Accessible Voting: People & Technology

A NIST/EAC Sponsored Accessible Voting Technology Initiative Webinar

January 23, 2014, 10:00 – 11:30 AM ET

Operator:	Ladies and gentlemen, thank you for standing by. Welcome to the Accessible Voting People and Technology Webinar. During the presentation, all participants will be in a listen-only mode. Afterwards we will conduct a question and answer session.
	At that time, if you have a question, please press the 1 followed by the 4 on your telephone. If you would like to ask a question during the presentation, please use the chat feature located in the lower-left corner of your screen.
	If you need to reach an operator at any time, please press Star 0. As a reminder, this conference is being recorded, Thursday January 23, 2014. I would now like to turn the conference over to Shaneé Dawkins. Please go ahead.
Shaneé Dawkins:	Hi, thank you. And welcome everyone to Accessible Voting, People and Technology Webinar. This webinar today is the second webinar in a series of webinars we will hold on Accessible Voting Technology under the grant by the EAC.
	Today's webinar is focused on poll workers and helping people with - helping voters with disabilities. And first, I'd like to progress my slides here. I'd like to turn it over to Pat Leahy who is a Senior Advisor at EAC and I'm sure he's there with his dog, (Gallahad). And Pat, if you have a few words.

Pat Leahy: Sure. Thanks, Shaneé. Good morning everyone. Thanks for joining us. As Shaneé had mentioned, I work over at the Election Assistance Commission as Senior Advisor. It's been my privilege to help lead this grant along with my friends over at NIST and our grantees over the past two and a half years.

As you see there on your screen, 2009 and 2010, Congress appropriated $8 million to the Election Assistance Commission for the development of a grant program to look at improving voting for all eligible Americans. They specifically wanted us to look at accessibility and helping those with barriers due to disability, mobility, just anything that might come in the way of casting a ballot.

And we took that charge from Congress, went through a pretty extensive process of picking two intermediary grantees. One was Clemson University and their coalition partners. And the other one was ITIF, Information, Innovation and Foundation.

They've both done a great job. Both intermediaries went and had a number of sub-grantees and you'll hear from them today. All the sub-grantees have done an excellent job.

What's been great, and the way this kind of came together is that we have around 45 research and development solutions that are in process or done and kind of ready to be tested from this grant. So we're really excited about that.

This morning I was reading through the President's Commission on Election Reform that just came out and it's just exciting to see some of the things match up. The idea of making sure that barriers aren't there for voters with disabilities, the idea of pushing technology and making technology current.

You know, a number of our folks looked at the iPad and ways to incorporate modern technology into voting. So it's very exciting.

This slide I just threw together real quick. One of our grantees was Rutgers University and two excellent researchers did some current modern statistical analysis for 2012. And you see here the number of voters with disabilities in 2012.

You also see the number of voters with disabilities. Had the numbers been equal with the number of voters with disabilities at the polls, you would have had about 3 million more voters with disabilities at the polls on Election Day in 2012.

One of the things that jumped out at me from the work that folks over at Rutgers did was this last point of, voters with disabilities were as likely and had a good experience being - working with election officials and poll workers. That's a great thing.

So today as we look at poll workers and poll worker training and how they can enhance the work with voters with disabilities, we're already in a good spot and we have some room to improve. But when I was looking through this the other day I was excited to see that.

So we have a great list of participants today and I've worked with all of them and they've done a fantastic job. So, looking forward to hearing from them. And as we said on the last call, please, please this is a very interactive process.

I want it to be collaborative. If you have anything for us over at EAC or over at NIST, reach out, get ahold of us, happy to discuss and kind of push any ideas you have forward. So thank you.

Shaneé Dawkins: Great. Thanks, Pat. And up next we have our first presenter. We have Amanda Beals of Paraquad. Amanda Beals is the Civic Engagement Organizer for Paraquad Inc., a center for independent living dedicated to empowering people with disabilities to improve their independence through choice and opportunity, to work to make sure that people with disabilities are prepared and have the opportunity to be full and active participants of our community civic life.

Amanda previously organized the Missouri Disability Vote Project and is part of the Research Alliance for Accessible Living. Both initiatives work to improve accessibility of elections for people with disabilities. Amanda holds a Master's degree in social work with a focus on social and economic development from Washington University and St. Louis. Amanda?

Amanda Beals: Thank you so much. And so today I'm going to be talking about the work that Tennessee Disability Coalition and Paraquad have done as part of the Research Alliance for Accessible Voting to improve poll worker training around disability and accessibility.

And I'm trying to be brief so please feel free to ask questions during the presentation or at the end. So when we started our project, the main problem that we were addressing is that people with disabilities continue to face barriers on Election Day.

And there's a lot of causes for that, but we had to choose one to focus on. And so that focus in particular is that access to the vote is really reliant on the effectiveness of poll workers who understand access and accommodation. Many Election Day workers still lack that basic understanding.

And so you really can have the best equipment, best polices in place, but if your poll worker isn't prepared to effectively use that equipment or put that policy into practice, it's really not going to do you any good. So our solution was to look into what's being offered at poll worker trainings currently and then develop some improved materials and best practices for training poll workers on disability and accessibility.

So when we started out our project, we wanted to do some basic research and surveys of voters to kind of get a feel for what's going - what the problems they were experiencing on Election Day were. And we had three major findings.

So we called 1200 voters with disabilities across Missouri and Tennessee and the main complaint they had is that polling places continue to inaccessible. They get to their polling place, they can't in, they can't maneuver around it or use the equipment.

The second thing they said overwhelmingly is that, poll workers don't really know enough about the available accommodations that are there to help voters with disabilities. And then the third thing is that poll workers aren't knowledgeable about how to use the accessible voting machines.

What was not mentioned in our calls to them as a problem was poll worker interaction with voters with disabilities. Almost every person we talked to said they felt poll workers were very respectful and treated them very well. And so we thought that was a great thing to hear them say that.

So after we called voters, we wanted to get the administrator side of things because we work in the disability community, we don't usually administer elections. And so we just wanted to see what they had to say too.

So we interviewed ten county clerks in Missouri and they were rural, urban, from all parts of the state so we could get a feel for what's going on everywhere. And some of our observations were that PowerPoint and lecture are really the most widely used training materials.

And this is probably because it's easy to train a large amount of people, on a large amount of information with a relatively time or resources. So a lot of people turn to just that PowerPoint.

On average, administrators will run a poll worker training that, in Missouri, that's an hour and a half to two hours long. And they keep it short because they need to keep people's attention, for funding reasons and stuff like that.

And then the other thing we found is that evaluations of poll workers are not a popular subject with a lot of administrators that we talked to, for various reasons from not wanting poll workers to feel intimidated or put off, to personal reservations of the administrator for using evaluations. And then the last thing they told us is that everyone is so strapped for cash.

