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UNDERSTANDING VOTING EXPERIENCES OF PEOPLE WITH DISABILITIES

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<u>Executive Summary</u>

The goal of this project was to gain an in-depth understanding of the complexities and interrelationships of the barriers and facilitators surrounding the voting process as experienced by persons with disabilities. Methods included semi-structured interviews and structured observations of polling sites, conducted both independently and while accompanying voters to the polls. We interviewed 41 persons who voted in-person, 4 persons who voted absentee, and 4 persons who had not voted in at least 5 years.

Facilitators were defined as those factors that actively promoted a positive experience during the voting process, while *barriers* detracted from it. During data analysis, we identified three broad categories of environmental factors affecting voters' experiences:

A) *Social Environment of Polling Places*. The social environment was dominated by the presence of poll workers.

Chief facilitators:
- Friendliness and courtesy
- Ability to anticipate voters' needs
- Knowledge about voting procedures and technologies

Primary barriers:
- Lack of knowledge about voting procedures and technologies
- Inability to recognize needs of persons with disabilities and provide assistance
- Lack of poll workers to support voters throughout the voting process

B) *Pre-election information* about ballot issues, location of polling sites, registration procedures, and use of voting machines. Only one facilitator was noted: demonstrations by a disability organization on how to use the accessible features of voting machines.

Primary barriers included:
- Difficulty finding voting information on candidates
- Accessibility of precincts and voting machines
- Inconsistent information

C) *Physical environment of polling places* included:

1) Architectural <u>and Community Factors</u>

Primary facilitators included:
- Accessibility of polling place
- Location of polling place
- Sufficient space inside the polling place
- Polling place information

Primary barriers included:
- Inaccessibility of polling place
- Location of polling place
- Poor acoustics in polling place
- Transportation to the polling place

2) On-Site Information
        Primary facilitators: adequate signage and posters
        Primary barriers: inadequate signage and posters

3) Voting booths: Only barriers were noted.

Primary barriers included:
- Improper position of voting booths
- Inappropriate table/machine height
- Lack of adequate seating
- Insufficient leg room beneath the voting table
- Inaccessible voting stations

4) Voting machines:

Primary facilitators included:
- Audio output allowing voters to correct errors
- Adequate and adjustable font size
- Easy to read font style (Arial)
- Easy to use voting card
- Different voices for different ballot categories to prevent fatigue
- Easy to use machines
- Clear instructions

Primary barriers included:
- Lack of clear directions on how to use audio
- Audio kit not set up on time
- Non-functioning or unavailable audio system
- Lack of flexibility of audio features
- Lack of speed choices for audio system
- Poor sound quality of audio
- Coordinating putting on headset and start of audio
- Difficulty inserting and removing ballots
- Screen glare

Four major themes emerged from subjects' interviews and observations:
1) Sense of inclusion in the voting process; 2) privacy while voting; 3) independence; and
5) stigma These themes represented not only key concerns of voters, but also their implicit expectations of what it means to have a positive or negative voting experience. These

themes were not discreet, but overlapped with one another, and were informed by how individual voters experienced barriers and facilitators to the voting process.

The study suggests that when it comes to voting, people with disabilities share a set of common experiences that are distinctly different from those of the general voting population. Moreover, those experiences are directly associated with three factors:

- Ignorance about how to interact with individuals with disabilities in the context of the voting process.

- Challenges in voting technology design that raise questions about divergence of technology systems, reliability, features, and support.

- Issues in the built environment that pose barriers in terms of accessing polling places, and which effectively marginalize disabled voters – even inadvertently – by, for example, inadequate signage or inaccessible parking areas.

INTRODUCTION

In 2000, The United Nations Development Programme (UNDP) argued that the fulfillment of human rights necessitated a democracy that is inclusive of all its citizens. It identified elections as fundamental to securing the "economic, social and cultural rights for the most deprived individuals and to ensure participation of all in decision-making. " Holding free and fair elections contributes to fulfillment of the right to political participation"[1]. Of equal importance, the act or process of voting is critical to a person's participation in the democratic process and is one of the defining characteristics of citizenship for all Americans. We are taught that we can exercise these rights regardless of culture, ethnicity, race, political conviction, and belief systems[2].

In the United States, being able to cast a ballot in a public polling place is taken for granted by many. For people with disabilities, however, the accessibility of polling places and voting technologies as well as other aspects of the voting process can impact the ability of an individual to exercise their civic rights. Despite guidance provided by the ADA Amendments Act Accessibility Guidelines (ADAAG), significant barriers continue to exist for voters with disabilities[3].

Barriers to voting can take many interrelated forms: social, political, physical, and economic. For example, the impact of poverty and disability on voter participation is well documented[4-6]. The social stigma of cognitive impairment couched in the medical language of disease and abnormality, has led to questioning whether such individuals are capable of and should be allowed to participate politically[7]. The physical inaccessibility of polling places, the functionality of voting technologies, and the knowledge that poll workers bring to the voting process often reflect societal attitudes and assumptions about those who have a right to vote and those whom we can conveniently ignore[8]. As a result, citizens with disabilities are often at a complex intersection between cultural beliefs about normality, competency, responsibility, and definitions of citizenship[8-16].

This ethnographic study is part of *The Accessible Voting Technology Initiative*, which has an overall goal to "use a design-led innovation process to translate research, observations and insights into actionable steps to change voting system technologies and processes in ways that will improve the voting experience for people with disabilities[17]". The study used one-on-one interviews with people with disabilities to gain a deeper understanding of how physical and social barriers and facilitators impacted their voting experiences. Based on those interviews, this paper focuses on the complexities and interrelationships among barriers and facilities and general voting themes. It is intended that these insights will contribute to a more effective conversation among stakeholders, which, in turn will facilitate solutions that enhance and improve voting systems and technologies for people with disabilities.

RESEARCH DESIGN

*An "ethnographic interview" seeks to understand peoples' everyday actions; to link those actions with their ideas about the way the world works; and to uncover the meanings people attribute to their actions and ideas (*Spradley, J., *The Ethnographic Interview* 1979: Wadsworth Group/Thomas Learning)[18].*

This study used a qualitative methodology, including both ethnographic interviews and observations, to systematically probe voters' experiences from their own perspectives. Ethnographic methods provide an ideal strategy to identify those factors that help or hinder voters with disabilities, and and to explore in greater depth how and why people vote, the barriers they confront, and the facilitators that ease the voting process. Observations provided an objective counterpoint to the subjective perspectives from the interviews by identifying environmental characteristics, which may act as barriers (e.g., parking, signage, placement of voting machines).   Four experienced researchers from a variety of professional backgrounds, including a medical anthropologist, two occupational therapists, and a psychologist, participated in data collection and analysis. All research staff had previous experience in qualitative research methods.

Subject Sample. Our goal was to interview 20 voters (defined as an individual who had voted within the past five years) and 20 non-voters (defined as an individual who had not voted in the past five years) with one or more functional limitations in the following areas: mobility, manipulation, vision, hearing, and/or cognition. Limitations in different abilities were defined as follows:
- *Mobility*: the inability of a person to use one or more of his/her lower extremities, or to ambulate/move through the environment at all or without the aid of an assistive device such as a wheelchair, crutch or walker[19].
- *Manipulation:* the inability of a person to use one or more of his/her upper extremities, or to grasp or lift objects at all or without the aid of an assistive device [19].
- *Vision:* a significant loss of vision as to qualify for additional supports such as assistive device, such as glasses or a magnifying glass (low vision) [20] or the complete lack of form and visual light perception (blindness)[21].
- *Cognition:* loss of intellectual functioning (reasoning, learning, problem solving) and adaptive behavior, covering a range of everyday social and practical skills[22].
- *Audition*: any deviation from normal hearing, either permanent or fluctuating, and ranging from mild hearing loss to profound deafness[23].

Recruitment Procedures. Subjects were recruited through local community and disability organizations, Independent Living Centers and the CATEA Consumer Network (CCN), a registry of approximately 1,000 people with a wide range of disabilities who have agreed to participate in Center research (www.catea.gatech.edu/ccn).

Data Collection Methods. Varying combinations of interviews and observations were conducted during different time periods: 1) post-election telephone interviews in 2011 and 2012; 2) unobtrusive observations of polling places in 2011 and 2012; and 3) interviews combined with observations of voters at their polling places during the 2012 early election and Election Day.

1. Post-Election Telephone Interviews

Between 2011 and 2012 researchers administered semi-structured, in-depth telephone interviews to voting and non-voting subjects with disabilities. Participating

subjects were voters with disabilities who had voted in either or both of the November 8, 2011 and national 2012 elections.

