

RESNA 2022 CONFERENCE
DRIVING THE FUTURE OF ASSISTIVE TECHNOLOGY

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Designing an app for alternative access assessments: using prototypes and user studies to evaluate and improve the design

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Today's talk

- Brief overview of the Access Assistant project
- Background on our user-centered design process
- Details about one of our user studies
- Lessons learned

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Challenges with Alternative Access


- Alternative access methods help people with motor impairments control technology
- But people don't always get methods that are the best fit for their needs
- Why not?
 - Difficult to carry out systematic, evidence-based assessment process
 - Existing assessment tools can be cumbersome, time-consuming, or incomplete
- Goal: improve the process so that more people get what they need



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Access Assistant – Proposed solution

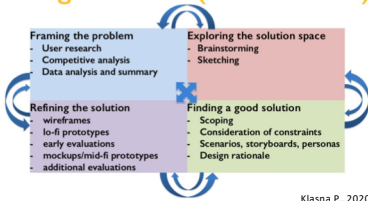
- Develop Access Assistant software
- Web-based tool to guide access assessments
- Improves the quality of the assessment process:
 - Leads teams through a repeatable, systematic process
 - Incorporates performance measurements for evidence-based decision-making
- Will be freely available



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Access Assistant – Design process

Design Process (In a Nutshell)



Klasna P., 2020

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Access Assistant – User-centered design timeline

1. Product Definition ✓	2. MVP Initial Design ✓	3. Refined Design and Content ✓
How <ul style="list-style-type: none"> • User interviews • Benchmarking What <ul style="list-style-type: none"> • List of requirements • Personas • Scenarios • Basic workflow 	How <ul style="list-style-type: none"> • Iterative ideation • Wireframe design What <ul style="list-style-type: none"> • Refined product definition • User-vetted wireframe UI • Tech stack requirements 	How <ul style="list-style-type: none"> • Larger user study • Clinical content development What <ul style="list-style-type: none"> • Refined wireframe UI • Tech stack selection
oct 2020 – feb 2021	mar – may 2021	jun – nov 2021

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Study goals

- Get detailed feedback on the Access Assistant wireframe prototype
- Content – are we covering all the important pieces?
- Workflow – do the screens and sections connect in ways that make sense?
- Usability – what’s confusing? What’s delightful?
- How can we improve it?



Wireframe prototypes for the study

- Use Balsamiq tool to make wireframes
- Explore workflows for planning ahead for an eval as well as conducting an eval.
- About 60 screens in the design!
- Scenario 1 – AT coordinator in a school district, working with a student with complex communication needs
- Scenario 2 – OT at a rehab hospital, working with a woman with a recent C6 spinal cord injury



Participants

- 8 AT practitioners who provide assessment and interventions in alternative access for people with severe motor disabilities
- 4 OTs, 3 SLPs, 1 Rehab engineer
- 4 healthcare, 3 school, 1 community
- 2 fairly new, 2 moderate, 4 highly experienced



Procedures

- Single 1-hour session with each participant, via Zoom
- Participants selected one of the two scenarios to view
- Researcher demonstrated the scenario, using the prototype
- Participants encouraged to think out loud during the demo
- Sessions recorded, then transcribed using Otter.ai



Data collection

- Feature questions
 - 11 specific open-ended questions after the demo
 - Revisited particular wireframes
 - E.g., "Looking at this screen related to visual abilities, is this approach a good way of doing it? Or what do you think might meet your needs better?"
- Also included an interest rating for the features
 - 4-point scale, from 'take it out' to 'must-have'
- Overall ratings
 - 5 Likert-type agreement items
 - E.g., "Overall, Access Assistant seems easy to use."
- Text transcription of the entire session



Data analysis

- Basic statistics for agreement and interest ratings
- Thematic analysis of transcripts
 - To identify actionable items as well as variation between participants
 - Trello lists for:
 - responses to each question
 - Confusions / Concerns, Feature Requests, and Likes
 - Sort and summarize each list



Key study results – some positive comments!

"Yeah, I would use this. I can't wait to use this."

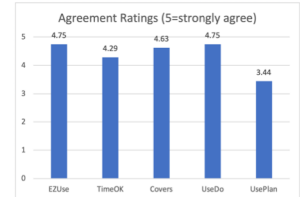
"I like how it's set up!"

"If I had this when I first started, I wouldn't feel as intimidated going into my first assessment."



Key study results – agreement ratings

- High agreement that:
 - They'll use Access Assistant with their clients
 - It's easy to use
 - It covers the important aspects of the assessment process
 - Time required seems OK



Key study results – feedback on our 12 specific features

- Six 'must-have' features:
 - Learn More links
 - Gather info about client's contexts of use
 - Include vision eval info
 - Free-choice activity
 - Build-in activities
 - Session report
- Three 'nice-to-haves'
- Three 'not-really-necessary'
- Helps prioritize our development resources



Key study results – synthesis table

- Ties together all of the feedback across each feature question
- Example for 3 high-rated features:

Feature	Rating	UI change needed?	New related features requested?	Summary from Table
Learn More links	4.00	No	No	Everyone liked the Learn More links. Even an experienced person may have areas they aren't as familiar with, and it would be very helpful for those who are new to AT evals. Participants liked the report as a way of objectively communicating what occurred in the session and sharing that with all stakeholders, including teachers, referral sources, and funders. They like getting such a comprehensive report without any extra work, while still having the ability to customize it if desired. <i>It thumbs up!</i>
Session report	3.75	No	Yes	Participants understood the distinction and see the need for both types of activities. May want suggestions of what to look for during your-own activities.
Free-choice activity	3.75	Suggest things to look for	No	

- Also about a dozen new feature suggestions for us to consider
- We voted as a team for which of those features to consider sooner / later / never



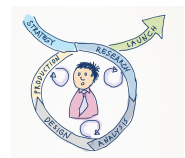
Implications for our project

- Combined with our first user study, we've had 12 practitioners review our design in detail
- Encouraging results suggest that:
 - The proposed Access Assistant app meets important user needs
 - The design is on the right track
- Focus on first building the "Do an Eval" section
 - First support the "full access" goal and free-choice test-drive activities

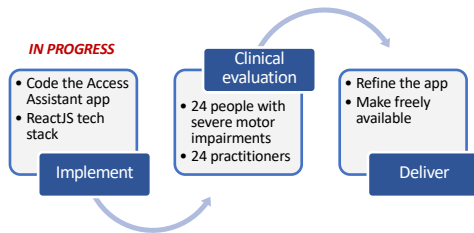


Implications for other projects (like yours!)

- Tremendous value in following a user-centered design process
- Involve users in the early stages, to help ensure that the design addresses and solves real user needs
- Does not require a lot of resources
- Just do it!



Access Assistant – Current and Future Work



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For more information

Contact Heidi Koester at hkh@kpronline.com

- Let us know if you want to give Access Assistant a try
- See our RESNA papers for more details on the user-centered design process:
 - kpronline.com/pubs
 - 2022: "Designing an app for alternative access assessments: using prototypes and user studies to evaluate and improve the design"
 - 2021: "Designing an app for computer access assessments: using interviews to uncover and define user needs"
- Attend the RERC overview session, Friday, Jul 15, at noon – 1pm.
- Thanks for being here!

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- For more information, please visit our website at rerc-aac.psu.edu

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