Demonstration/Training Research

• Demonstration/training conducted in 6 states coordinated by the State AT Program
• AVS demo/training was on machine that participant voter would use at their polling place
• Demo/training was done by AT specialists with experience in conducting AT demos and familiarity with the AVS

• **506** demo/trainings conducted –
  – vision – 64%, motor – 27%, intellectual – 16%, hearing/speech/other – 8% to 4%
  – seniors – 47%, middle aged – 36%, young adults – 17%
Data Results

- Demo/training time needed for voter to become independent using access features ranged from 1-2 minutes to 25+ minutes or never independent
  - 51% independent in 1-4 minutes
  - 34% independent in 5 – 14 minutes
  - 15% took 15+ minutes or no independence

- Self rating of comfort using the AVS on 1 to 10 scale before and after demo
  - Pre-demo mean = 4.47 (not very comfortable)
  - Post-demo mean = 8.02 (very comfortable); almost 4 point increase
Data Results Analysis

Demo/training is viable strategy to improve use of AVS.

AVS are not intuitive or “easy” for all voters to learn -- some require extended time to learn to use AVS.

Cannot expect poll workers to provide demo/training during busy election day to help voters learn to use AVS -- need to provide opportunities to learn AVS outside of voting day.

Voters with disabilities take more time to complete their ballot using the AVS -- thus expanded early voting is helpful.
AVS Improvements Recommended by Demo/Training Participants

1) Larger text display – AVS “large text” is not nearly large enough. Further research suggests mean large text size needed is 17mm (not 6.3-9 mm of VVSG)

2) Larger touchscreen strike areas and adjustable sensitivity

3) Improve audio navigation and general instructions

4) Improve switch input navigation
Cognitive Disabilities

• "a disability that impacts an individual's ability to access, process, or remember information"
Making Voting Accessible

• Guidelines:

❑ Speak directly to the voter,
❑ Use words voters understand,
❑ Write in an active voice to help voters use the information,
❑ Avoid, or explain, election terminology
Making Voting Accessible

Some words voters may not understand or find confusing

- Absentee ballot
- Canvassing board
- Contests
- Legislation
- MVA
- Primary election
- Provisional ballot
- Ranked choice voting
- Remedial
- Unaffiliated
- Voter notification card
- Affiliate with a party
- Designate an agent
- Change parties
- Close of registrations
- Request deadline
Paraquad Poll Worker Training

Goal: Develop Improved Poll Worker Training to Better Meet Needs of Disability Community

Research Phase:

• Voter Experience Surveys
  – Phone Survey of 1,200 voters with disabilities in Missouri and Tennessee

• County Clerk Interviews
  – Face to Face meetings with 10 Missouri County Clerks
  – Understand challenges and needs for administrators
Lesson Plans

Voting Machine Features Checklist

- Show poll worker what the accessible machine looks like.
- Show poll worker where they can find technical support information in case of malfunction.
- Show poll worker accessibility equipment that can be used with the machine (headphones, keypads, buttons, etc.).
- Explain how this equipment is used (headphones for audio ballot, function of each key on the keypad).
- Show poll worker where to plug headphones in.
- Show poll worker how to start the machine and initiate a ballot.
- Show poll worker introductory screen and review options on initial screen.
- Instructions
  - High Contrast
  - Large Print
- Show poll worker how to run through a full ballot in regular voting mode:
  - Move through contests
  - Select contest
  - Move through candidates
  - Select candidate
  - Review summary of ballot
  - Change a vote
  - Cast vote
- Show poll worker how to run through a full ballot in audio mode.

Sample PowerPoint Slides and Notes

Handouts/Checklists for Poll Workers
Using the Electronic Voting Machine

AccuVote

This is the Electronic Voting Equipment at your precinct. It is set up for all voters and has features that improve accessibility.

Accessibility Equipment

The AccuVote comes with headsets and a keypad, which are used during audio voting.

Initiate Ballot

To start the voting process, insert the voter’s card into the slot shown here.

Start Up Screen

When the ballot is loaded, this screen appears. Notice the options at the bottom of the screen.