There are so many people who want to get new voting machines, they want to buy new equipment, they want to be able to use the machines more, invest in better training. But there's a real feeling that there isn't any money to do it and people are kind of stuck with the resources they have right now.

And then some of the needs they expressed as wanting to have, they said that poll worker retention of information is actually a bigger problem than the actual training of poll workers. So many people said it wouldn't matter what we do at training, we have no control over what they remember and do on Election Day.

And so that's something we definitely wanted to address with our project. A lot of clerks also would like to do hands-on training which we were trying to promote but they said it's hard to implement, especially in large groups with a limited amount of time to do it.

Checklists and visual aids were something, especially on how to use technical equipment and carry out certain tasks. That's something they said would be really useful to have.

And then many people said the most useful thing would be to have more poll workers who are already good at the tech stuff so they wouldn't have to worry about training them on how to use some of that equipment. And then finally, a need expressed by everyone is just more accessible signage and resources on where to actual place that signage at the polling place.

Okay, and so after we talked to them, another thing we kept hearing about is how so many poll workers are older and the various challenges associated with that. So we did a little bit of looking into best practices in training adults.

And what we learned from that research is that adults learn - the first thing is that you need to use mixed methods. Adults learn in different ways, so presenting materials in different ways is necessary. The same teaching methods should not be used for a long period of time.

And so the bottom line is, if you want your training to be successful, you can't just rely on that PowerPoint. The second thing we learned is that adults learn more by participating. We need to be involved and engaged in our learning process, especially for topics that involve a lot of processes or complex information.

ELECTION ASSISTANCE COMMISSION
UNITED STATES OF AMERICA

NIST
**National Institute of
Standards and Technology**
U.S. Department of Commerce

For example, accessible voting machines. We need to try on those tasks. So if you want your workers to be able to perform their job, you have to give them hands-on experience.

The third thing we learned from best practices is that hand-outs are effective when they're paired with other methods of learning. And then the final thing to keep in mind about best practices is, adults are best when new information is reinforced and repeated. So if you want your workers to remember, to retain that information they're supposed to, you have to have a plan for repetition and follow-up with them.

And so what we took away from that is that the traditional style of sit for a couple hours and listen to me talk about my PowerPoint, doesn't really work for training adults. It doesn't set them up for success but that's what we're using to train our poll workers overwhelmingly.

So based on the preliminary research, we developed two training methods which I'm going to describe very briefly. And so if you can see the screen, there's a picture of an Election Day picture guide that's printed on 11x17 paper.

And then there's also a comprehensive curriculum to use that pre-election poll worker training. And so the picture guide is actually meant to be a job aid used on Election Day for poll workers to have.

And then, just briefly, the topics covered in the training are the topics that our voters express having problems with. How to use, not to set up, but use the accessible voting machines, how to ensure that your polling place is set up in

a way that's accessible and how to carry out a popular and sometimes misunderstood accommodation in Missouri which was curbside voting.

And so these are overwhelmingly the major problems faced in our community. And I think you'll find this is true across the country as well. So let me get into the training materials.

The first thing that we created was that curriculum. And so thinking back to the best practices, we tried to put all of those best practices into our curriculum. It included sample PowerPoint slides because 90% of our clerks use PowerPoint.

So we wanted to be able to make sure their PowerPoint had the information it needed. And so we also put in notes to make it easy for them to follow and understand and told them exactly what they could say for the slides that we thought they needed to include.

The other thing we had in our curriculum was lesson plans to go with each training topic. And it really allowed administrators to choose what kind of hands-on activity they wanted to offer for each topic, depending on their training style and their training needs. There was at least two or three hands-on activities they could do for each of the topics we just talked about.

And then also included in our curriculum for them were any checklist or hand-outs for poll workers to reinforce that information. So on the screen I have a picture of the voting machine features checklist that they could use and give to poll workers that they were going to be practicing using the accessible voting equipment.

And what I want to say about the curriculum is that it was actually not well received by administrators. And I'll talk about why they didn't receive it well when I go into the challenges that we faced. But that was something that wasn't as well received.

The second material we highlighted was the Election Day picture guide. And this was modeled after a guide that St. Louis City Elections actually developed and has been using with their poll workers. And while St. Louis City's guide focuses on general election date tasks, we wanted to have that crucial accessibility and disability information included in there.

So we created a guide specifically for that to pilot. So the guide features step-by-step pictures illustrating how to carry out some of the most important and most challenging Election Day tasks. This includes how to setup an accessible polling place, how to use accessible voting machine features and how to carry out the accommodations.

And this is developed to really confront that need for more repetition of information and retention of information so poll workers can have it on Election Day to look through the material. And I think I said this before, it was printed on 11x17 paper, so the pictures were big, the print in it was big. So if you had older poll workers they'd be able to actually see and use the information as well.

And so here's some examples of what the pages looked like in the picture guide. So on the first screen there's an ideal polling place map and it actually uses the Department of Justice polling place guideline pictures that you can get through their Web site on their polling place checklist.

And so, and then on the side of it there's number saying, you start in the parking lot, here's things to look for as a poll worker in the parking lot. It really walks the poll workers through the things they need to think about and do regarding polling place set up from the parking lot all the way to the voting booth.

And so you see on this next slide there's a picture of what it looks like inside and ideal polling place. And so we also had a checklist for people who learn better that way as part of the book that people could go through and check off and make sure that their polling place looks the way it's supposed to.

So instead of having to remember this from training, they had this available for them at their polling place. And then this also featured step-by-step pictures of how to vote on the electronic voting machine.

So you see on the screen it says using the electronic voting machine, it takes you through each step that someone would need to go to cast a vote on the voting machine and use some of the accessible features on it. Poll workers overwhelmingly said that they didn't feel comfortable using this so that's why we wanted to include this.

And then the next page would have using an audio ballot. And the funny thing is, when I was taking pictures for this, one of the staff persons at the Election Administration that I was using, asked if he could come over and watch me take pictures. Because he didn't fully understand how to use the audio ballot as well.

So this could be helpful for staff as well as poll workers and even voters who don't understand how to do the audio ballot. And the rationale behind this is, if

a voters having problems with this at their polling place, the poll worker has to know how it works in order to help them.

If you don't have the time to spend training all of your poll workers to remember how the machine works and all the different features on it in order to be competent, then this job aid might be your new best training friend to have available for you poll workers. It really ensures that you're giving your workers the tools they need in order to be more successful.

So that's a really brief overview of our training curriculum. And so I want to talk about some challenges that we face. And the main challenge that we face is training time constraint. Many clerks only allow, like I said before, between an hour and a half and two hours to train their workers on everything they need to know.

