

Including People with Disabilities in User Testing

Story about Katie Lally & a complicated wheelchair ramp

I'd like to begin today with a story about Katie Lally, a young woman from Scotland who uses a wheelchair due to bulbar palsy. After lobbying for a couple year's Katie's mother successfully convinced the local council to build a ramp so that Katie could more easily get in and out of her house. The ramp was built and this is the result.

The ramp is complicated. It has 10 levels, takes up the entirety of their front yard, and attracts lots of skateboarders. The council strictly followed their internal guidelines related to how ramps should be built rather than prioritizing the experience of the person using the ramp. They've obviously followed the law to adhere to the maximum level of gradient, but perhaps, in this case, the law wasn't written to consider a building with a front entrance like this particular apartment complex. They have made the building "technically" accessible without considering the actual needs of the users.

I wanted to share this story, because working in the digital space, we can also fall into this trap as well. Making sure things are "technically" accessible rather than actually usable by people with disabilities.

Background on Digital Accessibility

So what is digital accessibility? Digital accessibility means making electronic content available to and usable by everyone, including, and especially, people with disabilities.

If you need to make an argument as to why accessibility matters, here are three of the most powerful. Depending on the point of view of your stakeholders, you may choose one or a combination of these. The arguments are to improve lives of people using your product, reach a wider audience, and avoid lawsuits. As long as the website is accessible, it doesn't matter what the motivation is.

According to the U.S. census bureau 19% of the U.S. population has a disability. These disabilities fall under four, broad categories, mobility, cognitive, visual, and auditory. And I'd also note that these are people who 'self-identify' as having a disability. It's important to remember that some disabilities can be temporary. You may break your arm and end up using the keyboard instead of a mouse for a few months, for example. Some people with disabilities use assistive technology, AKA, "AT".

Assistive Technology Examples

What are we talking about when we talk about assistive technology?

People with visual disabilities may use:

- Screen Readers (meaning the text on the screen and the interactivity options are read aloud to them)
 - JAWS (industry standard)
 - NVDA
 - VoiceOver (Mac & iOS)
 - ChromeVox
- Screen Magnifiers (ex. ZoomText)
- High Contrast Keyboard
- Refreshable Braille Display

People with auditory disabilities may use:

- Captions
- Transcripts
- Assistive Listening Devices
- TTY or TTD machines

People with mobility disabilities may use:

- Wheelchair or scooter
- Mouth or head wand
- Eye-tracking devices
- Alternative input devices (rather than a traditional mouse)

WCAG

Stands for **Web Content Accessibility Guidelines**. Newest version is 2.1. The standards are developed and maintained by the Web Accessibility Initiative, which is a subgroup of the W3C, the main international standards group for the web. The WCAG standards are helpful, but can be overwhelming and somewhat intimidating.

Success Criteria – For each guideline, testable success criteria are provided to allow WCAG 2.0 to be used where requirements and conformance testing are necessary such as in design specification, purchasing, regulation, and contractual agreements. When you use an automated testing tool, like WAVE or Site Improve, usually the tool is checking against these success criteria.

Levels of Conformance

- **Level A** Easiest to implement, high impact on a broad array of users, low impact on presentation & business logic of the site.
- **Level AA** High impact, but sometimes only specific user populations. Adherence to these criteria may impose changes to a system's presentation or business logic.
- **Level AAA** More difficult or expensive to adhere to. Success criteria are focused on improvements for specific user populations.

Proper WCAG compliance satisfies criteria in Level A and Level AA.

WCAG Example: Navigation

In the WCAG reference document there are sections. One of the sections is Navigation and there are sub-sections. These bullets are examples of the criteria and you can see their associated Levels.

Focus order is a Level A. It means the order of the items when using a keyboard to navigate through the page. This would be important for anyone using a keyboard, including people who are blind or have mobility disabilities. Benefits many people.

Focus visible is a Level AA. It is important for people using the keyboard, but does not have an impact on blind users. Benefits a few users.

Showing your location within pages (breadcrumbs or site map) is a Level AAA. Helpful for users with short attention span and might become confused when following a long series of navigation steps. Benefits a small number of users with a specific disability.

IMPORTANT Nobody has ever been sued because they didn't meet a specific WCAG Level or violated certain specific criterion. None. Never. In all cases I'm aware of, organizations get sued because users can't accomplish core system tasks, irrespective of any specific WCAG Level. The only time WCAG Level comes into play is when determining settlement criteria. In other words, you're better off focusing on usability for persons with disabilities than you are on WCAG Level, instead using WCAG information (both normative and informative) as a resource for learning and reference for staff and vendors.

That being said, WCAG is very important for learning and reference. It should not be discounted, but it should not be assumed that your product is usable by someone with a disability just because you are successfully passing any automated WCAG checkers.

POUR

To keep accessibility in mind and make it more human-centered, rather than standard-centered, keep the acronym POUR in mind. Move beyond "technically" accessible with these concepts:

- **Perceivable:** Content must be consumable by screen readers and other

assistive technologies. Websites and apps that require sight or hearing won't pass the test of perceivability.