High Contrast

If a voter requests high contrast, press “High Contrast” on the bottom right of the screen.

Large Print

If a voter requests large print, press “Large Text” on the bottom left of the screen.

Adjust Screen Tilt

If the voter complains of glare on the screen or requests the screen be tilted, adjust the screen by pushing the button on the back bar and lifting the screen up.

Proper Space

When setting up the machine, make sure there is ample space between the machine and the wall for maneuvering.

Selecting Contest

To move between contests, select the “Next” button on the bottom right side of the screen.

Select/De-Select Candidate

To select and de-select candidates, just touch the name of the candidate you wish to select.

Review/Summary of Ballot

When a voter is finished moving through the ballot, a summary screen will appear. Use the arrows to review choices.

Changing a Vote

If a voter wished to change their vote in one or more contests, they will push “Reject Ballot.” All ballot choices will still be selected, the voter can change votes in the contest of their choice.

Cast a Ballot

After filling out a ballot, press “Cast Ballot” to officially record votes.

Confirmation

A confirmation screen will appear when ballot has been cast successfully.
General Findings

• Poll workers find it helpful to have variety of training methodology

• Election Day Picture Guide was well received and used by poll workers
  – 51% Used Picture Guide
  – 90% Guide was Helpful

• Picture Guide Uses
  – Voting Machines: 47%
  – Polling Place Set-Up: 36%
  – Curbside Voting: 13%
  – Other: 4%
2012 post-election survey

The Election Assistance Commission provided funds through Research Alliance for Accessible Voting (RAAV) for a nationally representative household survey on voting experiences following 2012 elections

- Total sample of 3,022 adult citizens, stratified to include 2,000 with disabilities and 1,022 without disabilities
- Survey was conducted by professional survey firm, with basic voting questions based on U.S. Census
Key results from survey

- 30% of voters with disabilities reported some type of difficulty in voting at a polling place in 2012, compared to 8% of voters without disabilities.

- Most common problems were difficulty in reading or seeing the ballot, understanding how to vote or use voting equipment, and long lines.

- People with disabilities were just as likely as those without disabilities to say they were treated respectfully by election officials.

- Among people with disabilities who voted by mail, about one-tenth reported difficulties and the need for assistance in filling out or sending the ballot.

- Asked about alternative voting methods for the next election, majorities of people both with and without disabilities say they would prefer voting in person in a polling place.
Potential solutions/best practices

1. Increased accessibility of polling places and voting equipment, including accessibility audits
2. Mobile voting
3. Poll worker training
4. Voter outreach and education
5. Permanent no-excuse mail voting
EAC funded
Research Alliance for Accessible Voting

Research on Accessible Voting
Ted Selker & Dan Gillette
subcontract performed at CMU and Berkeley
6/2011 to 6/2014

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• Dan@gilletteedesign.com
Research on Accessible Voting Projects
Ted Selker & Dan Gillette
EAC funded subcontract performed at CMU and Berkeley 6/2011 to 6/2014

- Illuminated freestanding magnifiers for optical ballot marking
  - We have begun testing them with researchers and poll workers.

- Improved audio ballot techniques
  - Published, one Japanese company implementing ideas

- Improved Low Error Voting GUI systems support ballot overview, focus and redundant feedback
  - Elements Being used in
    - Primelll
    - In MD overseas voting system
  - Anywhere ballot implementation

- Created web-based interactive polling-place design and management system
  - Being evaluated for testing in LA county and Missouri

- Created Scrim, a visual-structuring overlay web browser extension
  - Being evaluated by election officials

- Created a website font and color analysis tool
  - Being evaluated by election officials

All systems open for anyone to experiment with
Research on Accessible Voting
Ted Selker & Dan Gillette
EAC funded subcontract performed at CMU and Berkeley 6/2011 to 6/2014

- Illuminated freestanding magnifiers for paper ballot marking
  - Magnification and illumination to help ameliorate slight vision impairment
  - Free standing feature designed to help people
    - Reduce physical problems (tremor, missing limbs, etc.)
    - Reduce complexity and loss of place in ballot especially helpful for people with cognitive impairments.
Research on Accessible Voting
Ted Selker & Dan Gillette
EAC funded subcontract performed at CMU and Berkeley 6/2011 to 6/2014