That's a huge amount of information to cover in that short time. And PowerPoint's really the only way to cover that information in a quick, efficient way. But as we know, that's quite ineffective.

And so when we tried to get people to use our curriculum, the clerk gave us feedback saying, that even adding our suggested slides would add too much time to their training, let alone adding the hands-on interactive activities. And if we asked about lengthening the training time, we always got a very stern no, that's not going to happen.

The next thing that we had a challenge with is financial restraints. I kind of touched on that earlier. But creating and updating things like a picture guide or checklist would cost more money, things are always changing, machines are being replaced with new technology.

And so you'd have to update - be able to update those picture guides and checklists which could have a lot of cost associated with reprinting. A third challenge we had was confusion with the ADA guidelines among administrators.

It's still a pretty big problem. We received pushback against our polling place setup recommendations saying that they didn't feel like they should have to do all of those.

Even though all of the recommendations were straight from the Department of Justice polling place guidelines and we focus only on what we thought we the practical and easily accomplished ones. So if the administrators don't fully understand what they're supposed to do, there's no way that they'll be able to effectively train their poll workers to run an accessible polling place.

And then finally, the fourth challenge was that limited evaluation that I talked about before. When we brought up the fact that we'd need to evaluate poll workers for our pilot, a lot of people didn't want to be part of that and so they didn't want to participate.

But the evaluation is the only way that you know if your training is being effective and if your poll workers are ready to do their job. So we just think that's really important.

So now I want to get into just some of the general findings and suggestions we have for the future. And so our general findings in the pilot is that, when we talked to poll workers, they did find it helpful to have a variety of training methodology.

So when a variety of training materials were used, poll workers liked that best. And that goes right along with the best practices that we went over for adult education.

And then the next general finding is that the Election Day picture guide was really well received and it was used by poll workers. So more - getting more into depth with that. Fifty one percent of the poll workers who had access to a guide actually used it. And 90% of the people who used it, said that it was helpful.

The guide was most used for voting machine use, followed by polling place setup. And those are the two areas where poll workers felt the least comfortable and so it suggests that that picture guide filled some training gap for them.

And then also the books were most widely used in a specific county who did no hands-on voting machine training. So I thought that was pretty telling as well.

Going to the next slide, some of our takeaways, what we want you to leave today knowing. And so we thought of some best practices for having accessible elections through this process and it includes training but it really goes beyond it. You can't just rely on training and your poll workers. It has to be a holistic approach in order to make your elections more accessible.

So the first thing I want you to think about is to consider training your poll workers based on teaching them how to use a job aid. Poll workers need to know a lot of information and it's difficult to teach all of that in-depth. And so it's especially difficult to properly train on that complex technology, giving

workers job aids and showing them how to utilize those aids sets workers up to be able to answer their own questions on Election Day.

And it helps with information retention. It could lead to a better use of your limited training time and your limited resources. So instead of going through a PowerPoint you can give your poll workers job aids at the training, put them in group and then show them how to use the job aid and give them scenarios to practice using it for all the things you would just put in a PowerPoint anyway. So that's the hands-on, try it out participatory way to train them.

Another thing that we think you need to take away today is to work with community members and disability groups year round. Building these community relationships does a lot to confront barriers (who) exist. All the clerks that we worked with who were doing great things, said they had a good relationship with some sort of disability organization in their area.

And so, and I have a handout that goes over all of these too that I can send out. But there's links on how to find your local center for independent living or protection and advocacy agency.

And there's activities that you can do with groups, like taking them to assess and troubleshoot solutions for inaccessible polling places, for voting equipment demonstrations and practice sessions, holding focus groups to identify access issues in your area. And the list goes on.

And then the third thing, if you only take three things away, train your poll workers on how to use accessibility features of voting equipment, not just set them up. And then follow through, follow this information with a job aid.

This is by far one of the most challenging things we ran into with complaints from all sides, workers, administrators and voters. And so poll workers are going to be called upon to assist voters. They need to be familiar with equipment, not just how to set it up, but how to use it so they can answer questions from voters.

Shaneé Dawkins: You have two minutes left.

Amanda Beals: Okay. I will go fast then. So regarding polling place accessibility, keep yourself and your staff up to date on the ADA, Help America Vote Act and other important laws. Because it's not just administrators who need to know this information, staff play a big role in making job aids and carrying out processes so everyone needs to be updated on that.

And troubleshoot your accessibility issues well before Election Day. Don't just rely on your poll workers to set up the polling place on that day and come up with the solution. That's really on administrators and staff to make sure that poll workers don't have to deal with that on Election Day.

And then, a message from the community. When we did our focus group, a lot of people with disabilities said, "Hire people with disabilities as poll workers and election staff in order to help with your accessibility needs."

So and then like I said earlier, we do have a handout available. It gives more detail on our recommendations and resources for who to contact. So I can send that out to anyone who wants it. And so my contact information is on the screen. It's abeals@paraquard.org. Thank you.

Shaneé Dawkins: Great. Thanks, Amanda. Right now we have two questions for you before we move on to Karen. The first question is from David Baquis. "Are you aware of

any voters who operated the voting system hands-free through a Sip-and-Puff switch? And if so, how did it work out?"

Amanda Beals: I don't - none of my clerks talked to me about that but I specifically know people in St. Louis who use that technology and we think it's a great thing. There's a lot of people - there's a lot of administrators in Missouri whose machines have the capacity to use the Sip-and-Puff with it and that's something that they're really excited about and voters are too. But I don't have a specific instance of where someone came to me and told me how the experience went for them.

Shaneé Dawkins: Okay thank you. The last question before we move on is from Lou Ann Blake from National Federation of the Blind. "Was any consideration given to recruiting and training people with disabilities who already know how to use accessible machine to be workers?"

Amanda Beals: Yes, that's something that we talked a lot about with administrators and with focus groups of people with disabilities. And unfortunately it was something that we didn't have time to pilot and recruit people to do that.

But I do know a lot of the people in focus groups said that they had tried to be poll workers, had tried to sign up and they kept getting denied the opportunity to be a poll worker. And I don't know the whole story behind that but we definitely think that having people with disabilities, as not only poll workers but as staff people who work for Election Administration or County Clerk would be ideal. It just makes, I think it makes the process better to have a diverse group of people working in places like that.

Shaneé Dawkins: Okay. Thanks, Amanda.

Pat Leahy: Hey, Shaneé, it's Pat. I had a quick question.

Shaneé Dawkins: Go ahead.

Pat Leahy: Sure, sure. Hey, Amanda, thanks a lot. That was great. My question is, and you had touched on this a little bit, when you looked at surveying folks you had mentioned the idea of students as poll workers. And I just wanted to highlight that.