Interviews lasted between 45 and 90 minutes. With subjects' permission, all interviews were taped and transcribed. Participants were compensated $25.00 for their time. The Georgia Institute of Technology's Institutional Review Board approved this study. Interview questions examined voters' past and current voting experiences.

Interview questions examined the following issues:

- <u>Sense of civic responsibility and importance of voting</u>. Questions targeted family voting patterns and history, and the meanings and significance of voting.

- <u>Past experiences in voting</u>. Questions examined previous use of voting machines, types of polling places they had experienced, interactions with poll workers, accessibility of polling sites and their immediate physical environment, and experiences with voter registration and absentee ballots.

- <u>Current voting experiences</u>. Questions were intended to draw out subjects' current experiences with voting machines, polling places, accessibility, how voters learned about election issues before the election, and how they accessed that information. In addition, voters were asked about their interaction with poll workers, election officials, and friends or family members who may have provided aid while voting.

2. <u>Unobtrusive Observations of Polling Places</u>

CATEA research staff conducted unobtrusive observations during the 2012 Early Election (October 15-November 2, 2012) in Georgia and on Election Days in 2011 and 2012 in Georgia and Missouri. The goal was to record features in the physical environment of the polling place, including parking, transportation, signage, building entry, layout, and location of machines, and the social environment (e.g., attitudes of and assistance from poll workers family members, friends, and other voters) that supported or hindered voting behaviors among people with disabilities. Specifically, researchers observed the behaviors of voters as they interacted with the physical environment, poll workers, and other election officials who were present. In addition, a systematic inventory of the following physical features was recorded:

- Type of polling place (e.g., school or senior center)
- Number of voters observed at polling place
- Sequence of tasks performed in the voting process
- Ballot recording method and casting the ballot
- Total time of voting process
- Layout of the polling place
- Accessibility of voting machines
- Adequate signage in the polling place
- Accessibility of parking areas

- Accessibility of bathrooms, hallways, water fountains, etc.

3. <u>Touring Interviews with Voters</u>

During Early Election and Election Day 2012, researchers in Atlanta used a debriefing technique that combined both observation and informal interviews during and after observations. After subjects had consented to be interviewed, researchers accompanied them one-on-one through their voting process. As with the unobtrusive observations, researchers recorded voters' behaviors as they moved through the polling site, including their interactions with other voters, poll workers, voting technologies and the physical environment of the polling place. Voters had the option of being accompanied by the researcher while traveling to polling site, or meeting the researcher once there. Interviewers did not enter the voting booth while subjects cast their votes. Within 24 hours after voting, participants were debriefed on their voting experience using the current Interview Guide questions.

In addition to interview questions, observation data obtained during the touring interviews enabled researchers to develop voter-specific questions for each debrief interview that would: 1) better a better understanding of each participant's experience; and 2) validate perceived observations. Researchers did not aid voters in casting their ballots, but only observed them, including any aid they may have received from a poll worker and/or family member. Every effort was made to ensure a person's privacy while they voted.

Data Analysis. Qualitative analysis techniques were used to identify key themes and patterns from the interviews and observations of subjects and polling places. During data collection, researchers reviewed transcripts of subjects' voting experiences and observation notes to identify preliminary patterns and themes, including perceived barriers and facilitators, using an *open coding* technique[24, 25]. This part of the analysis looked at recurring categories, experiences, and language people used to describe experiences, and began to label themes, such as, privacy. Similarities were examined in the use of language including adjectives, adverbs, superlatives, and duration of an event, which might reflect the intensity or personal importance of a theme.

After data collection ended, each researcher was asked to prepare a summary identifying the key points and themes from interview transcripts and observation notes. Objective observations of polling places were used to supplement subjects' own perceived barriers and themes. Summaries were organized around questions from the interview guide. This exercise allowed researchers to easily compare subject responses across the same question/topic for all subjects and to begin axial coding, a systematic process of relating codes to each other (e.g., [24, 25]).

Researchers summarized key themes and examined the context in which they were used. In addition to the role of observations in elaborating voters' themes, the objective data from researchers' unobtrusive and touring observations of polling places, plus voters' responses to interview questions about the specific barriers and facilitators they experienced during their voting experiences were compiled and categorized in detail.

Researchers discussed and resolved interpretative differences through telephone conference calls and emails. During meetings - both before and after data collection was

completed - researchers discussed themes and refined their definitions. The accuracy and credibility of data interpretation was enhanced by the coders' diverse professional perspectives, thereby reducing the risk of person-specific or discipline-specific biases.

RESULTS

Although we had no difficulties recruiting voters with disabilities, despite persistent efforts we were only able to recruit four non-voters. Our recruitment strategy, which targeted organizations with individuals more likely to be actively interested in disability issues, may also have been more likely to attract voters than non-voters. This problem was addressed by using alternative recruitment strategies. First, we used snowball sampling techniques [26]; that is, we asked current subjects if they knew of others who did not vote and who might be interested in participating in the study. Second, we posted a flyer via another research project at Georgia Tech that was recruiting people with disabilities. Although we received a number of inquiries, no potential participants fit the definitional criteria.

Overall, 49 individuals participated in the study. Among these, 45 were voters (including 4 who used absentee ballots) and 4 were non-voters. Thirty-one subjects were interviewed immediately following the 2011 election and the 2012 national election. Twelve subjects were interviewed between elections. Touring interviews with 18 subjects were conducted during the 2012 election in Georgia and Missouri. Unobtrusive observations were conducted at 6 polling places in Georgia (2011 and 2012) and 3 in Missouri (2012).

The results are organized into four sections: 1) participants' demographic characteristics including voters, non-voters, and those who voted using an absentee ballot; 2) reasons for voting (in person vs. absentee) or not voting; 3) perceived barriers and facilitators; and 4) major themes that emerged during interviews and observations.

1. Demographic Characteristics

Subjects (n=49) varied in the type of disability, gender, education, and employment status (see Table 1). The majority (n=34) were female, and were 40 years of age or older (n=38). Approximately 40% of subjects had vision impairments or were blind (n=22), and 40% had mobility (n=21) impairments. The sample was better educated and had a higher employment rate than the general disability population. First, in comparison to a national employment rate of 37.4% for working age people with disabilities [27], approximately 59% (n=29) of the subjects were employed. Second, slightly more than 63% (n=31) of voting subjects had a bachelor's or more advanced degree, which was considerably higher than the 13.5% within the equivalent general population of people with disabilities [28].

Table 1. Characteristics of Participants

	In-person (n=41)	Absentee (n=4)	Non-voters (n=4)	Total (n=49)
Gender				
Male	12	1	2	**15**
Female	29	3	2	**34**
Age				
20-29	3	0	1	**4**
30-39	7	0	0	**7**
40-49	12	1	0	**13**
50-59	12	2	1	**15**
60 and above	7	1	2	**10**
Education				
High school / GED	2	2	2	**6**
Vocational school	1	0	0	**1**
Some college	8	1	2	**11**
Bachelor degree	16	1	0	**17**
Some graduate work	3	0	0	**3**
Masters/doctorate	11	0	0	**11**
Employment				
Not working	14	3	3	**20**
Working	27	1	1	**29**
Types of Disability				
Mobility	19	2	0	**21**
Manipulation	10	0	0	**10**
Low vision	4	0	0	**4**
Blind	16	2	3	**21**
Hearing	2	0	0	**2**
Cognition	1	0	1	**5**
Mental	2	0	0	**2**
Personal Assistive Technology				
White cane	14	2	3	**19**
Guide dog	3	0	0	**3**
Cane	2	1	0	**3**
Crutches	1	0	0	**1**
Wheelchair	15	2	0	**17**
Scooter	0	1	0	**1**
Hearing aid	2	0	0	**2**
Blackberry	0	0	1	**1**
Residence (State)				
CA	1	3	0	**4**
FL	1	0	0	**1**
GA	21	1	2	**24**
MA	1	0	0	**1**
MO	6	0	0	**6**
NY	7	0	1	**8**
NC	2	0	1	**3**
TN	1	0	0	**1**
VA	1	0	0	**1**

Four individuals were classified as non-voters. Three had voted previously and one had never voted but intended to vote in 2012. In general, demographic characteristics noted in Table 1 for the 4 non-voters did not differ substantially from voters in most

categories, although 3 out 4 (75%) were blind. However, they did differ from their voting counterparts in education and employment, where non-voters were more similar to the general population of people with disabilities than they were to voters. Only 1 of the 4 non-voters (25%) was a college graduate compared to 31 (63%) of voters, and 3 out of 4 non-voters (75%) were unemployed as compared to 20 (41%) voters.

