Accessible Voting Systems: Can Demonstrations Improve Use?

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Abbreviated Version of CSUN 2013 Presentation

Research Hypotheses

- Demonstration/training will increase voter ability to use access features
- Demonstration/training will increase likelihood a voter will go to a polling place and use the AVS to vote (if they did not currently do so)

Demonstration Overview

- Demonstrations were conducted in 3 states (IL, MO, ND)
- AVS demonstrated was the machine that participant voter would use at their polling place
- Demonstrations were done by assistive technology specialists with experience in conducting AT demonstrations
- Demonstrations provided guided exploration and supported use of access features sufficient to enable the voter to use the features independently

Data Collection Overview

- Voter characteristics, disability type, age, current use of assistive technology (AT)
- Demonstration time (in minutes) required to become independent using access feature(s)
- Post demonstration - time (in minutes) to complete standard ballot using access feature
- Open ended request for suggestions to improve access feature(s) used
- Pre and post rating of comfort using the access features (voter self rating)
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Demonstration Data Summary

- 178 total demos conducted
- Disability types: vision – 52%
  motor – 33% intellectual – 25%
  hearing/speech/other – 13% to 6%
- Age: seniors – 44%
  middle aged – 41%
  young adults – 15%
- AT Use: 60% total; only 8% with AT experience transferable to AVS (screen reader, screen enlargement, etc.)

Demo Data by Access Feature

TABLE 1						
Access Feature	N	Minutes to Independent		# Never Independent	Minutes Complete Ballot	
		Mean	Max		Mean	Max
Large Visual Display	97	5.48	20	5 (5%)	10.68	30
Speech Output & Tactile Keypad Input	41	4.29	15	5 (12%)	10.34	30
Synchronized Speech and Visual Display	21	4.76	15	0	10.14	25
Switch Input	3	2.67	4	0	12.67	25
Other *(Regular features w/wo AT)*	16	3.57	15	0	6.89	22

Demonstration Time Required

TABLE 2						
Minutes to Independent Use	Never Reached	20-15 minutes	14-10 minutes	9-5 minutes	4-3 minutes	2-1 minutes
N	10	17	16	46	25	64
Percent	5.62%	9.55%	8.99%	25.84%	14.04%	35.96%

Demo Based Recommendations

1) Larger text display – AVS “large text” is not nearly large enough
2) Larger touchscreen strike areas and adjustable sensitivity
3) Improve audio navigation and general instructions
4) Improve switch input navigation

Pre/Post Rating Data

- Self rating of comfort using the AVS on 1 to 10 scale before and after demo
- Pre-demo mean = 5.46 (somewhat comfortable)
- Post-demo mean = 8.41 (very comfortable); almost 3 point increase
- 91% of demo participants reporting increase in comfort using the AVS

Analysis/General Findings

- Demo/training does seem to be a strategy to use to improve use of AVS
  - Less than 10 minutes will be effective for a majority of voters
  - But will NOT be effective for all individuals
- Poll workers cannot be expected to provide this kind of demonstration during an election. Many of them could benefit from demo/training
- Need AVS demos to be widely available throughout the community on an ongoing basis to ensure all voters can participate in a demo if they so choose

Challenges to Address

1) Obtaining AVS for demo purposes
   - Jurisdictions hesitant to lend
   - Vendors reluctant or refuse to sell
   - Ballot must be programmed
2) Reaching very specialized disability populations (i.e. switch users)
3) One-on-one demo time demands
4) Collecting sample ballot completion data from demo participants
   - Performance anxiety?
   - Time limitations?

Future Research

1) Replicate in OK and NJ and expand in IL
   - OK with state unique AVS (renting from vendor)
   - NJ may provide jurisdiction where all voters use electronic interface
2) Implement targeted outreach for voters who would need switch input access feature
3) Recommend best practice strategies for conducting demos (develop written materials?)
4) Develop resource guide describing functional limitations of individuals with disabilities, access features of AVS, and association between the two

In Conclusion . . .

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Research Alliance for Accessible Voting
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