User Research with People with Disabilities: What you Need to Know

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Icebreaker
When the process of refining is complete, the next step is to implement the changes live.

ULTIMATE SMACKDOWN!

QUALITATIVE VS QUANTITATIVE

UXPA Boston 2018 4:15 in Back Bay C/D
Goals
Goals

• In most ways, user research with people with disabilities (PWD) is no different
• However, there are several areas you need to pay just a bit more attention to so your sessions run smoothly
• Provide tips for user research with three categories of disability
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Background
Background

• User Experience Center (UXC)
• Consulting group at Bentley University
• Provides user experience research, evaluation, and design services
**Background**

Integration with award-winning graduate program in Human Factors in Information Design

A breadth of methodologies tailored to Client’s market needs to improve customer experience

Rich & diverse collective team experience in design and UX research

![Integration with award-winning graduate program in Human Factors in Information Design](image)

![A breadth of methodologies tailored to Client’s market needs to improve customer experience](image)

![Rich & diverse collective team experience in design and UX research](image)
Background

- 2015 – 2017 the UXC worked with several clients on usability testing with people with disabilities.

<table>
<thead>
<tr>
<th>Industry</th>
<th>Disability</th>
<th>Blind</th>
<th>Low Vision</th>
<th>Color Blind</th>
<th>Motor</th>
<th>Learning/ Cognitive</th>
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<tr>
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<tr>
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<td>1</td>
<td>6</td>
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What you Need to Know
Motivation
Why should we do this?
Motivation

• It is a really small population, right?
Motivation

• 54-56 million (19%-22%) in US have disability.
  • https://www.cdc.gov/ncbddd/disabilityandhealth/infographic-disability-impacts-all.html
• Globally about 1 billion have a disability.
Motivation

Vision
- Blind
- Low vision
- Color blind
- Use screen reader (e.g., JAWS) or screen magnifier

E.g.: Joe (blind)

Learning and Cognition
- Learning disabilities: e.g., Dyslexia & ADHD
- Autism Spectrum Disorder
- Down Syndrome
- Traumatic Brain Injury

E.g.: Jamie (ADHD)

Motor/Mobility
- Can’t use a mouse or keyboard
- Use voice recognition software or adaptive pointing device
- Use wheelchair

E.g.: Adriana (Cerebral Palsy)

Deaf and Hard of Hearing
Motivation

When the process of refining is complete, the next step is to implement the changes live.

Motivation

• As we age we encounter similar issues
  • Vision loss, e.g., Low vision, blindness
  • Hearing loss
  • Mobility/Dexterity, e.g., Arthritis
  • Cognition, e.g., Dementia/Alzheimer’s Disease

• Everyone can experience temporary disabilities

• Veterans
Motivation

• We test for accessibility so we are all set, right?
Motivation

• We test for accessibility so we are all set, right?
  • Definitely going in the right direction
  • WCAG 2.0
• For example:
  • Keyboard access
  • Assistive Technology (AT) e.g., Screen reader access
    • Alt Text on images
  • Appropriate use of color
  • Captions on videos
Motivation

• Accessible may not equal usable
• Users may be able to access a product but not accomplish their goals
Motivation

- Is this door accessible?
- Is this door usable?
Planning for User Research
Planning

- Ensure a baseline accessibility before usability testing
  - Ideal: all basic accessibility issues are fixed:
    - Alt text
    - Keyboard and screen reader navigation
    - Color contrast
    - Video captioning
  - Reality:
    - Know what is not fixed and focus on big picture (task flow and overall experience)
    - Use findings to drive home importance to team
Planning

• Encourage participants to bring their own equipment
  • Laptop with assistive technology (screen readers, screen enlargement)
• Have a backup plan for assistive tech
  • JAWS free (40 minute demo mode): https://www.freedomscientific.com/Downloads/JAWS
• Borrow from Easter Seals: http://www.easterseals.com/ma/our-programs/assistive-technology/
• Allow additional time for sessions
  • Typically we like to allow 30 minutes in-between sessions when we are testing with people with no known disabilities
  • Recommend 60 or 45 minutes in-between sessions for
    • Logistics, participants running late, getting settled in testing environment
    • Set up and resolving any technical issues
    • Ensuring video capture and recording is working
Planning