• Improved audio ballot techniques
  – Audio lag and key inactivation while audio speaking is currently a huge problem
  – Reduced size and number of buttons can help increase speed and reduce errors
  – Structuring the audio experience can reduce errors in noisy environment
  – Improving Write-in Candidate Text Entry For Audio-Only Voting Interfaces, Dan Gillette, Shama Hoque, Ted Selker, 29th Annual International Technology and Persons With disabilities Conference, San Diego, Mar 2014
Research on Accessible Voting

Ted Selker & Dan Gillette
EAC funded subcontract performed at CMU and Berkeley 6/2011 to 6/2014

- Improved Low Error Voting GUI systems support ballot overview, focus and redundant feedback
  - Being used by the Prime III voting system,
  - State of Maryland’s overseas voting prototypes;
  - Available as a platform for developers and researchers to experiment with.
  - https://www.dropbox.com/s/kycnbytbjx4f5qj/LEVIhtml5.mp4 (2 minutes)
Research on Accessible Voting
Ted Selker & Dan Gillette
EAC funded subcontract performed at CMU and Berkeley 6/2011 to 6/2014

• Created web-based interactive polling-place design and management system.
  – analysis and preparation of polling place layouts prior to an election,
  – Procedural support for opening polls
  – Procedural support for closing the polls
  – Facilitating communication about problems and solutions during Election Day
  – https://www.dropbox.com/s/1z9ns7byvutkpiu/pollingplacesimulator_x264.mp4 (1.3 minutes)
Visit AccessibleVoting.org

The Goals of Accessible Voting

- Every voter can vote independently and privately, using the systems used by other voters.
- All voters must be able to get to, and move around inside, all polling places.
- Polling places must include voting machines or methods that work for all voters.
- For on-line voting, the website must be designed so that all voters can use it.
- For voting by telephone, the telephone call system must work for all voters.
- For mail-in voting, the ballot and mailing system must be designed so all voters can use them.

Accessible voting is about more than voting machines. It includes physical access, integration with individual voters' assistive technology, and information available in language and formats that meet the needs of all.
Intellectual Disabilities and Information Processing Difficulties

- Cognitive Impairments (formerly "mental retardation")
- Dementia
- Reading Disabilities
- Attentional Difficulties
- Language Processing Difficulties
- Executive Function Difficulties
- Anxiety
- Obsessive Compulsive Disorder
- Anything else that interferes with processing to print and electronic materials

Possible Areas of Difficulty

- Pre-election information (candidates and issues)
- Voter registration (rights and processes)
- Navigating the polling place
- Using an accessible voting machine
- Navigating the ballot
- Write-ins
- Understanding the ballot
- Voting the ballot

Solutions

- Clear and simple language for all information
- Special publications/posters on rights and accommodations
- Large and clear signage throughout the polling place, including outside (from the curb or street)
- Easy-to-use audio that synchronizes with the screen or paper ballot
- Simple and consistent ballot navigation
- Photographs of candidates on the ballot
- Accessible and available sample ballots
- Place to keep sample ballot visible while voting
- Hospitable, well-trained poll workers
- Opportunities to practice ahead of time
Clear and Simple Language Study

Part 1:
Translate voter guides and ballot questions to clear and simple language.

Part 2:
Use Google Translate to translate C&S language versions into Spanish and Korean.

Part 3:
Evaluate the language translations for overall quality and for readability.

Findings
1. Many original voter guide and ballot samples score at or above the college reading level.
2. We were successful in translating all items to 8th grade level or below following simple guidelines.
3. The translated versions did not translate smoothly into Spanish and not at all into Korean.
4. Writing for translation is different than writing for clarity and simplicity in English.

Recommendations
1. Provide writing guides to everyone writing materials for voters.
2. Do not rely on machine translations for second language translations of readable materials.
Readable Instructions for the Automark Ballot Marking Device

1. Flip book works better than card.
2. Need a place to keep the book where it is visible and accessible.
3. Intended for voters and for poll workers.