I think that's great and I'm wondering if you have maybe a little but more to say on that. We've done some work on that and it just seems as if students at times, high school students, college students, a little more up to speed on technology and also just kind of hit the ground running. They're ready to tackle any challenge. So I was just wondering if you had anything else in that area from your work?

Amanda Beals: Yes, so we didn't use that as part of our pilot either but it's definitely a conversation we've had with Tennessee and some of our other partners too as using students, especially students who might be in courses that are focused on using accessible technology or some of that kind of more technology focused area.

And so we definitely thought, students usually have to do some sort of internship or, you know, hours in the community and having - being a poll worker or working with the Election Administration as being an opportunity for them, we think that would be good for students and be a great service to the community too.

Pat Leahy: Right on.

((Crosstalk))

Amanda Beals: What?

Pat Leahy: You could take it one step further and look at students with disabilities.

Amanda Beals: Definitely.

Pat Leahy: Well thank you.

Amanda Beals: Thank you.

Shaneé Dawkins: Great. Thanks. Any other questions that were entered into the chat box will be addressed at the Q&A session at the end so we can get through our presentation.

Our next presenter is Karen Milchus. She is out of the CATEA Lab at Georgia Tech. Now many of you may have noticed that on our original agenda, Jon Sanford was supposed to speak on the poll worker training. But Karen Milchus also worked on the project so she will be speaking in his place.

She is a Senior Research Engineer at Georgia Tech Center for Assisted Technology and Environmental Access which is CATEA. Some of you may remember her as the coordinator for Accessible Voting Technology workshops in 2012.

She was also a co-director of the Rehabilitation Engineering Research Center on workplace accommodations which just completed its funding and is now a co-director on a NIDRR project that is investigating the impact of universal design on workplace participation for employees with disabilities.

Ms. Milchus has provided assistive technology services or state VR agencies in Georgia and also in Wisconsin while working for the University of Wisconsin South. She is active in RESNA and is currently Vice Chair of the special interest group on accommodations. Karen?

Karen Milchus: Hi. Like she said, I'm substituting for Jon Sanford who actually worked on some other parts of our projects here. I worked on this particular project with Fran Harris and Caroline Bell. And whereas Amanda's project focused on in-person training materials, our project focused on developing an online course for poll workers.

Our idea was that these materials could be used as part of in-person training but could also be used online as part of a self-study course, particularly if people were trying to look at ways of providing outside of a scheduled training period.

So, our project goals were to develop an online course that would provide poll workers with (unintelligible) understanding of voters who have special needs. And to help voters find (unintelligible) for the types of problems that they confront on Election Day.

And this project continues to work from a previous study that we had conducted. Prior to the (other) project, we had completed an ethnographic study on the experiences of voters with disabilities. And actually that's the part that Jon would have been able to present on a little bit better than me.

There were a number of environmental factors that were identified such as, you know, access to the polling site, but we also found that poll workers were a key influence on the voting experiences. And that both their assistance and

attitudes served as both a key facilitator and barrier to the experiences that voters with disabilities had.

For example, Amanda mentioned the friendliness and courtesy of poll workers as being a definite plus. Our group echoed that. However, they also noted that the lack of poll workers was sometimes a problem, particularly if they needed more one-on-one help with a poll worker. If a particular site was short staffed, that could be a problem.

The other two factors that came up served as both a facilitator and barrier depending on which poll worker you ran into I guess. The ability to anticipate voter's needs. If you had a poll worker that was very in tune with what needed to be done to accommodate a voter with a disability that was a great facilitator. However there were also poll workers who didn't have quite that level of knowledge. Similarly, knowledge about voting procedures and technologies varied.

So what we wanted to do with this project was, having talked to voters, we wanted to look at the other side of the voting process by talking to poll workers, poll worker trainers, and election officials. So a number of people were interviewed.

We also talked with some poll worker courses, both in person and also on line. And I should mention that we were looking at poll worker training nationally, not in one particular state.

Some of the questions that we wanted to look at were how training was provided. One of the things that we found was that in some districts, training actually was not required. Very little was being provided.

We wanted to look at the experiences of the poll workers. What their experience had been with voters with disabilities. We wanted to find out more about what their responsibilities were to assist voters with different needs. And we also wanted to look at their experiences with voting machines and their accessibility features.

Our participants for this part of the project were recruited through the CATEA Consumer Network which is the group that we have to - of consumers who are interested in helping in our research. But most of the people came from referrals from participants in the Accessible Voting Technology Initiative. And I think I see a few names on this audio conference list that helped us out with that. So thank you.

Ultimately over 30 people were interviewed from 11 states. And some of the things we learned were that first of all, different states assign poll workers different responsibilities. So for example, in some stations a poll worker might be the one person from their sight who was responsible for the accessible voting machine whereas the others weren't expected to provide that support.

So we had some specialist rules that we needed to keep in mind. We also found (unintelligible) focus on teaching poll workers etiquette of interacting with voters with different needs. But not as (unintelligible) looked at problem solving in looking at - looked at using the particular machines. Something that Amanda noted in her presentation.

Woman: Karen, your audio signal is breaking up a little bit.

Karen Milchus: I'll try to get a little closer to the speaker. We also found that it was often difficult to recognize a particular need or disability. The poll workers were

very helpful when it came to a person who had a visible disability such as using a wheel chair.

However, having a hidden disability such as hearing impairment or cognitive impairment, they often got very confused. And one thing that was sort of surprising is many poll workers replied that they had never had a voter with a disability come through their polls, which sort of confirmed our belief that there were voters that they were missing.

However, those who did say that they had served voters with disabilities reported a variety of problems including hearing, vision, mobility, cognitive, communication, and fatigue and noted that often the voters had a combination of those different needs.

There were three key issues that came out of these interviews. One was the need for better interaction with voters with different problems. Many, perhaps because much of the training in the past has focused on etiquette problems, some of the poll workers were actually sort of spooked about doing something wrong when it comes to interacting with voters with disabilities.

As a result when we developed our course, we tried to downplay that and be very pragmatic about how some of those interactions might take place. There was also a problem with difficulty in understanding voting technologies, particularly difficulty troubleshooting problems that might arise along the way. So that was another thing we wanted to focus on in our training.

And finally, the lack of access to polling places in terms of inaccessible parking, inability to find, you know, the polling place. One of the things that we wanted - that we realized from our interviews, however, is that the poll workers were not the people who were selecting the sites. So one of the things

that we wanted to do was emphasize those factors that the poll workers had a little bit more control about, such as placement of signage, making sure that obstacles weren't appearing in hallways that would otherwise be accessible, things like that.

So, our course development, as I mentioned, we wanted to develop something that people could take separately from the in-person training or as part of it. This is a screenshot of our course and I'll provide the link in larger print a little bit later.