2. Reasons for Voting In Person, By Absentee Ballot or Not Voting.

Voting In Person. The majority of voters had at one time or another voted absentee. Eleven out of the 41 subjects (27%) who voted in person said they had occasionally voted absentee in previous elections. Of these eleven voters, four were mobility impaired, two were vision impaired, and five were blind. These subjects generally preferred voting in person. However, in certain circumstances subjects voted absentee (e.g., a recent move, an inaccessible polling station, or temporarily away from their voting precinct). When asked about why they did not vote absentee more often they noted several barriers.

Table 2. Reasons for Voting in Person, by Absentee Ballot or Not Voting

Reason	Disability type	Frequency
In Person		
Difficulty in reading absentee ballot	Blind	5
Lack of privacy for absentee ballot	Blind, Vision Impaired	5
Inconsistent information about voting registration and procedures	Mobility, Blind, Vision-Impaired	7
Insecurity that absentee vote would be counted	Mobility, Blind, Vision-Impaired	5
Absentee Voters		
Uncertain if precinct and/or voting machines are accessible to voters with disabilities	Mobility/Manipulation	1
Inaccessible precinct (e.g., old church with steps)	Mobility	1
Worries about a malfunctioning voting machine	Blind	1
Inconvenient to get to polling place (e.g., do not know location of polling place or how to access that information)	Blind	1
Non-voters		
Uncertain if precinct and/or voting machines are accessible	Blind	1
Uncertain if they can get assistance from poll workers	Blind	1
Did not receive the voting registration card after filing out application and did not know where to go to check	Blind	1
Overwhelmed by multiple tasks involved in voting process (e.g., accessibility of voting machines, being able to sign name)	Cognitive, Blind	2
Lack of reminder/prompt on when to vote	Cognitive	1

1. Difficulty in reading ballot. Some subjects noted that they would vote absentee if ballots were more accessible. For example, one voter who is blind reported that an absentee ballot was inaccessible because, *"I still can't read that."* Other barriers noted by vision-impaired and blind voters included font size being too small, lack of Braille format, and the difficulty of revising or correcting an error on the ballot.

2. Lack of Privacy. Difficulty in reading the absentee ballot required an aide to read it to voters who were either blind or vision-impaired. Such assistance not only compromised privacy, but voters were less confident that an assistant would accurately record his/her vote.

3. Inconsistent information about voting registration and procedures. Another major reason for voting in person was the confusion caused by the lack of clear information regarding voting registration and procedures for absentee ballots. One subject commented:

> *I thought they were sending me the absentee ballot when, in fact, they were just sending me a consent form. So I missed the whole voting process.*

4. Insecurity that ballot would not be counted. Voting at polling places in public also provided many with greater assurance that their ballots would be counted. As voting by mail has become more popular, there has been increased news coverage suggesting that absentee ballots may be more vulnerable to fraud, or that they can be rejected by election officials if handwriting is ambiguous or there is missing information[29].

> *We [mother and daughter] both mailed them* [absentee ballot] *off, and then some time passed and then they sent me another absentee ballot. It was really weird as if I had never voted . . . we weren't sure what to do because we knew we had to get it in by a certain time when you do absentee. And so we said, well, what the heck? We'll fill it out again. I have no idea if my vote was counted that year or not.*

> *I had put my absentee ballot in my mailbox, and it took forever for the mailman -- some days passed, and I finally had to call and gripe about my postman for not picking up my ballot….After that, I said, 'doggone it', I'm going to go and get on the machine to make sure my vote counts.*

Voting by Absentee Ballot. Voters who used absentee ballots noted their convenience. Difficulties in getting to the polls because of inadequate transportation resources, learning how to use the voting machines, feeling conspicuous among voters without disabilities, and perceiving themselves as a burden to the voting process were among the chief reasons voters chose to use absentee ballots.

Reasons for voting by absentee ballot were mostly related to insufficient information for in person voting. For example, one voter did not know how to access information about the location of his polling place. He was unaware of the presence of voting machines as well. Another voter was encouraged by her election official to vote absentee because her polling place was inaccessible to her wheelchair. Subjects agreed

that voting in person could be encouraged if they could access needed information through, for example, web sites, postings in community centers, or newspapers.

Not-Voting. Three of the 4 subjects had previous voting experiences more than five years ago. One subject was familiar with and appreciated the use of an absentee ballot. This subject had a cognitive disability and was fearful of voting at the polling place where she became anxious and self-conscious about the extra time needed to vote. In addition, this subject was nervous about a lack of understanding in both the use of the voting machine and comprehending voting information.

Although voting was viewed as an important part of civic participation for 3 out of 4 subjects, insufficient information about voter registration, assistance during voting, and the accessibility of polling places were cited as reasons preventing them from voting. The fourth subject was an 87-year-old man who has been blind for 38 years. He was the only subject who had not grown up in a family that stressed the importance of voting. He stated that voting was never emphasized because his parents were immigrants and could not vote. He added that his single voting experience was coerced and unsatisfactory. He had voted in 1948 while he was in the military because "they made me vote." However, his candidate lost and, at that point, decided *not to vote again.* He also cited blindness as another factor that discouraged him from voting. He was aware of changes in voting technology and he mentioned the overall need for assistance for people with vision impairments at polling sites. However, when asked about the possibility of voting in the future he thought that if someone helped him with voter registration and the necessary paperwork, he might vote absentee.

3. Barriers and Facilitators to Voting In Person

According to the International Classification of Functioning, Disability and Health, "environmental factors make up the physical, social, and attitudinal environment in which people live and conduct their lives [30]." In this case, we focused on those environmental factors surrounding the voting process as perceived by subjects and observed by researchers. Barriers and facilitators were those factors emphasized in subjects' interviews or particularly noted by observers to have an impact on voters' experiences. That is, facilitators were not identified as being an absence of barriers (or vice versa). Rather, facilitators actively promoted the voting process, while barriers detracted from it. During analysis we identified three broad categories of environmental factors affecting voters' experiences: A) *social environment of polling places*; B) *pre-election information*; and C) *the physical environment of polling places*, including voting technologies and ballots.

A. Social Environment of Polling Places: Poll Workers. The role of poll workers had a key impact on voters' experiences (see Table 3). Familiarity, helpfulness, friendliness, courtesy, and the ability to anticipate voter needs were identified by voters as contributing to a positive voting experience. In contrast, lack of helpfulness, being ignored, ignorance about voting procedures and technologies, and poor attitudes could compromise a voter's independence, privacy, and ability to vote in a timely and dignified manner.

It should be noted that of the two largest disability groups interviewed for this project (i.e., blind/vision impaired and mobility impaired), the former group experienced

more barriers distributed across two major areas: 1) interactions with poll workers and 2) use of voting technologies, which often required instruction and aid from poll workers. For example, voters who used a white cane reported that poll workers did not recognize them as persons with a disability and that, consequently, their presence was initially ignored. Even when the need for assistance was recognized, some poll workers seemed unsure how to help. These voters sometimes felt forced into a passive situation of having to wait for a poll worker to initiate assistance. Having to speak out to gain a poll worker's attention led some to feel self-consciousness or embarrassed. As one voting subject pointed out:

> *They don't understand when a blind person walks up with dark glasses and a white cane that they can't fill out the form. So you have to stand here for awhile until they figure it out. So what I usually do is wait and then hand somebody my ID.*

Table 3. Barriers and Facilitators Associated with Poll Workers

Factor	Disability type	Frequency
Facilitators		
Poll workers were friendly and courteous	Blind, Low vision, Mobility	8
Poll workers anticipated voters' needs	Mobility, Mobility/manipulation	6
Poll workers were knowledgeable	Mobility	1
Barriers		
Poll workers' insufficient knowledge about voting machines.	Blind, Mobility	11
Poll workers' inability to recognize needs of people with disabilities and provide appropriate assistance	Low vision, Blind, Blind/Mobility, Mobility/Manipulation, Cognitive/Mobility, Hearing	18
No poll worker to support voters through the entire process.	Blind, Low vision, Mobility, Mobility/Manipulation, Cognitive/Mobility	6

Facilitators Associated with Poll Workers.

