

Accessible Voting Systems: Can Demonstrations Improve Use?

Abstract for NIST Accessible Voting Technology Research Workshop

Dr. Diane Cordry Golden (diane.golden@ataporg.org or 816.616.7668)

The Association of Assistive Technology Projects (ATAP) is part of the Research Alliance for Accessible Voting (RAAV). To date, ATAP has developed, implemented and gathered data on voting system demonstration activities in three states, Illinois, Missouri and North Dakota. The voting system demonstrations were provided by experienced AT Program staff and were designed to familiarize voters with all types of disabilities with the accessible voting system used by their voting jurisdiction. A pre and post test was administered to each person participating in the demonstration asking them to

- rate their level of comfort using the accessible voting system on a scale of 1 to 10;
- indicate how they typically vote (at polling place, absentee, etc.); and
- indicate the reason why they vote absentee or not at all

Basic demographic data (e.g. age range, type of disability, prior AT use) was reported on each individual participating in the demonstration. Observations by the person providing the demonstration were used to report the type of access feature(s) used, the amount of time it took for the voter to become independent using these access feature(s), and what could have been done to improve the access features to better meet the voter's needs. Each demonstration participant was also asked to complete a relatively short standard ballot at the conclusion of the demonstration with data collected on the time it took to complete that ballot. This ballot included 6 races with 5 to 15 candidate choices (5 races were vote for one and 1 race was vote for 3), 1 proposition and 1 amendment.)

The initial hypothesis for this project was that voters who participate in a quality demonstration/ training of the accessible voting system will be more confident and able to use the access features of the voting equipment and will be more likely to go to a polling place and use the accessible voting system (if they do not currently do so). If the results were positive, the goal was to use the data to expand the project and eventually develop recommendations for how to implement comprehensive demonstration/training activities to increase the number of voters with disabilities who are able to use accessible voting systems to vote privately and independently (as was the vision of HAVA).

A total of 178 demonstrations were completed during the initial project period of March 2012 through January 2013. Data was collected on the demonstration/training time each

participant required to become independent in feature along with the time required to complete the standard ballot using the access feature. Table 1 summarizes this data.

TABLE 1						
Access Feature	N	Minutes to Independent		# Never Independent	Minutes Complete Ballot	
		Mean	Max		Mean	Max
Large Visual Display Output	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 Output	21	4.76	15	0	10.14	25
Switch Input	3	2.67	4	0	12.67	25
Other	16	3.57	15	0	6.89	22

Aggregate data on the minutes of demonstration/training required to reach independent use of the access feature is summarized in Table 2

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%

For each demonstration/training, the participant and/or staff provider was asked to report any recommendations they would make to improve the access feature(s) to better meet the needs of the demonstration participant. A very frequent recommendation was the need for larger test sizes (the current large text size is far too small). Other common recommendations included improved audio ballot navigation, improved switch navigation software, and larger/adjustable strike areas on touch screens.

The mean comfort rating provided by participants prior to the demonstration/training was 5.46 (with a maximum of 10) and the post comfort rating was 8.41. This represents a 2.96 point increase in self-rating of comfort level after participating in a demonstration/training activity. Table 3 provides a summary of the change reported by participants.

TABLE 3						
Rating Change	Plus 9-7	Plus 6-5	Plus 4-3	Plus 2-1	No Change	Minus
N	21	29	36	58	30	4
Percent	11.80%	16.29%	20.22%	32.58%	16.85%	2.25%

Pre-demonstration, 81.46% of participants reported they voted at a polling place, 6.18% indicated they voted absentee and 11.24% indicated they did not typically vote. Post-demonstration, 88.20% of participants (a 6.74% increase) reported they would vote at their polling place rather than voting absentee or not voting at all.

The overall data for this first group of demonstrations is positive in many ways and a bit perplexing in some areas. As projected (and hoped for) there was an increase in the rating of comfort level with the accessible voting system after participation in the demonstration/training. This would support the use of demonstration/training activities to increase effective use of accessible voting systems by many individuals with disabilities. However, other data clearly indicates that demonstration/training will not be successful with all individuals with disabilities. The fact that some individuals never became independent using the access features even after extensive demonstration/training suggests this strategy will not be a panacea for ensuring effective use of accessible voting systems.

Unexpected results were found in the data comparisons of the access features. One would anticipate that the more complex access features would take a longer period of demonstration/training to enable voters to become independent users. However this assumption did not hold true. On average the two most complex access features (switch input and speech output & tactile keypad input) took relatively fewer minutes of demonstration/training than the less complex access features (large visual display output and synchronized speech & visual display output). Potential reasons for this outcome is postulated based on feedback from the AT experts doing the demonstrations.

A number of challenges were identified during the project that will need to be addressed to expand activities to additional states including significant barriers to obtaining accessible voting systems to use for demonstration purposes.