We identified three broad principles that we wanted to include in the course, the ideas that voters must be able to cast their ballots privately and independently, and this is a theme that runs throughout the course. Also that we wanted to address the needs of all voters who have different disabilities and needs.

So we wanted to cover a variety of scenarios in which voters had different needs, different problems that needed to be addressed. And we also wanted to provide practical solutions to common problems that the poll workers confront in the polling place.

I'm going to skip over our learning objectives, move on. Our course ultimately included five voter scenarios and these were based on composites of people that had originally been interviewed with the study that Jon Sanford had conducted with Fran Harris.

I'll talk about those in a little bit more detail in a minute. We also wanted to provide information about accessible voting systems. We wanted to provide a resource list that people could use if they wanted to read further about something including providing equipment cheat sheets.

We also included a discussion board for sharing ideas realizing that we couldn't anticipate all of the problems and solutions out there. So we're hoping that poll workers will share some of the - some of their own solutions with others who are taking the course.
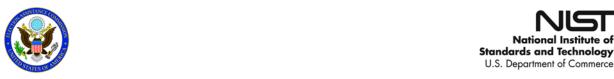
It's set up so you can complete it sequentially or skip around to a particular topic. And it's also set up so that you can take the course and return to it later to look up information. So, therefore it serves both as a training course but also as a resource afterward.

We do have a quiz at the end that people can take if they want. And if they take it and they pass it they can print out a certificate of completion. So for those districts that require proof of training, that's one way of showing that.

And finally, Amanda mentioned that really the best way to train people on using the equipment is to actually let them try it and out and perhaps vote a ballot using those features. And that was something that we also wanted to emphasize. So we provide instructions but we do strongly suggest that people use this as a supplement to some other training that's out there in terms of being able to get some hands on experience with the equipment.

So I mentioned the voting scenarios. I just have a sample one here. We have George who's an older man who uses a cane and shuffles his feet when he walks. When he reaches the sign-in table he seems to have trouble reading the forms that he needs to fill out. You would like to help but are also aware that he takes pride in his independence. What can you do to assist him?

For this scenario and for the other five that we provide, I'm going to skip ahead for just a moment, we include information about tips for interacting

with the voter. And this is where we snuck in some of that etiquette information.

We go over a number of problem and solutions. So for example in the chart that I have at the bottom of the slide, the problem, the voter can't stand for long periods. One option that you might want to consider is providing chairs along the line that voters can use while waiting.

And then we have some comments and considerations. So we wanted to provide information about some of the advantages and disadvantages of some of these different approaches so that people could decide what would be the best fit for their scenario.

So one of the advantages in this case is that other voters can use the chairs. It might not just be the people who have the readily apparent disabilities. But one of the disadvantages is that the chairs might block the path of travel. So that's something that you need to be aware of when you're setting this up.

So, like I said, common problem solutions. We also try to include sort of a, what would you do type of question with each of the scenarios. Mainly just to get people to slow down and start to think about what it is that they're going through. And not just, you know, clicking the next slide each time.

And finally we have some discussion questions that could be posed - where people could add to the discussion on our discussion boards or those might be questions that they might want to bring up as part of their in-person training.

We have five scenarios altogether. A senior (unintelligible) scene that has a wheelchair and also has upper extremity limitations, a man who is hard of hearing who perhaps might not be a native English speaker, a woman who is

blind, and a veteran with TBI and who has a service dog. And we use these to get at the various issues that you might run into in the voting locations.

We also provide information about accessible voting systems, including both general information about accessible voting systems, kind of covering some of the generalities, you know, what is an audio ballot? What is switch input?

But then we also provide information about the specific systems and this has been a little bit of a challenge for us because as some of you might be aware they're about 20 different accessible voting systems used across the country. And we've been trying to gather some information about each of those or at least the top, I think the top seven.

We're providing set up instructions if available, information about the accessibility features, troubleshooting tips. I should mention that we are still finishing up this part of the course. This webinar came about one week too early for me. So if you go into the course you will see some pages that are in various stages of completion at this point.

As Amanda may have mentioned earlier, it's really difficult for poll workers to retain all this information. So, we do have a printable cheat sheet in the resource section for each of these systems. So, although, like I said, we're about maybe a week too early, if you would like to access the course we would love to get some feedback about how we might begin to improve it.

You can access the course at this link, www.accessibilevoting.gatech.edu. It will ask you to create a log in. That's partly so we can track users in terms of that completion quiz if you need to take hat. You will get another screen that will ask you to confirm that you want to enroll in the course.

So that was confusing some people in terms of how to log in. I think we've simplified that now but just in case we haven't, please note that you will need to click on the enroll me button on that page.

And that is kind of where we are currently. We would love to get some feedback. Thank you for your attention.

Shaneé Dawkins: Okay, thank you so much Karen. If there are no questions in the chat for Karen I will move...

Pat Leahy: Hey Shaneé, I have a quick one. Can I throw it out there? It's Pat. Sorry to interrupt. Hey Karen, just wondering, are there plans to put it when you're done up on a Coursera or another kind of online learning portal?

Karen Milchus: We haven't (unintelligible) right now. Coursera seems to be - lends itself better to people who are taking courses for college credit. And we didn't really want (unintelligible) to go through that. So it is online through a system called Moodle which is more of a - used for more general continuing education quite often.

Pat Leahy: Okay, yes that was my question. Is there one, not that it had to be Coursera, but maybe one that, like Moodle that folks across the country might be on anyway and could just hop on there and take it. I know it looks great. Congratulations.

Karen Milchus: And one of the questions you'll, that if you do go in through the course, at the very end we do have an evaluation form that we would like people to provide some feedback for us.

One of the questions is whether or not this should be customized for some specific state needs, whether there would be an interest in that. And that might be, might address some of that question about how would people find it to begin with. Were there any other questions?

Shaneé Dawkins: Not right now. There might be some more in the live Q&A session at the end so thank you.

Up next we have Dr. Brad Fain. He is a Principle Research Scientist at the Georgia Tech Research Institute which is GTR, excuse me, GTRI. With over 20 years of experience in human performance research, he currently leads the Human Factors Program and Human System Integration efforts with both military and industrial customers at GTRI.

He is experienced in military and civilian system human factors analysis, anthropometric analysis, design and human performance testing and evaluation. He was the leader of the technical portion of the Military Heroes Voting Project and currently serves as a technical director of AVTI. He is also the director of Georgia Tech's HomeLab. Brad?

Brad Fain: Thank you very much. Good morning everyone. What I'm going to speak to you today is about the intersection of people and technology. And so this is going to be a portion of the work that we do but I want to give you a slightly, perhaps different perspective on what are some of the technology solutions that we might be looking at to solve some of these problems that have been addressed today by the other speakers.

So I had several different rolls to play on the various projects that were mentioned. One was the technology lead for the Military Heroes Project. And we were primarily looking at absentee voting for recently wounded soldiers.