       1. Poll workers were friendly and courteous (n=8). Although more voters found that poll workers hindered rather than helped them, some participants acknowledged poll worker helpfulness during the voting process. Only 1 subject found a poll worker to be knowledgeable, however, 8 voters thought their poll workers were friendly and courteous. In a few cases, poll workers were personally known to the voter and were regularly helped by the same poll worker at every election. The constancy and sense of familiarity with the

poll worker contributed to feelings of confidence during voting and a sense of inclusion that they were "part of the process." One observer of a vision-impaired subject's voting experience in the 2012 federal election noted:

> *The poll worker took care of most of the work for the participant; they picked up his ID card, and had his forms filled out so all he had to do was to verify and sign them and he was able to vote. The voter found the poll workers to be helpful, good at anticipating his needs, and "definitely" courteous.*

In addition, one voter's statement reinforced the importance of being able to recognize and interact appropriately with voters with disabilities:

> *I've never had a poll worker who was rude to me or talked down to me in any kind of way. I think more often they're more nervous about what to say or not to say, but not out of rudeness or being mean or nasty. I don't -- I've never picked that up at all, even when I was low vision and partly blind and didn't have a cane.*

2. <u>Poll workers anticipated voter needs</u> (n=6). Six subjects appreciated poll workers' efforts to anticipate and be proactive about meeting answering their questions and troubleshooting problems with voting machines. For example,

> *She's not afraid to jump in and help whoever needs help and she was being very helpful in explaining to me different propositions and stuff like that.*

> *I was just glad that they were willing to try to fix the problem and not just say, well, we don't have that capability so you'll just have to do it this way. They were willing to look into and see what it would take to fix the problem.*

<u>Barriers Associated with Poll Workers</u>.

1. <u>Poll workers' inability to recognize the needs of voters with disabilities</u> (n=18). Poll workers' lack of knowledge and ability to recognize the needs of voters with disabilities had wide ranging effects including perceived discourteous treatment and ineffective assistance, which in turn, led to expressions of anger and frustration among many voters with disabilities. For example, lack of knowledge about a person's impairment can compromise poll worker courtesy and helpfulness. One voter stated:

> *Don't be hesitant on talking to me. Because first, the guy that got me to the table when I first got there, they started asking him questions about me and he didn't know me. They said, well, can she do this or can she do that? Instead of talking to me! They just assumed that I was with him, and I was not.*

The observer accompanying this voter noted that:

> *The poll worker handed a clipboard to the voter and her husband and directed the husband to a table to complete their paperwork. The voter – being blind - felt she was*

ignored because she was with a sighted person, and that because she was blind was perceived as having no ability to function.

Another voter who used a guide dog complained that:

The person [poll worker] actually started walking [towards me] and then turned around and goes okay, come on doggie, come on. And I was like, oh my god, please don't do that. It's a big no-no.

2. Poll worker's insufficient knowledge about voting machines (n=11). Voters with vision and mobility impairments complained about poll workers' inability to set up and use the machines. Vision impaired and blind voters had to wait while machines with audio features were set up, and once set up, poll workers were either insufficiently trained to instruct others in their use or to trouble shoot problems if they arose. Those who relied on wheelchairs complained that poll workers did not place voting booths far enough apart to allow comfortable maneuvering.

One voter voiced her frustration about the lack of preparation to accommodate her:

My center [inaudible] was not prepared for disability or people with limited ability to vote. They were not prepared. They didn't have anything ready at all. And it took a long time for them to get set up.

Others expressed frustration with poll workers' inability to instruct or advise them clearly:

I also had to educate them. She kept pointing things to me and I couldn't see it. I'm like, tell me what you're handing me and put your finger on it so I can sign it. I can still sign it; you just need to put your finger on where I'm supposed to sign.

They ask you questions that you don't have the answer to. They're like, do you want to do this or this? Well, like, what is either one of them? So like yesterday they said, "do you want to use that machine and have her help you, or use the other thing? And I don't even know."

The lack of strategies for communicating with voters with disabilities directly affected voters' independence. One observer noted that one poll worker's inability to troubleshoot problems prevented a subject from voting without an aide. The excessive delay caused by having to set up another voting machine, compelled her to enlist aid from her husband.

In addition, one of the observers noted the failed attempt of a poll worker to instruct a voter in using the keyboard. After three trial and error attempts, the voter eventually figured it out. This voter emphasized the importance of being able to vote independently (e.g., in this case, meaning, "without assistance"):

I was just kind of adamant about trying their device. And I would really have them just show it to me and then have me try to do it myself. Even if I failed once and then did it again.

3. No poll worker to support voters with disabilities through the voting process (n=6). Some voters felt the lack of a dedicated and knowledgeable poll worker who could have eased them through the voting process was a notable issue. These voters felt uncomfortable or were unsure how to get the registration tables and voting machines, and often did not how to find information at the polling site, who to ask, and what types of accessible features could be available to them. The lack of a stable, consistent, and reliable source of information during the voting process manifested itself in the expectation of poll worker support.

B. Pre-Election Voting Information. Interviewers asked voters how they learned about ballot issues, the location of their polling sites, voter registration, and how to use voting machines. Respondents identified newspapers, Internet, magazines, community meetings, printed materials from associations such as the National Federation of the Blind or the League of Women Voters, as well as political parties, and occasionally local debates between opposing candidates.

Access to information was important - not only for making informed choices - but essential to voters' confidence and comfort during the voting process. Access to information also allowed voters to practice or deliberate candidate choices and issues before voting. Not surprisingly, there were more barriers than facilitators to accessing information (see Table 4).

Table 4. Access to Pre-election Voting Information

Factors	Disability type	Frequency
Facilitators		
Demonstrations on how to use accessible voting machines.	Blind	2
Barriers		
Difficulty finding voting information on candidates, accessibility of precincts, voting machines	Mobility/Manipulation, Blind, Low vision, Cognitive	4
Inconsistent/inadequate information	Low vision, Cognitive, Mobility/Manipulation	3

Facilitators Associated with Accessing Information

1. Demonstrations on how to use accessible voting machines. Proactive demonstrations of voting procedures and how to use voting machines prior to Election Day

allowed voters to become familiar with the voting technologies, which, in turn, increased voter's confidence (n=2).

> *I did get to the see the machine on October 4th. An agency -- Paraquad -- they did kind of a voting summit, at the St. Louis County Election Board. . . and they displayed the machine. They had a pretend ballot. I did get to find out what it looked like and some understanding then.*

> *They had a demonstration here at CBI where you could come down and try out the machine because they were getting ready to launch them. And I came down and actually practiced voting on the machine, and then I went -- when the election rolled around, I was ready to go when I went to my precinct to actually start voting with those machines.*

     C. The Physical Environment of Polling Places. Voters' experiences regarding barriers and facilitators in the physical environment in and around polling places were observed by researchers during walkthroughs in both election years and while accompanying voters to the polls on Election Day 2012. In addition, subjects discussed their experiences during formal interviews. Environmental barriers and facilitators were reported almost equally among voters with different impairments.

     Broad categories of barriers and facilitators within the physical environment that were identified from both observations and interviews include: 1. Architectural and Community Factors; 2. On-site information; 3. Voting booths; 4. Voting machines; and 5. Forms (i.e., ballots and sign in sheets).

1. Architectural and Community Factors (see Tables 5 and 6)

Table 5. Types of Facilities

Type	N (In Person Voters)
Church	10
School	7
Library	3
Museum	1
City building	1
Municipal center	1
Government center	3
Civic center	3
Community center	2
Recreation center	3
Senior center	4
Residential apartment	4
Co-op	1
Firehouse	1

Table 6. Architectural and Community Factors

Factor	Disability	Frequency
Facilitators		
Accessibility of polling place	Mobility, Mobility/manipulation, Blind, Low vision, Mobility/cognitive, Mobility/low vision	12
Location of polling place	Blind, Mobility/low vision,	5
Sufficient space inside polling place	Blind, Mobility/cognitive	2
Polling place information	Blind, Mobility/manipulation	2
Barriers		
Inaccessibility of polling place	Mobility, Mobility/manipulation Blind	9
Location of polling place	Mobility, Mobility/manipulation Blind Cognitive	5
Insufficient space inside polling place	Cognitive/Mobility, Mobility	3
Poor acoustics in polling place	Blind	2
Transportation to polling place	Blind	2
	Mobility, Mobility/manipulation, Blind, Low vision, Mobility/cognitive, Mobility/low vision	12

Architectural and Community Facilitators

1. Accessibility of the polling place (n=12). Access was the most frequently noted facilitator. This included accessible restrooms, entrances, and a voting space that facilitated a voter's progress (or "flow") from waiting lines to voting machine. In addition, accessibility of parking close to the polling place was described as essential to a positive voting experience. Accessibility was defined by one voter who used a wheelchair as an easy-to-maneuver parking space near to the polling place:

... I know that there's certainly a number of people who were waiting to vote well ahead of me. Then I literally came and parked, went inside, voted, came back out, and loaded into my vehicle before they'd even gotten the chance to vote. So in that respect there was preferential treatment in terms of just the time spent.

2. Location of the polling place (n=5). Location was described as a facilitator when *the precinct was close to home* or *in an easy to get to location*. Some voters suggested providing more effective transportation resources for voters with disabilities, and/or locating polling places in more centrally or more conveniently to those who are employed.

3. Sufficient space inside (n=2). Space to maneuver a wheelchair and to maximize subjects' ability to orient themselves within the polling place was also noted as a facilitator.

