users familiar with the technology
- **Do** plan for multi-phase testing
- **Do** provide your programmer access to commonly used assistive technology/time to familiarize self with it

Challenge 4: Responding to technical issues

- Different technologies may respond differently to various aspects of the programming
  - Not always possible to facilitate all in the same survey
- Assistive technology adds another layer for error
  - Determining source of error – survey itself or assistive technology
  - Replicating errors without access to the specific technology used

Challenge 4: Responding to technical issues

- Breakout of technical issues



Unable to recall password

General navigation issues (e.g., tab versus enter)

Navigation errors affiliated with screen readers

N= 27

Challenge 4: Responding to technical issues

- Sampling of comments on survey usability and design from actual respondents:

  - *"I filled [the survey] out with no problems…Maybe my using jaws might have helped, I've heard on other lists, that people who use window-eyes had some [trouble]."*
  - "*Could have put more questions on a single page which would have helped speed up the time"*
  - *"Some of us have noticed one technical issue...at the very beginning after you enter your user name. IF you immediately hit the enter key, all works well from there. But if you tab to the submit button and enter there, you get taken all the way to the end of the survey. IT took me 3 tries to get the thing started and two other [organization] members reported this problem to me. I told them How I got around the problem and they were able to do the survey."*

*obtained directly via respondent emails or from posts on various online discussion boards

Challenge 4: Responding to technical issues

- Ability to log into the survey multiple times in case of survey logout issues with technology
- Help Desk/technical assistance
- Multi-mode options

Practical Tips

Practical Tips

- Consider the audience
  - For populations with a high proportion of respondents with disabilities
    - *Design web surveys for ease of use (e.g., avoid grids, place several questions per page, eliminate unnecessary visuals)*
    - *Factor in extra time for completion*
    - *Test with members of the target audience using various assistive technology*
  - For all survey populations
    - *Consider a multi mode options*
    - *Utilize log in/log out ability for long or complex surveys*
    - *Consider how the survey experience will differ for respondents with and without disabilities (e.g., underlining, visuals)*

Web Survey Accessibility Basics

- People first language (e.g., woman who uses a wheelchair)
- Enlarging
- Screen readers
- Color inversion
- Different browsers
- Accessibility to individuals with memory problems, attention problems, and/or reading and comprehension problems (e.g., dyslexia)

References

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Q&A

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