And that gave me a much different perspective. There isn't necessarily a poll worker involved but there is voting assistance officers that in some ways plays a similar role.

But it gave me a different perspective on the types of disabilities because some of them are very profound after having been wounded in war, maybe perhaps due to a blast where they have polytrauma in addition to maybe some cognitive effects. And on top of that very often they don't have a lot of experience with the use of traditional assistive technologies. So that really got us thinking in different directions.

After that project concluded, I also participated as a researcher on the ITIF portion of the Accessible Voting Technology Assistance Initiative program. Essentially what we're primarily responsible for was the voting system test bed development, research around usability and accessibility testing, execution of human performance research in areas such as the button configuration ballot layout and use of plain language and ballot design.

One of the things that I've really learned over - about voting given all these experiences is that voting really is a system. And it's a very complex system at that. There are at least five different components to the system and we really - whatever solution we have to come up with, we have to think of the solution from a systems perspective.

You know, coming up with a purely technological solution generally doesn't get us anywhere if there are policy constraints that would prohibit us from being able to implement such solution.

So, for example there's policy issues that we have to deal with at the local and federal level and some of those constrict either the technology or the ballot

design that we might use to solve a particular problem. Another part of the system is the people, and that includes the voters themselves as well as poll workers. You know, general population, the people with disabilities, non-English speakers, and so forth.

And then there's the technology component of the system which is the voting hardware itself. And then there's the ballot. Ballot design is a whole different discipline, an area of research.

And then there's the environment as others have mentioned already, which is the polling place and how you ingress and egress out of the polling place and the lighting and the ambient noise surrounding it and so forth. All those components of the system really have to be considered when looking at particular solutions to voting. So that's kind of what I'm going to be talking about today.

So as an overview, I'm going to talk about design for accessibility, how poll worker education plays an important role in providing the solution, what we can do to assist poll workers through better design of systems and environments. And then how do we know when we've done a good enough job with that? How do we evaluate accessibility?

So I want to share with some of you, I want to share some of the lessons learned about poll worker and voters that I've learned over these past few years. And discuss how we might be able to accommodate the needs of everyone to optimize the system performance.

So why should we consider accessible design during the design of voting systems? Well, you know, the number one requirement is that we want to provide equitable, convenient, private accessible voting experiences for

everyone including people with disabilities. So that people with disabilities are not singled out or treated differently at the polling place.

But usability testing, accessibility testing, is also a requirement and is under the voting, volunteer voting systems guidelines, that usability and accessibility be tested in certain ways. And that is an important component that we have to address as well.

I am a proponent of universal design. I truly believe that we should build in, from the very beginning, the design features that accommodate the needs of as many people as possible in as many different situations as possible. And that's not just restricted to the design of the voting system, the hardware, the booth. But it also includes the environment, the educational materials that we present to poll workers and the training and so forth.

And it means considering the needs of all voters including those voters with functional limitations. And of course this includes people with visible disabilities that use mobility aids such as wheelchairs or scooters.

But it also includes people that have more hidden disabilities, disabilities that may be sensory in nature that the people might not recognize unless they're paying attention. Or even further hidden disabilities, such as traumatic brain injury or people with profound arthritis or cognitive impairments.

Disability, at least in my opinion, is to some extent created through design. An impairment, such as low vision, isn't really an impairment or doesn't become a disability until you interact with the environment in some way and you find yourself not being able to do something that you ought to be able to do because of the constraints in the environment. Or because the environment

creates demands upon your functional abilities that exceed your capacity for some reason.

So, what is it that we can do through accessible design to address some of these concerns and remove some of these barriers in the environment? And how should we include people with disabilities?

So I think that's probably the most important thing, is to figure out how do we include people with disabilities in the development process, in the planning for elections in order to make sure that we understand their capabilities and functional limitations and accommodate those in the design of both of those things?

We have to get people with disabilities involved in the design process. We also have to train the poll workers, as the other speakers have mentioned, about the needs of people with disabilities.

And some of the things that we're currently working on is research useful for making voting system design decisions. Unfortunately, there's very little documented research that voting system manufacturers can point to and use in making some of the design decisions that they have to make when designing a system.

And we hope that change that through the research that we're conducting here. But also making existing knowledge, the knowledge that is out there, may be translated from other domains. In kiosk design, for example, and sales terminal design and so forth, make it more accessible in the general sense of accessibility to those that need it.

So that's the voting system designers themselves, certification and compliance specialists, poll workers and election officials. How can we do a better job at documenting what we already know and making that information publicly available, so that the people that need the information can make use of it?

So, some of the ways that we've gone about gathering that information and trying to make it available is we do - we have completed usability testing of some of our prototype test bed designs. We have completed post-election surveys at Georgia Tech regarding the experiences of people with disabilities in voting.

And we've done a lot of ethnographic researches, as Karen has talked about, just observing people with disabilities as they vote. And then, solicited input from the community regarding specific disabilities that must be - that should be accommodated through design.

And one of the tools that I think is very important to us is the development of design case personas, which are descriptions of individuals, as Karen alluded to in her training descriptions, that designers can actually make use of.

And then video walk-throughs, which is illustrating some of the issues and barriers that people with disabilities might face as they interact with the polling place. And the voting system so that designers become a little bit more educated into what indeed are the issues faced by people with disabilities at the voting place.

So, a couple of things that I'll go into in a little bit more detail with regards to design tool development, you know, personas are a good way of getting personal, and that's what we want to do. You know, designers, in general, will do the right thing if they understand what the requirements are.

Part the problem we found is that the requirements aren't that easy to understand and they design to their own abilities and experience. And so, what we want to do is to try to broaden their knowledge so that their baseline includes knowledge about the experiences of others that have different abilities other than their own.

And so we documented the goals, the traits, the expectations, the knowledge, the skills, the abilities, and to some extent, the functional limitations of those that are differently abled than the designers themselves. And we provide them or hope to provide them with a wide variety of those personas to use as test cases during the evaluation process and during the design process.

So, those are some of the design tools that we think are useful that will result in better interactions and better system designs. Human Center Design should include the full range of human experience. And the only way to do that is to make those that are making those decisions more aware of what the full range truly is.

In order for this to work, as I mentioned earlier, it really is about system thinking, that the design of the voting system should include all aspects of the system. And a lot of the research that I've seen over the years is focused on maybe one or two parts of the system at a time.

And I think we really need to start thinking about the interactions between those parts in order to solve some of these more complex problems. For example, very little research, or at least research that I'm aware of, has been done about the accessibility and usability of setup and maintenance of the voting system equipment itself.