4. Polling place information (n=2). Two subjects mentioned the importance of advertising election times and places designated for voters with disabilities. By alerting voters to pre-election voting opportunities and accessible polling places with shorter waiting lines, voters could minimize travel time between home and polling place.

Architectural and Community Barriers.

1. Inaccessibility of the polling place (n=9). This was the most frequently noted barrier, with lack of accessible parking spaces in and around the polling place being the most frequent (n=5). One voter described the dangers posed by a busy and inaccessible parking lot:

I did have a difficult time trying to get from the parking lot to the building because someone had blocked the ramp that leads up to the facility. So I had to ride my chair right in the street area where the cars come in and out. And that could be kind of dangerous because if it's real packed and somebody might be trying to get in there real quick to vote or leave real quick, they might accidentally -- could have hit me.

Inaccessibility also included lack of sidewalks, lack of automatic doors, or doors that were broken or did not stay open long enough for wheelchairs to move safely through, lastly, and doors that were too heavy for people to open.

2. Location of a polling place (n=5). As a barrier, the distance between home and polling place was strongly linked to a sense of discomfort in having to travel too far. Although the notion of distance was linked to the presence or need for transportation resources, a few subjects appeared more uncomfortable at the proximity between home and polling place. For example, one subject with a cognitive disability disliked having to walk more than a block to her polling place because even short distances were disorienting and uncomfortable for her to navigate.

3. Insufficient indoor space (n=3). Lack of space caused several voters who rely on wheelchairs to wait outside on sidewalks for a long time. In addition, a small voting area

provided little space for wheelchairs to maneuver easily. Combined with the close physical proximity of voting booths, these subjects felt their sense of privacy was compromised.

4. Poor acoustics (n=2). One subject noted that the noise of a polling place could be a barrier for many voters with vision impairments because it interfered with their ability to hear audio equipment.

5. Transportation (n=2). Though mentioned specifically as a barrier in only two voters' interviews, transportation was a key theme in subjects' overall voting experiences. For example, those voters who had no transportation difficulties identified the ease with which they were able to get to their polling site, but not as a specific facilitator. In addition, transportation has been noted as an important barrier to activity and community participation overall among people with disabilities [31, 32]. As one voter said:

> *I think transportation is what keeps most disabled people from doing most things most of the time. That . . . involves getting from work, which is a big problem. If you can't get to work, you -- it's very difficult to work. I think getting to polling places or doing anything else is hindered in this country by a country that's set up transportation systems that simply don't work for a lot of disabled people.*

In this study, transportation was not identified as a substantial barrier for subjects who used wheelchairs. Nearly all drove themselves in their own accessible cars or vans. However, blind, vision-impaired, cognitive, and hearing-impaired voters had to arrange their own transportation - usually through friends and family, and only occasionally using public transportation. Only one subject walked to her polling place.

Arranging a ride through a family or friend was the preferred and most common method for those who did not drive themselves. Two subjects who used public transportation complained that it added hours to the voting process, resulting in frustration and increased fatigue. In addition to the extra travel time, voters expressed frustration when trying to get information about travel options.

> *I called DeKalb County Voter Registration Office to find out how do I get a free ride to the polls. They knew nothing about what I was talking about, which I was really surprised by. Then they said, well, call the NAACP. I called them, and they just gave -- they just took me around these voicemail prompts. I never got a call back. So then, I just took the bus.*

The importance of accurate information about transportation resources is mentioned as both barrier and facilitator. Efficient travel time for voters underscores the importance of minimizing, not only the sense of distance between polling place and home, but also the fatigue and sense of wasted time associated with travel and waiting in line.

> *If you live that close to your voting poll (across the street) and you're dealing with MARTA to have to be ready an hour and a half early because that's what they told me, that I had to be ready at 6:00-something in the morning to go vote at 8:00 o'clock. And then you're going to pick me up on time, and then I'm going to be there an hour*

early and then I got an hour -- then I got another hour to wait until you come back.
That's two hours of wasted time.

2. On-Site Information

The clarity/adequacy of signage was reported with almost equal frequency as a barrier (n = 5) as well as a facilitator (n = 6)to voting in person.

Table 7. On-Site Information

Factor	Disability	Frequency
Facilitators		
Adequate signage	Low vision, Mobility	6
Barriers		
Inadequate signage and posters	Low vision, Mobility	5
Inadequate instruction for using voting machines	Cognitive/mobility	1

3. Voting Booths

Although no facilitators were associated with voting booths, they were most frequent barrier reported. Problems with the set-up included providing only one voting machine accessible to voters who use wheelchairs, and locating accessible voting machines in an area separate from other voters. Voters who related these experiences linked them to feelings of self-consciousness and isolation during the voting process. Barriers included:

Table 8. Voting Booths

Factor	Disability	Frequency
Barriers		
Improper positioning of voting booths	Blind, Blind/mobility, Mobility/manipulation, Mobility, Cognitive, Mobility/low vision	18
Inappropriate table/machine height (too low or too high)	Blind, Mobility, Mobility/manipulation, , Cognitive, Hearing	7
Lack of seating	Blind/mobility, Blind, Mobility/manipulation, Cognitive/mobility	5
Insufficient leg room beneath voting table	Mobility/manipulation, Mobility	4
Inaccessible voting stations	Mobility, Mobility/manipulation, Blind	3

1. Improper positioning of voting booths (n=18). included insufficient space between voting machines, machines that faced the crowd or were too close to people waiting in line resulting in lack of privacy.

2. Inappropriate table/machine height (n=7). was the second most frequently reported barrier. For example, voters in a seated position (e.g., a wheelchair user) could not fit their wheelchairs under or near the voting booth. Subjects who voted in a standing position reported that the table/machine height was awkward and sometimes tiring.

3. Lack of seating (n=5). Voters noted that there was no chair available while using voting machines or for voters waiting in line (n=5).

4. Voting Machines

Although electronic voting machines (with working accessible features) were generally viewed as a facilitator, voters with disabilities also suggested alternative voting formats such as voting by phone, by iPhone, and drive-thru voting. A universal designed voting machine was also recommended (e.g., with more flexibility in volume controls, speech speed, machine height adjustment, and screen angle adjustment).

Table 9. Types of Voting Machines

Type	N
Types of voting machine	
Diebold AccuVote TSX	22
ES&S iVotronic	7
ImageCast	4
DRE	1
AutoMark	2
Lever machine	3
Paper ballot	2

Voting Machine Facilitators. A number of facilitators were reported, although they were reported with very low frequency (i.e., N = 1 or 2). The most frequently reported facilitator was the audio output (n = 5), which allowed tolerance for error.

1. Audio Output. When the audio was available and working, it provided blind voters with the ability to review the ballot. This helped to prevent errors (such as selecting multiple candidates for the same office), reduced frustration and made a dramatic change in the voting experiences among voters who were blind.

Table 10. Voting Machines

Factor	Disability	Machine Type	Frequency
Facilitators			
Audio output allows voters to correct errors (Design for tolerance of error)	Low vision, Mobility, Cognitive, Mobility/manipulation, Hearing	Diebold AccuVote TSX, ES&S iVotronic	5

Adequate and adjustable font size	Low Vision	Diebold AccuVote TSX	2
Easy to read font style (Arial)	Low Vision	Diebold AccuVote TSX	1
Easy to use voting card	Low vision	Diebold AccuVote TSX	1
Different voice for different ballot categories prevent fatigue	Blind	ES&S iVotronic	1
Easy to use machine	Mobility/low vision	ImageCast	1
Clear instructions	Mobility/manipulation, Blind	AutoMark	1
Barriers			
Audio output Lack of clear directions on how to use the audio	Blind, Blind/mobility	Diebold AccuVote TSX, ES&S iVotronic, ImageCast	9
Audio kit not set up on time/takes a long time to set up	Blind	Diebold AccuVote TSX, ES&S iVotronic, ImageCast	6
Non-functioning or unavailable audio system	Blind/mobility, Blind	Diebold AccuVote TSX, ES&S iVotronic,	5
Lack of flexibility of audio features.	Blind	Diebold AccuVote TSX, ES&S iVotronic, ImageCast	3
Lack of speed choices for audio system (E.g., 2x to 3x faster)	Blind	Diebold AccuVote TSX, ES&S iVotronic,	3
Poor sound quality of audio	Blind	Diebold AccuVote TSX, ImageCast	3
Confusion when hearing multiple voices on audio (e.g., different candidates' voices)	Blind	Diebold AccuVote TSX	2
Problem with coordinating putting on headset and start of the audio	Blind	Diebold AccuVote TSX, ImageCast	2
No "start" button on the audio (as soon as the scan card was inserted into the machine, the audio began)	Blind	Diebold AccuVote TSX	1
Insufficient flexibility of volume control	Blind	Diebold AccuVote TSX	1
Noisy environment	Blind	ES&S iVotronic	1
Unable to use own headphone	Blind	ES&S iVotronic	1