• Accessible Directions
  • Use text-based Word rather than PDF
  • Provide step-wise directions + maps
  • Note the location of accessible (handicapped) parking spots
  • Get participants’ mobile phone numbers
    • Coordinate drop-off point for Lyft/Uber
  • Best practice to guiding blind participants
    • https://www.youtube.com/watch?v=dnTRtWDFz84&feature=youtu.be
  • Test out directions beforehand
Planning

• Sending GPS coordinates for drop-off
Planning

• Step-wise directions

After you leave your car go towards the left, you will see the Smith Academic Technology Center, (BS7 on the map) straight ahead. A member of our staff will be waiting for you outside of the building.

Once we are inside the building, we will head through two doors and down a hallway to get to the User Experience Center (room 223) for your session.

The trading room with its glass wall extending down the hallway will be on your right. Room 223 is located directly across the hallway from the trading room. It will be on your left.
Recruiting
Recruiting

• Focus the recruiting strategy
  • If you work with an external recruiter ask about experience working with PWD
  • Reach out to organization that have access to various types of disabilities, e.g.:
    • Carroll Center for the blind - carroll.org
    • VIBUG (Visually Impaired User Group) Boston – vibug.org
    • Autism Speaks - www.autismspeaks.org/new-england/massachusetts
• Use social media hashtag #a11y
Recruiting

• Documentation
  • Ensure all documents such as surveys screeners, consent forms, etc. are accessible
  • Keep it simple, avoid PDF, use simple Word or text based emails
  • Do not need to invest in Braille as not all blind people read it
  • Email confirmation is equivalent to signatures.

• Confirm participant needs
  • In screener or phone call discuss AT and other accommodations
Recruiting

• User Profiles
  • Don’t test with all experts on AT such as screen readers
    • Everyone is not expert on their assistive technology
  • Participants should match your user/customer profile – domain knowledge

• Different strategies for a usability test:
  • Range of disabilities: visual, learning, motor, hearing etc.
  • Bring in a small number of PWD in a larger pool of non-PWD
  • Focus all participants on category of disability
Recruiting

• Consider transportation costs
  • Consider covering cost of transportation (Taxi, Lyft/Uber) or increasing incentive.
  • If participants mention they will get the Ride consider alternatives or the pilot with Lyft/Uber:
    https://www.mbta.com/accessibility/the-ride/on-demand-pilot
In-Person vs. Remote
In-Person vs. Remote

• In-person and remote usability testing has pros and cons.
• Remote usability testing.
  • Advantages:
    • We can experience participants’ technical environment (computer with AT)
    • Eliminate burden/cost of travel
  • Disadvantages
    • Challenges with screen reader users with remote access/screen sharing applications.
    • WebEx, GoToMeeting are not accessible
In-Person vs. Remote

• Zoom
  • Has potential since accessibility taken seriously
  • [https://zoom.us/accessibility](https://zoom.us/accessibility)
    • “Zoom services are now compatible with standard screen readers such as VoiceOver on iOS and OSX platforms, TalkBack on Android devices, and JAWS and NVDA for Windows platforms”
  • Keyboard shortcuts
  • Need to more use with screen reader users
  • Recommend initial meeting to go over set up prior to session
Moderation
Moderation

• Participants with visual disabilities
  • Test out all recording equipment/processes beforehand
  • Ensure all audio including both human speech and from screen readers will be recorded correctly
• Adjust the locations of the microphones for optimal recording
• Participants with visual disabilities
  • Do not treat service animals as pets
  • Provide space for the animal and do not pet it unless the participant gives you permission
Moderation

• Participants with visual disabilities
  • Do not be afraid to use phases such as “see” or “look” and similar words when talking to blind participants; for example:
    • “please take a look at the bottom of the page”
    • “what do you see in the navigation menu”? 
  • Do not talk over the screen reader
  • Don’t be afraid to ask the participant to summarize at natural pauses in the flow
Moderation