Download the instruction booklet at

www.accessiblevoting.org/Library/AllResources

How to Use the Automark

How to Use Audio System

You can listen to your ballot and mark it using the touchscreen, the console, or switch devices. If you want, you can make the screen black. To do that, press the top right, diamond-shaped, button on the keypad to the right of the touch screen.
Tennessee Disability Coalition

• Conducted 3 Voter Experience Pilots in Year 1
  1. Voter Experience Surveys
     • Over 500 voters with disabilities surveyed via phone.
     • Were poll workers knowledgeable about accessible voting machines? 87% Yes
     • Were poll workers knowledgeable about accommodations available? 44% Yes
  2. Exit Pollers
     • 250 Surveys filled out by exit pollers
     • Low incidence of disability
     • Overwhelmingly good reports, no perceived problems from voters
  3. Poll Watchers
     • Poll watchers were asked to complete surveys and write reports based on their findings. There was again a low incidence of disability and most issues reported or found were access problems
Year 2: Material Development and Self Study Pilot

Materials Developed:
- Poll Worker Tip Sheets
  - Step by step picture guides on voting technology and access features used by poll workers and voters
- Poll Worker Training Guide (Already developed by the Disability Law and Advocacy Center of TN)
- Video (Year 3)

A self-study for poll workers was completed in March 2013. A test group of 8 poll workers were given materials developed and additional training methods. A control group of 8 poll workers only received training by a county election commission.

Pilot didn’t yield conclusive scientific results due to extremely low turnout. Poll workers were given no chance to implement perceived new skills. However they have provided some positive feedback.
- High satisfaction rates from election administrators, poll workers, and advocates.
- The picture guide developed is being widely used throughout the state by most county election commissions.
Tennessee Disability Coalition

Findings and Recommendations

• Poll workers need more training time.
  – This was the main complaint from administrators and voting rights advocates.
• Training needs to be offered through different mediums.
  – (i.e. in person, self-studies, online trainings, job aides)
  – These help poll workers to learn scenarios that are not typically learned during the required state training.
  – Poll workers have the option to take materials home with them to learn in their own time.
  – Election administrators typically spend time on access and etiquette relating to people with disabilities, rather than accessible voting machines.
• Administrators should consider partnering with disability advocacy organizations to troubleshoot budget friendly and time efficient ways to train poll workers. Advocacy organizations in Tennessee have developed an accessibility training manual used widely in election trainings.
• Barriers the polling place are not always visible. Poll workers needs to offer assistance to every voter than enters a polling place to ensure each voter can privately and independently cast his ballot. Election Administrators should consider hiring more poll workers with disabilities to help troubleshoot election day problems.
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<th>Voting Equipment</th>
<th>Equipment Vendor</th>
<th>Equipment Type</th>
<th>Accessibility Features</th>
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The table above lists various jurisdictions and their corresponding voting equipment, vendors, accessibility features, equipment counts, and usage periods.
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<th>Jurisdiction</th>
<th>Voting Equipment</th>
<th>Equipment Vendor</th>
<th>Equipment Type</th>
<th>Accessibility Features</th>
<th>Equipment Count</th>
<th>Count Location</th>
<th>Voting Method</th>
<th>Equipment Status</th>
<th>Usage Period</th>
<th>Recent Voter Registration Count</th>
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Accessible Voting Technologies
Pilots

- NSBE Election (2008 - 2014)

- State of Oregon (May 2012)
Pilots

• Self Advocates Becoming Empowered (SABE 2012)
  – Ballot contained photos of the candidates

• Clemson Elementary School (2012)
Pilot Election

- Wisconsin
  - April 1, 2014
Pilot Challenges

• Election Officials
  – In many cases, unwilling to participate
  – It takes a lot of work to convince some of them

• Vendors
  – It took a lot of time to communicate that we are not vendors

• Participants
  – Getting a diverse group to participate
Questions???
http://www.AccessibleVoting.org

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