So this is not necessarily accessibility for the voter but accessibility for the poll worker who may or may not have functional limitations themselves in interacting with the equipment. So, what could we do to promote accessible thinking about how devices are configured, how they're set up, how data is extracted and configured and so forth during that critical time when the devices need to be configured correctly in order to accommodate someone, a voter with a disability?

Thinking in more detail about embedded help and documentation, I'm aware of some studies out there that have addressed some of these issues, but I think more can be done. Looking at questions of social etiquette and disability awareness training for poll workers, a couple of the speakers earlier mentioned that as an issue and we see that as well.

There's a general awareness about people with disabilities that poll workers need, but also they need to have confidence in their ability to interact with individuals so that they know or feel like they're doing the right thing in helping people improve their experience in voting. But there's issues associated with ballot design and the environment that still need to be solved as well.

While we've been focusing a lot of our attention on the voting device, it's, the accessibility of the voting device is just one part of the system. And we really, going forward, need to think in a broader context I believe.

The previous speakers have certainly talked in a lot better detail about poll worker training. I'll just share a few things that I've come across that I believe are important and echo some of the thoughts of Amanda and Karen.
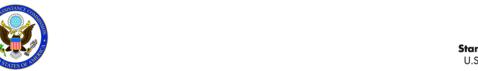
Poll workers need to have knowledge about how disabilities impact voting. So, it's not just disability awareness in the specific sense or even technology interaction in the specific sense, but, you know, what are the specific tasks that individuals have difficulty with because of their ability and how to recognize those issues? I think we need to be very specific about our training in that regard.

And the social stigma experienced by some individuals with disabilities, just, again, that's more part of the awareness piece. It's understanding that there may be individuals that are reluctant to reveal their disability and how to handle those situations when dealing with that.

Giving poll workers training on the types of assistive devices that voters may choose to bring with them and interact with the voting machines, allowing them to bring those either technologies or pieces of hardware with them into the booth knowing that they're able to do that. And then, becoming more familiar with the use of assistive features of the voting machines, not just how to configure it, as others have said.

In addition to that, they need to be knowledgeable about both the local and the federal policies that impact people with disabilities, such as the right to receive assistance from someone that the voter chooses or the rights associated with the use of assistive technologies in voting. Sometimes that's not all that clear and that may create problems at the time of voting.

A few words about poll worker training. A poll worker should receive the training on the full range of disabilities. And, again, this is kind of our emphasis on hidden disabilities, such as cognitive disabilities, just age-related cognitive impairment to dementia or Alzheimer's or those that are related to traumatic brain injury.

Some of my experiences with the Military Heroes Project, it taught me a lot of lessons about how profound a traumatic brain injury can be even though it's sometimes not detectible just by looking at the individual. Problems associated with attention and distraction can be quite profound and actually prevent the user from completing their voting tasks.

Being able to intervene in this case and provide support, if possible, would be something that we need to teach poll workers how to do. But then there's the social cognitive aspects associated with autism spectrum disorders or anxiety and panic disorders that may create special circumstances. And then other physical hidden disabilities include arthritis, which is often overlooked as the most common form of disability, at least in the U.S., affecting between about one in five Americans.

So, how can we assist poll workers through better design? You know, I guess in an ideal world, we voters wouldn't need poll worker assistance at the voting machine. But that's not very realistic. I believe that there are certain cases where poll worker intervention will be required, but that doesn't mean we shouldn't strive for independent voting.

Working with contextual designers to install contextual help that's appropriate and useful would be useful. Providing illustrations that would especially benefit those with low English literacy skills or cognitive impairments I believe would be helpful as well.

So, there's things that we should do to the device itself that would assist the poll worker themselves and also assist the voter in supplying or completing a private, independent vote. But when poll worker assistance is necessary, we

need to design machines that are physically accessible to the voter and the poll worker simultaneously.

Some of the things that we saw was it can certainly be very crowded in certain configurations of the polling booth when the person needs assistance from the poll worker. Or from someone of their own choosing.

And then displaying the system states and modes clearly to help poll workers identify problems and solutions. For example, if you're in an audio-only mode of the display, having the same information presented visually so that the poll worker or the person providing assistance can help direct the activities in a cooperative manner.

Shaneé Dawkins: Brad, you have about one minute left.

Brad Fain: Okay. So, the next slide is just some of the - the next few slides is just some of the issues that we've dealt with over the years and some potential solutions. I'll go through those real quickly.

So, prioritization in the design problem is a problem. Accessibility isn't always the highest priority or is rarely the highest priority and is often conducted, testing is often conducted late in the design stage. You know, one of the things that we should do for that is to promote early testing and promote ways of bringing people with disabilities into the design process.

There is sometimes a lack of standardization in samples for those that do include people with disabilities in the design process. So, we need to answer the question, what constitutes a representative sample of users with disabilities? How should we test them? What combination of disabilities, how many users should participate in an accessibility evaluation?

So that's information that we need to supply. There's sometimes insufficient information about the evaluation criteria. A lot of the evaluations are more focused on design based criteria as opposed to user performance base.

Meaning, maybe we should start looking at successful task completion requirements or error rates or time to complete certain tasks associated with ballots and so forth. And objectively establish certain (passable) criteria in figuring out what is good enough for accessibility testing.

So, thanks for everyone's time. You know, feel free to contact me with additional questions. My e-mail address is brad.fain@gtri.gatech.edu. I'll be glad to answer any questions. Thank you.

Shaneé Dawkins: Great. Thanks, Brad. So, right now there are a few questions in chat. If you feel more comfortable typing your questions in the chat box, do that, and I will read them out loud. If not, you can wait until after I finish all the chat questions, then we'll open it up for a live Q&A through your audio.

So, first we'll start with the question for Brad, the last speaker, from David Baquis. What assistive devices have voters been bringing with them? This was in...

Brad Fain: Hi, David.

Shaneé Dawkins: Go ahead.

Brad Fain: Yes, I'll be glad to answer that question. Some of the devices that we saw, of course, you know, are the mobility aids associated with, you know, having to

stand there at the polling place. Sometimes they required additional hardware getting into the polling booth with them.

But primarily what we saw was visual-related equipment. So, screen magnifiers, electronic devices designed to increase the viewing size of the ballot or the screen or maybe just magnifying glasses in general. Wanting to bring those in with them, sometimes that might or might not be an issue.

Occasionally, we didn't see this personally, but we certainly heard about issues about individuals wanting to connect their own listening devices. And sometimes that might or might not be an issue depending on the location and the training of the poll worker. So, those are the types of assistive devices that we see.

Shaneé Dawkins: Great. Thanks, Brad. Now we have a question from Michelle Bishop, and this is for Amanda Beals of Paraquad. Michelle Bishop is from the National Disability Rights Network.

She says, "I work closely with the protection and advocacy organizations in each state who would love to work with their election authorities on poll worker training. Can they contact you to see the materials you've created and potentially use them in their states?"