• Participants with motor disabilities
  • For participants that use voice recognition software it is critical that they bring their laptop
    • Participant trains software to recognize voice
  • Make sure the table can accommodate a wheelchair or the height is adjustable.
    • According to the ADA, conference tables must be 27 inches high
Moderation

• Participants with motor disabilities
  • In the directions, make sure the route is accessible (elevators rather than stairs)
  • Note if doors have accessible door controls
    • If not you may need to meet/guide the participant to the testing location
  • Note the nearest accessible restrooms to the testing location
Moderation

• Participants with cognitive disabilities
  • Provide instructions in multiple modalities, (e.g., written and verbal)
  • Be patient and be prepared to repeat the task or ask the same question multiple times
  • Be prepared to break tasks in smaller sub-tasks to support memory/attention challenges or fatigue that may set in
Moderation

• Participants with cognitive disabilities
  • Be consistent with tasks for all users, however...
    • Go off-script or modify tasks on the fly if the current approach is not working
  • Participants’ comfort and well-being is the number one priority at all times
    • Take multiple breaks or end the session early if things are just not working out
Moderation

• Participants with cognitive disabilities
  • If caregiver accompanies the participant
    • Review protocol with them before session
    • If the caregiver is needed for communication between moderator and participant make sure all audio is recorded
Take Aways
Benefits of Usability Testing with PWD

• Usability Testing tasks focuses on the end-to-end process (big picture)
  • Focused on user goals/context of use
  • May or may not line up with accessibility issues
  • Usability testing can identify problems that may not be identified during accessibility testing
  • A real user may do things very differently than in any accessibility test case
• Chemical Company Job Description
• Task: applying for a job
• when Joe heard the “About <Company>” he assumed there he was at the end of the job description and did not continue on
• Therefore missed important information about company benefits
When the process of refining is complete, the next step is to implement the changes live.

- Chemical Company Job Description

About [Company and in agriculture, materials science and specialty products sectors that will lead their respective industries through productive, science-based innovation to meet the needs of customers and help solve global challenges. For more information, please visit us at [website].]

Offers
- Competitive salaries and comprehensive benefits
- An annual variable pay program that rewards team and individual performance while sharing success across the company
- Employee stock ownership - and the commitment to long-term success that it brings
- Ongoing learning opportunities within a diverse, inclusive and rewarding work environment
- Career experiences that can span businesses and functions with opportunities for personal and professional growth
- The chance to work within a global company and interact with colleagues from around the world
- Opportunities that spark your imagination and ignite your passion to help others
- Supports a diverse workforce and an inclusive environment. We welcome talent regardless of background, age, gender, religion, disability and sexual orientation.

APPLY NOW
Context of Use – Example 1

- Chemical Company Job Description
- Video clip with Joe
Context of Use – Example 2

• Bank site with page for applicants with disabilities

• Assumed “Applicants with Disabilities” page would be customized for PWD
  • “Oh no, really?! ...I thought I was going to go to a page that would have a screen reader friendly page or TTY number for people who are deaf...feels like I was tricked”

• bank web site usability testing participant
Context of Use – Example 2

- Bank site with page for applicants with disabilities
Conclusion
Benefits of Usability Testing with PWD

• Usability Testing tasks can focus on the end-to-end process (big picture)
  • Focused on user goals/context of use
  • May or may not line up with accessibility issues
  • A real user may do things very differently than in any accessibility test case
  • Accessible does not necessarily mean usable
Moving Forward

- Accessibility should be integrated into entire design and development process
  - Developing user personas and reviewing wireframes, e.g., asking how will someone only using the keyboard or a screen reader access the primary navigation menu, etc.
Moving Forward

• Conduct accessibility testing
• After the “big” issues resolved conduct usability testing with individuals (with and without disabilities)
• Can test in-person or remote.
• Best if participants can use their own AT
Moving Forward

• Sarah Horton and Whitney Quesenbery – A Web for Everyone.
• http://rosenfeldmedia.com/books/a-web-for-everyone/
When the process of refining is complete, the next step is to implement the changes live.

- **UX Personas**
  - with people with disabilities

**Trevor:** High school student with autism

"I like consistent, familiar places on the web."
Thank You!

Questions?

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