- Operable: People with disabilities need to be able to operate websites and applications with a variety of tools. Keyboard access!
- Understandable: Understandable websites use clear, concise language and offer functionality that is easy to comprehend. Consistency in navigation and forms.
- Robust: Follow development standards. Write clean code. It should work on any tech.

Considerations for AT Users

- Keyboard interaction and other alternative, non-mouse input devices
- Navigating by list of headings
- Navigating by list of links
- Increasing content size through magnification

Why Testing with Actual Users is Important

Automated accessibility testing tools like WAVE are helpful, but only ensure that a site is 'technically' accessible. It does not ensure that your site is usable by people with disabilities.

Even on the WAVE help documentation, it says *“WAVE is tool to help web developers make their web content more accessible. WAVE cannot tell you if your web content is accessible. Only a human can determine true accessibility.”*

Here are two recent, real-world examples of accessibility issues. The first is one that an automated checker would detect. On the CNN website, they use filters for news topics like Politics, Money, and Opinions. However, instead of using actual HTML labels on the radio buttons, they have used images of the words, meaning that screen reader users are given no information about what the radio button does. The screen reader will just read it as “Radio button, 5 of 10” which is basically useless.

The second example is not as straightforward and would not be detected by an automated testing tool. This is in Peoplesoft, where you can choose accessibility options. The SAVE button is at the top right, rather than at the bottom of the form, so it is missed by many screen reader users, who are used to a typical form layout. This is why it's important to follow existing design patterns.

5 Things Automated Accessibility Testing Tools Won't Tell You About

- Alt Text accuracy - Alt text isn't required for decorative images and can add to cognitive overload. Also, alt text doesn't need the words 'image of...' it's redundant.
- Headings - AT users navigate by headings; heading tags should not be used for formatting, rather to represent an outline of your site's content
- Keyboard access - AT users or people with mobility issues may use the keyboard, not a mouse. Make sure you have: focus indicator, equal functionality, avoid traps
- Links - Link language is important: avoid *learn more*, *see all*, and *click here*. Use more than just color to indicate links, make sure content revealed on hover state is accessible. Title attribute is not read by screen readers. Make sure that your anchor text is relevant and useful.
- Videos - need transcript or captioning. One is required, both is best. Make sure video playback controls are accessible via keyboard and don't result in traps.

Harvard's Experience Building a Participant Pool for Accessibility Testing

Creation & Recruiting

I oversee the User Research Center at Harvard Library, Harvard's only usability & accessibility testing lab. When working with campus partners, it proved challenging to recruit users of assistive technology for user research. We would sometimes rely on staff members with disabilities to help review products, which is helpful, but it's not part of their regular day-to-day responsibilities.

Myself and staff members from IT & University Disability services received internal grant funding to support the development of an accessibility testing participant pool.

We now have over 40 people in a participant pool who use JAWS, NVDA, VoiceOver, ChromeVox, and ZoomText. They can be recruited to participate in usability testing.

Our recruitment strategies included:

- Tabling at job fairs for people with disabilities; Braille handouts
- Announcement at local affinity groups (NFB chapter & ViBug)
- Email blasts to mailing lists
- Advertisements in newsletters
- Announcements at meet-up events

Lessons Learned

Meeting Logistics

- Designate a meeting place & contact numbers
- Write good directions. Really, really good directions. Ask someone with a disability help you write them.
- Know how to behave with service animals.
- Consider etiquette training for staff

Test Design & Planning

- Make sure that you provide enough context
- Update language in your script to be as inclusive as possible
- Do a 'dry run' of the test with a partner who is familiar with testing with assistive technology to catch any obvious technical problems
- Allow for additional time for testing sessions with AT users
- Multiple tests per visit
- Not everyone is technology expert

Test Sessions

- Offer adjustable lighting like a desk or floor lamp
- Screen recorders (Morae, Quicktime) don't capture the 'zoomed in' state; use over-the-shoulder camera instead
- Offer screen reader users headphones (or don't); depends on the moderator and participant.
- Personal devices or peripherals, versus consistency
- Give participants time to make adjustments to settings on the software they use

Wrap-Up & Questions

What did we spend our grant money on? Staffing. Defining these workflows of people signing up for the pool, staff wanting to do a test, sending out recruitment emails for that particular test, scheduling people, paying people. All of these steps take time and work. We now have a part-time person, who we hired from the pool, to help us with these workflows. She works about 8-10 hours a week.

To wrap up, my advice is to start somewhere and try not to get overwhelmed. Just as you can get overwhelmed with trying to understand every facet of WCAG standards, you could also get overwhelmed by making sure that you have people with all types of disabilities included in your user research. But you have to start somewhere and including at least one

person who is an assistive technology user in your user research is going to broaden your understanding and will make your site more usable. Keep the focus on making your product usable by everyone, no matter how they're accessing it.

“How many opportunities do we have to dramatically improve people's lives just by doing our job a little better?” - Steve Krug