Amanda Beals: Yes, we'd be happy to share our materials with anyone who wanted to see them. I can send them electronically and we have print versions too that people can have. So, I'd be happy to work with you on that.

Shaneé Dawkins: Great. Are there any other questions for the chat? I don't see anyone typing anything right now. So, Chris, if you could open it up for live audio questions?

Operator:	Certainly. Thank you. Ladies and gentlemen, if you'd like to register for a question via the phone, please press the 1, followed by the 4 on your telephone keypad. You will hear a three-tone prompt to acknowledge your request.
	If your question has been answered and you would like to withdraw your registration, please press the 1 followed by the 3. Once again, that is the 1, 4 to register for a telephone question.
Shaneé Dawkins:	Great. Thanks, Chris. While we're waiting for questions, I'm sending out of the chat box contact information for all of our speakers and all the webinar materials will be available on the Accessible Voting Technology portal and the link is there too. The easiest way I can tell you to get to it is to just go to vote.nist.gov and click on Accessible Voting Technology portal.
Pat Leahy:	Hey, Shaneé, it's Pat. I had one question for - maybe each panelist could just briefly touch on. One of the things that we looked at and tried to get more information on and enhance and help election officials with is working with voters with cognitive disabilities.
	And each of you touched on it briefly, but I was just wondering if you could highlight one or two things that you kind of took away from your experience that could help and the resources that you're offering in working with voters with cognitive disabilities. So, maybe, Brad, since you just went could you just touch on it briefly? That'd be great.
Brad Fain:	Absolutely. So, working with voters with cognitive disabilities or people with disability - cognitive disabilities in general for accessibility of IT equipment has been one of our passions.

There's a reluctance in some of the community of just saying the problem is too hard because there is so many different types of cognitive disabilities. But I don't think it's impossible.

I think it can be addressed, both from the perspective of just generally enhancing the usability of the system design in order to create more simplified equipment, more simplified instructions, certainly more simplified language associated with balloting. And reduce the chances for error and the consequences of error in the hardware design.

So, you know, in our research, we work with individuals with what I would call mild cognitive impairments quite a bit. And those range from memory lapses to illiteracy issues to attention disorders and so forth, and in general, cognitive decline.

Most of the things that you would do to increase usability of a system in the general literature is also useful for that segment of the population as well. So, it's not an intractable problem, it's just that it is a more complex problem than perhaps people are used to dealing with, but I think it's possible.

Pat Leahy: Thanks. And Karen and Amanda, anything in that area? I went to Brad just because I worked with him closely on Military Heroes and the Wounded Warriors, but...

Amanda Beals: Yes, I definitely agree with that, especially when you're talking about simplifying language and direction and design of things and other things that have I have found to be helpful.

And I know there's pros and cons to this, including pictures with ballots or pictures with instructions is also really helpful. So, it's not just all words, but you can add pictures to accompany it.

And then the other thing is just interacting with a voter with a cognitive or intellectual disability is to treat them like any other voter. So, you're addressing that person, not a person with them and, you know, letting them ask for the help that they need and tell you that the best way to assist them.

Pat Leahy: Great. Thanks.

Karen Milchus: This is Karen. I'll ditto what the other two said. I know that for us, that section of our course provided a bit of a challenge because one of the issues that came up was that in some cases there had been stories of poll workers turning voters away who have cognitive disabilities.

So, we were trying - it was very tricky trying to figure out how do you tell the poll workers not to do that without giving them the idea at the same time. However, I think we achieved that.

I should also note that we made our voter with the cognitive disability a veteran to, A, touch on that issue, but hopefully to try to remove the immediate idea of, "Well, that person maybe shouldn't be voting." So, hopefully we've addressed that.

Pat Leahy: Thanks.

Shaneé Dawkins: Great. Chris, are there any questions on the line?

Operator: We do have one question queued up from the line of Lou Ann Blake. Please go ahead.

Lou Ann Blake: Hi, thank you for your presentations. They've all been very good. I've really enjoyed them.

I certainly agree with what Brad has pointed out that election technology developers need to have the disability community involved in the design of voting technology early on. We here at the National Federation of the Blind are constantly telling, you know, voting technology developers please bring your machines to us early. However, that's not what happens.

We don't generally see them until the design is pretty much done. Is there anything that can be done, I don't know, maybe through the regulatory process or something that can provide more of an incentive or more of a stick to see that that happens?

Pat Leahy: I guess that's for me, this is Pat. And I'll just jump in. The one thing I really am looking forward to digging into the President's Commission on Election Reform that came out. And beyond that, Lou Ann, it's a great question.

And we need commissioners to kind of move forward and get the process greased and moving better. But I do hear what you're saying. And we've talked about it before, looking forward to working with you more on this in the future.

Lou Ann Blake: Okay.

Brad Fain: And this is Brad. I'll just add one thing. One of the advantages, I guess, of working on so many of these programs is that we've certainly had the

opportunity when companies or individuals that are - or counties that are developing voting systems are developing a new voting system, they've been able to come to us and we provide them some assistance and feedback and direction. And hopefully got at least some of those requirements into their requirements development process early on.

You know, but more needs to be done. And it's been a, you know, it's been a case where they've had to seek us out in order to do that. And not everyone is willing to take the time.

Shaneé Dawkins: Great. Chris, any further questions?

Operator: We have no more questions queued up, ma'am.

Shaneé Dawkins: Okay. So, just in closing, just some final information. Once again, I've put the contact information for the speakers in the chat box. And for those of you who are only on the call, the speakers' information will also be on the AVT portal, and you can get to that by going to vote.nist.gov and clicking on the Accessible Voting Technology portal.

We also have a LISTSERV, an e-mail LISTSERV, that you can join and you can get announcements about different things that EAC and NIST are doing related to Accessible Voting Technology. You can send announcements out about any of the work you're doing and announce it or you can - or request any feedback.

You can use that LISTSERV for anything related to Accessible Voting Technology. I request that you be a member to post to LISTSERV. And you could become a member of it by sending your contact information to avtvote@nist.gov. I already discussed our Web portal.

And we would like to hold more webinars on Accessible Voting Technology under the AVTI grant from the EAC. We're looking at holding some, two in the next couple of upcoming months. So, if you have any comments or suggestions on this webinar, the first webinar, or any future webinars, please send an e-mail to avtvote@nist.gov.

We'll send out any announcements for those future webinars to the AVT list, so please become a member. If there are no more questions and if any of the speakers don't have any more comments? All right. Well, thank you so much for attending, and please stay tuned for our next webinar. Bye-bye.

Operator: Ladies and gentlemen, that does conclude the webinar for today. We thank you for your participation and ask that you please disconnect your lines. Have a great day.

END