No screen reader available	Cognitive, Mobility	Diebold AccuVote TSX	1
Review of ballot was flawed	Blind/mobility	ES&S iVotronic	1
Difficulty using keypad/control buttons	Blind/mobility, Blind, Mobility/manipulation	Diebold AccuVote TSX, ES&S iVotronic, AutoMark	3
Difficulty reading "select button"	Blind	ES&S iVotronic	2
Lack of space on machine to set down keypad	Blind	Diebold AccuVote TSX	1
Insufficient space between the up/down arrow buttons	Blind/mobility	ES&S iVotronic	1
Difficulty pressing "vote" button	Blind/mobility	ES&S iVotronic	1
Activation card Difficult inserting/removing card	Blind, Mobility/manipulation	Diebold AccuVote TSX	5
Screen Screen glare	Low vision, Mobility, Mobility/manipu-lation	Diebold AccuVote TSX, ImageCast	4
Difficulty moving from screen page to screen page	Low Vision	Diebold AccuVote TSX	1
Difficulty reading because of high contrast mode	Low Vision	Diebold AccuVote TSX	1

     <u>Voting Machine Barriers</u>. Barriers to the use of voting machines were numerous and diverse. The audio system and audio output, which primarily affected voters who were blind or had low vision, accounted for the vast majority (N = 38 of 59) of the machine-related barriers. More than three-quarters of the audio barriers (N = 29) were attributed to the six most frequently reported barriers. In order of frequency, these included:

1. *Lack of clear directions on how to use the audio system (n=9).*
2. *Audio kit was not set up on time or took too long to set up (n=6).*
3. *Audio did not work or was not available (n=5).*
4. *Lack of flexibility (n = 3)*
5. *Audio did not have option to forward or tab through sections (n=3).*
6. *Audio did not provide options for variable speeds (n=3).*

While the lack of directions and audio not being set up made the voting time longer, the lack of an operational audio system caused the most intense frustration. As one voter noted:

I didn't bother even going over to see if it (voting machine) worked, because I didn't want to be frustrated if it did not work. Because it's pretty typical. Every time I go to vote it doesn't work.

Other audio barriers included its *lack of flexibility*. Subjects did not like feeling trapped by a single speed, or way to move forward through sections or repeat what they had heard. Those who wanted to move quickly through the ballot felt like they wasted time.

Whereas the audio in voting machines posed many more barriers for voters with vision loss/blindness, voters with mobility and/or manipulation impairments primarily reported barriers with: *inserting/removing card* (n=5) and the *angle of screen making it hard to see from a seated position* (n=4)

5. Forms. Marking forms, including the sign-in sheet and ballot, is clearly an important aspect of voting. Interestingly, print and font size were both the most problematic barriers (n=7) as well as the most common facilitators (n=6). Difficulty marking forms was also attributed to a variety of other factors including layout and instructions.

Table 11. Forms

Factor	Disability	Frequency
Facilitators		
Print size large enough	Mobility/manipulation, Mobility/cognitive, Mobility/vision, Low vision	6
Barriers		
Font size on sign-in form too small	Low vision, Mobility/low vision	4
Print size too small or no Braille available on absentee ballots	Low vision, Blind	3
Insufficient space on sign-in form	Mobility/manipulation	1
Unclear ballot instructions and questions	Mobility/manipulation	1
Inadequate descriptions of different candidates	Cognitive	1
Unclear ballot layout	Mobility/cognitive	1
Inadequate pen for marking paper ballot	Cognitive	1

4. Major Themes

  The barriers and facilitators described in the previous section form the basis for the themes described in this section. Nearly every voter touched on all themes. Some themes reflected explicit concerns, such as privacy. However, such themes could also be embedded in the context of using voting machines. Verbatim quotations from subjects' interviews are cited elsewhere in this paper to illustrate themes within their various contexts of use.

  At the outset, it should be noted that all subjects (except one non-voting participant) emphasized the importance of voting as a means for expressing their opinions, making choices, and as a critical part of their civic responsibilities. Citizenship as participation was framed by virtually all subjects as a fundamental human right, and a mechanism for making other rights claims in any area where human rights is an issue (e.g., civil rights, disability rights)[11].   For example,

> *I feel that it is my civic duty to vote because it gives me a voice. Whether the candidate I'm voting for wins or not, it still gives me a voice and I value that ability very much.*

> *A lot of times it does feel a little futile because my vote's not the majority vote of the state. So at times it can feel frustrating, but I sort of feel like that's -- if you don't get in and vote, you can't complain afterwards.   While a lot of times I don't feel like I have a prayer in hell in this town, I still go out and vote anyway.*

  Voting was also an explicit expression of civil rights where race and disability intersect [33, 34]. It could be framed as a public statement and civil action about disability in society engaging the American tradition of protest. For example:

> *Now, as a person with a disability… I really, really feel the need to vote because a lot of things that are set up in our society don't always speak to people who have disabilities, and sometimes we get left out . . . Not only am I getting to have a say in society, but I'm also setting an example to people who don't understand disabilities, that I have a say and I can do this as well as you can.*

> *. . . for a black woman from the South, voting was not something that was just handed to her[her mother]. And she also was a part of the civil rights movement. So voting is very important to me. I personally just feel like for an African-American and what, I would say, my ancestors and people have gone through, I just think it's important -- and I stress it to my son -- that it's important to vote. So [as a family] we usually vote together.*

  Four major themes emerged from subjects' interviews and observations:
1) sense of inclusion; 2) privacy; 3) independence; and 5) stigma. These themes represented not only key concerns of voters, but also their implicit expectations for what it means to have positive voting experiences. They were not discreet categories, but were embedded in the context of what it means for voters with disabilities to cast their votes.

1. Sense of Inclusion: Voting as a Social Act. A "sense of inclusion" was a key theme expressed by voters and a critical aspect of a person's participation in both community and civic activities [30]. It was most evident in subjects' discussions of their preference for casting their votes in-person as opposed to using an absentee ballot. Despite the convenience of absentee ballots, many subjects (and often despite significant barriers) preferred in-person voting. They felt it expressed a keener sense of participation and inclusion in the voting process, and by expression, their role as citizens.

For example, responses to questions about their preference to vote at their polling place reflected a sense of camaraderie with other voters.

> *I don't like it (absentee) as well as voting in person. I think you lose that feeling of – you know, casting a vote.* (Subject only voted absentee once because his polling place was inaccessible.)

> *I do get some sort of personal satisfaction about going where other people are voting and vote.*

> *. . . you miss out on the whole hoopla of you're going to vote and exercise your civic duty.*

> *I often see people I haven't seen in a long time in the voting line.*

Barriers, whether in the form of election officials or physically inaccessible polling places, were interpreted as discriminatory and as an attempt to exclude people with disabilities from the voting process. For example, one subject felt pushed into using an absentee ballot because his polling site could not accommodate his wheelchair.

> *Voting in person should be an option for people with disabilities. That option should be there for them.*

> *I've been having a lot of confusion and problems with the board of election commission[er], because he just refused to make any kind of preparations or anything, and he just said that he just wants me to vote absentee ballot.*

In addition, one voter equated voting in person with the act of voting itself. During the last election after she complained to an election official that her wheelchair would not fit into the voting booth, the official suggested she use an absentee ballot.

> *It was almost insulting how they were like, oh, no, no, you don't need to be here; just get an absentee ballot. I was like, no, I want to vote; I wanted to come into the polling place."*

Overall, the feeling of taking part in the electoral process, of casting a vote as an equal citizen, of making an impact in the community (both national and local), were noted as essential aspects of the voting experience as a sense of inclusion. However, given our small "n", the preference for voting in person should not be interpreted to mean it is always or even generally preferable. Like its global meaning, participation as citizenship can be

comprised of an "ensemble of different forms of belonging [13]". Individuals can experience and express different forms of citizenships in different spaces and moments [12].

The reasons subjects noted in this study for preferring to vote at polling places underscores the challenge to incorporate this strongly articulated sense of inclusion into multiple venues as they evolve, regardless of their physical construction (paper, machine, electronic) or personal geography (polling place, online, telephone, mail-in).

2. Privacy. Voters' concerns for privacy were a common thread throughout the interviews. Privacy was regarded both as an essential condition of the voting experience and a reflection of equality between voters with and without disabilities. It was also considered vital to an accurately recorded and secure vote.

Although privacy is important to all voters, a person with a disability experiences his or her "difference" in both very public and very private ways [14, 33, 35]. As Hartblay points out, on one hand, a person's physical impairment sometimes translates into lack of privacy in basic daily activities (e.g. toileting), a privacy that people without disabilities routinely expect. On the other hand, acknowledgement of those differences is central to society's ability to both recognize and accommodate differences, often in public ways (e.g., accessible restrooms) [33]. The dilemma is that sometimes the very accommodations society designs to make certain activities accessible draws attention to and, consequently, may compromise the privacy of those performing that activity. For example, one voter who used an audio feature found that to achieve a sense of independence, her privacy was compromised as other voters and poll workers could *hear* her vote.

Barriers to voting privacy occurred in two ways: 1) dependence on poll worker or aide to vote and 2) location and spacing of voting machines.

1) <u>Dependence on poll worker or aide to vote</u>.

One time I went to vote, and she (poll worker) was talking so loud that I had to stop her. And she said, why are you stopping me? Then I asked her, did you have a private vote today? And she said, yes. And I said, and I would really appreciate it if you would lower your voice so I can have a private voice. You're talking really loud and everybody in the room can hear you. I said, just because I'm blind doesn't mean I'm deaf!

Another voter expressed her frustration with malfunctioning voting equipment and the need to rely on a poll worker.

I'm like, why in the world would they even send the headphones over? If the machine's not working, what's the point?" Subject did not want wait an additional hour to have another voting machine set up and opted to have a poll worker read the ballot to her, but "*it's like, I get frustrated because I can't really have a private vote.*

<u>2. Location and spacing of voting machines</u>. Booths spaced too closely, seating that was too low or too high, or the lack of a curtain around a voting booth, which allowed another person to look over one's shoulder, also compromised a voter's sense of privacy.

Obviously, people were walking in, they weren't facing the way we're voting, but they would have to turn around and look at it. I mean, I did feel a little exposed.

Privacy was also linked to confidence in feeling vote was accurately recorded:

It was great to be able to go and be able to stand there and make all the selections and not have somebody looking over my shoulder and having to make the selections for me. It was a great experience for me....and being able to select that and not having to have somebody know exactly what I voted. Because I might disagree with a ballot that they're in favor of, and so then I'd have to go into a discussion. And I didn't have to do that yesterday, and that was awesome.

By contrast:

I voted with the touchscreen machine and somebody at the poll read the ballot. But I don't know [if] what they was reading was right or if the answer I gave them, if they pushed it in. I didn't like that I was not comfortable with that at all.

It should be noted that some participants with disabilities expressed concern that their votes would not be counted when they voted on machines that were located apart from other machines at their polling place. For example, a vision-impaired subject believed that an audio ballot malfunction would result in losing her ballot.

And those little cards are so -- I mean, to me, those are very precious because that's the ballot in your hand. And if you screwed it up, my fear, as you know was that I -- my vote wouldn't count. Because I know -- I know what kind of hanky-panky goes on . . . At least that was in DeKalb County so I don't worry about [specific political party] hanky-panky as much in DeKalb County.

3. Independence. The cultural value of independence in the United States lies at the heart of understanding the performance of any activity, including civic activities such as voting [36, 37]. For people with disabilities, independence denotes a freedom to make choices about what one does, where one goes, when one wants. For social policy makers independence signifies the restoration of an injured or sick individual as a non-dependent member of society; one who contributes to society economically, socially, and politically. Dependence – especially on human aide – is viewed by people with disabilities and social policy makers as a compromise to quality of life and a drain on societal resources respectively [38]. Subjects' voting experiences mirrored the importance of independence and provided examples of the multiple meanings associated with this theme.

1. Independence is using a technology without assistance. Subjects were often exhilarated by their ability to vote without an aide.

I was just kind of adamant about trying their device. And I would really have them just show it to me and then have me try to do it myself. Even if I failed once and then did it

again, I would feel more like I voted.… I really like using all my devices after someone shows me. I don't like to sit there and think I'm just this helpless person or someone has to push all the buttons for me. So I would really have loved to have actually voted almost all by myself."

I got to do it myself. I got to make all those selections myself. I didn't have to have somebody read something to me and tell them what I wanted, what answers I wanted. It was just very liberating to be able to do it myself.''

2. <u>Independence is choice</u>. Independence implies being able to *choose* both the type and degree of aide. For example, Voter J is blind. She lives alone in an apartment she chose because of its proximity to public transportation and shops. She employs an aide to read to her, and she votes in every election. She prefers to be accompanied to the polling place by her father, to have him read the ballot to her. But she insists on using the audio technology without assistance.

3. <u>Independence and privacy.</u> When the voting machine was not functioning, a poll worker offered to help a vision impaired voter complete the ballot.

And I said, no, I will get my husband to help me because I just don't feel that comfortable with you helping me to do something that is so important and private.…I think that it was not fair just because I felt so disappointed and disregarded by the fact that I was not able to vote independently.

The various meanings of independence also underscore the relationship between "sense of inclusion" and "privacy" as major themes. In these examples, privacy suggests achieving equality with others (i.e., being able to cast a vote without aide). The lack of inclusion in this case results from an unequal relationship with voters without disabilities. This inequality suggests segregation from other voters and a different set of rules for voters with disabilities, which, in turn, can lead to an effective demoralization in the context of the voting process. In addition, there is a tacit association between dependence and lack of privacy, whereas independence suggests the means to act with privacy, a significant concern of voters.

4. Stigma. Stigma among persons with disabilities can affect participation in all activities, including voting. Stigma is the result of having one's identity being devalued through social ostracism or discrimination, and/or because of differences that are the result of mental or physical disability, gender, race, or religion [14, 39, 40] Stigma can undermine the sense of inclusion people with disabilities experience when they vote regardless, and even sometimes because of accommodations for their impairment. Perceived prejudices in public attitudes towards people with disabilities in general and towards those who require accommodations to vote can cause some to be self-conscious of their needs.

People <u>without</u> disabilities was getting kind of tired and frustrated of seeing me going back and forth trying to get my stuff straightened out and then standing there longer,

waiting for them to set up stuff. You know, and they're getting tired because they stood in that line a long time, too, and they're trying to hurry up just as well as -- I want to hurry up and get done, too. And you know, when they see somebody standing there, they start getting attitudes. You know regular public attitudes.

I think they [voters without disabilities] need to be more educated on how to help people who are different from them and not be scared to help them. You know? Like just because I'm different from you doesn't mean I can't do certain things. They have that mentality of, oh, here comes a blind person and what do I do? That kind of attitude. I don't want to feel like a burden.

As one subject commented on the impact of prejudice on voters with disabilities:

They're ashamed to get help; they're newly disabled and they're ashamed to ask for help or they're ashamed to be seen using that machine that's only meant for weirdos who are not physically fit.

Paradoxically, those features that are designed to accommodate functional impairments and to facilitate a voter's experience at a polling place can also create a sense of self-consciousness, conspicuousness, embarrassment, and discomfort. As with privacy, accommodations that draw attention to the individual can backfire and become barriers that prevent voters from taking advantage of a needed accommodation. One observer noted the segregation of voting booths for voters with disabilities from those without disabilities in some polling places could create a sense of isolation, discrimination, and a fear that their ballot could be discounted by election officials. However, other voters noted that they were more comfortable with voting machines being in a separate location. The extra space provided voters with privacy and less time pressure to complete the voting process. The seemingly contradictory points of view reflect the trade-offs people experience between, for example, privacy and independence on the one hand, and sense of inclusion and security their vote would be counted on the other.

DISCUSSION

The purpose of this study was to providing a deeper understanding of how barriers and facilitators are experienced and made meaningful for voters with disabilities engaged in voting. Through interviews and observations, subjects identified an array of major barriers and facilitators that hindered or supported them during the voting process. Overall, these key factors were identified as: the social environment created by poll worker knowledge, behavior, beliefs and attitudes; access to pre-election information, and various aspects of the physical environment, including the design of the polling place, voting machines and community.

Many of the barriers identified by voters in this report have been previously documented (e.g., unusable ramps, poor signage, non-functioning voting machines)[28, 41]. Derived from larger surveys those reports can more accurately represent the *frequency* of barriers and their association with voting rates, barriers, and activity limitations among people with disabilities. In contrast, both the types and frequencies of barriers and

facilitators reported in this smaller study served as the basis for exploring the complexity of meanings uncovered during interviews and observations.

Barriers to Voting. The perceived barriers posed by poll workers, such as discourtesy or lack of knowledge about how to use and troubleshoot problems with voting technologies, emphasized voters' disabilities rather than their abilities, and undermined their overall sense of inclusion in the voting process. This can be seen again and again when subjects are expected to rely on others to read their ballots, thus compromising their independence, privacy, and in so doing, re-defining their perception of themselves as full citizens. In contrast, poll workers who recognized and were able to act meaningfully with regard to voters' needs eased the voting process while preserving voters' independence and privacy – effectively integrating them into the citizenship process rather than segregating them.

Lack of access to information, or accurate and complete information, was cited as a key barrier, not only by voters, but by non-voters and those absentee voters who would have preferred to vote in person. The most profound impact was that the effect was to actively discourage people from participation in voting at all.   Frustrations about where to find information, inaccessible formats, how to register, the use of voting technologies, or where to find transportation resources appeared to preclude further involvement in the voting process.   The only facilitator reported was the in-person demonstration of a voting machine. This increased voters' confidence when they entered their polling place and allowed them a sense of independence and equality with voters without disabilities.

The collected information about the physical environment was broken down into multiple categories based on our analysis: the built environment in and around the polling place; on-site information; the set-up of voting booths at the polling site; technological features specific to the use of voting machines; and ballot design.   The impact of these barriers had the most direct effect across all themes presented here. When reported as barriers, they prevented a sense of inclusion in the literal, most physical sense. This effective exclusion directly impacted voters' overall sense of participation in the voting process. In addition, the inaccessibility of polling places in terms of parking, insufficient indoor space, or non-functioning voting technologies directly compromised voters' independence and privacy, and contributed to self-consciousness and conspicuousness consistent with the effects of stigma.

Voting Themes. Barriers and facilitators were intertwined with the themes presented here. The themes that emerged during analysis reflected the effects of barriers and facilitators on voters' experiences: sense of inclusion, privacy, independence, roles of citizens, voice of individuals with disabilities, and stigma. Important to the analysis, more often than not where an aspect of the environment was identified as a barrier, the experience of another individual who experienced a positive version of the element (e.g., a supportive poll worker, functioning and appropriate technology, or an opportunity to be familiar with the local voting systems) reinforced and clarified just how impactful barriers and their facilitator equivalents could be.

While each theme stands on its own conceptually, none exists without reference to the others in practice. For example, an overall sense of inclusion is intertwined with how voters experience, to different degrees and in different ways, independence, and privacy.

These, in turn, were mediated by how a person internalizes and responds to persistent public attitudes and stigma. The nature of the various barriers presented in this report combined in unique ways to either encourage or impede voters with disabilities in specific ways.

Voters' described their sense of inclusion as potentially undermined by a number of seemingly disparate concerns. Consider the similar impacts associated with different types of barriers: 1) the location of voting machines in areas separate from machines for voters without disabilities; 2) the use of absentee ballots; and 3) the use of a personal aide during voting. These subjects consistently expressed a fear that their votes would be counted "differently" from other voters.   Those who voted by absentee ballot raised concerns that their votes would be discarded altogether because they were counted after Election Day, or because there was no guarantee that their votes had been delivered, or that they would be overlooked or miscounted by election officials.   People who voted on separate machines worried that their votes would not be counted properly, or possibly at all. They felt that the potential prejudice of election officials towards those with disabilities manifested itself in segregated machines and would make it easier for them to discount those votes. In addition, those who used aides to mark their ballots – whether voting in person or by absentee ballot - were less confident that their choices would be accurately recorded.   In all instances, voters feared that the differences that mark them as disabled and which forced them to cast their ballots in different ways, would effectively exclude their votes.

Inclusion was also expressed in terms of the two various voting methods (i.e., absentee or in-person). The preference for one method over the other did not reflect so much the magnitude of barriers presented by each, as having the option to choose which method. On the one hand, the sense of participation in an important civic activity was mingled with the importance of and the social aspect of voting many subjects mentioned. While avoiding the sense of isolation experienced by those who felt forced to vote absentee because of an inaccessible polling place, or because an election official actively discouraged them from voting in person, on the other hand.   This lack of choice or prescribed system of exclusionary choices promoted voters' perception of inequality as compared to voters without disabilities.

Similarly, independence had multiple meanings. As a theme, independence, dependence, and interdependence are important within both the rehabilitation and disability literature. Preserving independence in future voting designs means creating the ability to choose, for example, what kind of aid, if any, a voter wants (whether technological or personal).   For some, aid means enforced dependence on another to vote; for others it means having the comfort of a family member to review and mark the ballot with you.

Significance of the Study. Interpreting the data and information in the context of this initial work is subject to a variety of limitations, outlined earlier and below. Limitations notwithstanding, it became clear during the analysis that the overall concerns of the voters and non-voters who participated in this study mirror the fears, uncertainties, and doubts often voiced across the electorate: access to information in a meaningful and timely way; a sense of awareness and respect from poll workers and senior election process officials; accessibility in the physical environment; voting technologies that work, that are well supported by election officials, and are either readily accessible or made familiar over time and with experience; and participation in one of the few social activities

shared by virtually every US citizen of voting age and that can have impact across all activities of daily life.

The study suggests that when it comes to voting, people with disabilities share a set of common experiences that are distinctly different than those of the general voting population. Moreover, those experiences are directly associated with three factors:

1. Ignorance about disabilities and about how to interact with individuals with disabilities in the context of this seminal social/civil/citizenship process;

2. Challenges in voting technology design that raise questions about divergence of technology systems, reliability, features, and support;

3. Issues in built environment that pose or overcome barriers in terms of accessing polling places in the first instance, and in the second instance that effectively marginalize disabled voters – even inadvertently – by, for example, inadequate signage or inaccessible parking areas.

On the positive side, evidence gathered in this study suggests that each of these factors can be addressed through appropriate action. Most importantly, subjects reported positive voting experiences where one or more of these barriers was met or anticipated with forethought, knowledge, and civility.

Limitations of the Study. There were several limitations to this study. First, the type of disabilities people had in this study was skewed towards those with mobility/manipulation and vision impairments. There were comparatively few subjects who had hearing or cognitive impairments. Thus the potential barriers and facilitators that actively engaged or discouraged these voters were not identified or discussed in depth. This may be due to two factors.

Subjects were recruited through the CATEA Consumer Network and other e-mail listservs that attract people who wish to participate in research projects as a way to foster knowledge and positive changes for people with disabilities. In addition, those individuals whose disabilities are not represented by advocacy organizations, such as the National Federation of the Blind or the United Spinal Association may be less aware of research opportunities and therefore harder to recruit (e.g., those with hearing and cognitive impairments) and as such may be under-represented.

Second, subjects in this study were generally experienced in living with their impairment(s). For example, nearly all mobility-impaired voters traveled in their own adapted vans or cars and were experienced in wheelchair use. Many blind and vision impaired voters were comfortable traveling with friends or family members to their polling places and so did not perceive as a barrier transportation resources that would have allowed them to travel without assistance. In addition, voters who were less experienced in living with their impairment(s) or those whose impairments were only gradually developing would have expanded the scope and nature of perceived barriers and facilitators.

Third, the difficulty in recruiting non-voters also represented what is likely an important contrasting perspective. Without a larger participating sample, conclusions are

difficult to draw.   Disabled non-voters may not vote for any number of reasons; for lack of motivation or interest in civic participation in general, or those who have voted in the past and subsequently became discouraged by barriers. Better non-voter data would help to clarify the differences between the impact of lack of barriers to voting and the need for proactive facilitators. That is to say, the removal of a barrier (e.g., inaccessible parking) may not be sufficient encouragement to vote. It may take a more active voting system to recruit or re-engage potential voters with disabilities.

There is a need for more in depth research. Case studies would provide insight into social systems or networks that encompass relationships among current and potential voters, family members, friends, neighbors, co-workers, local activists, institutions/organizations, and caregivers. A better understanding of the roles played by local neighborhood groups, single-issue movements, independent living centers, and community-based assistance organizations in fostering participation of individuals with disabilities could provide useful information about the societal influences behind a voter's decision to engage the voting process or not.   Little is known about these networks and their influence on voter turnout. Although few studies of this kind have been carried out, one that has been performed describes the impact of a social network on voter behavior: "having a social network gives opportunities to meet people and discuss societal questions, which in turn lead to the development of the citizens' political knowledge"[42]. Identifying behaviors that actively stimulate awareness of civic issues may help to define strategies that encourage voting among people with disabilities.   Combined with strategies to address voting process barriers, there is promise of better citizen engagement in the democratic process.

Finally, the broad categories we use to describe disabilities limit our capacity to understand the myriad ways impairments impact voting experiences.   Many people have multiple impairments that may affect function to different degrees and in different ways. The functional differences that allow society to categorize someone as disabled more often than not apply to economic metrics and intervention values, and do not allow us to see the broad range, or combination, or degrees of impairment that may or may not be recognized as a "disability." Our categories do not allow for the temporary impairment or the dynamic nature of gradual changes associated with aging. We need to better understand and implement a voting system that meets - not only the functional requirements for specific impairments – but also one that can accommodate a more refined understanding of voter needs and preferences.

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