Poll Workers and Election Integrity: Security as if People Mattered

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Abstract. How do poll workers in tens of thousands of precincts across the nation contribute to (or detract from) election security and integrity? This project aimed to fill a gap in the research and focus in a meaningful way on what must happen to make poll workers truly effective in their vital role in administering elections securely on Election Day. We learned that there are many different ideas about what "security" means in the context of elections, and different patterns about poll workers' attitudes about their responsibilities.

Keywords: Elections · Voting · Civic design · Poll workers · Security · Election integrity · Election administration

1 Introduction

Poll workers are one of the most visible parts of an election, serving as a large temporary corps of "street level bureaucrats" [1]. Every Election Day, hundreds of thousands of poll workers, in tens of thousands of precincts across the nation are responsible for running their local polling places. Without them, elections would not happen.

The work of running a polling place is both pressured and mundane. Poll workers arrive in the early hours to set up their polling places, including opening voting machines for the day. And, at the end of a long day, they report on the results in their precincts and account for ballots and other election materials. They do all this under pressure to work quickly as they open the polls on time in the morning and complete a long day of work at the end of an election day.

This paper contributes to a relatively small body of research on poll workers and their impact on elections. Most of the research is quantitative, conducted through surveys [2–4]. One project [5] included both observations and individual interviews to evaluate how poll workers perceive possible issues of security and privacy. They concluded that poll workers were not familiar with, nor did they understand security procedures, though they had a more intuitive understanding of related privacy issues.

Our team of researchers observed poll workers as they opened and closed their polling places for 19 elections in 12 states from November 2012 to November 2013. These elections included the 2012 presidential elections and a variety of local elections. We chose the elections to include a variety of voting systems, types of elections, counting methods, and other local procedures.

Through studying poll workers and polling places, we learned a lot about what happens in the polling place and how this can affect the security of an election. One of the most important insights for us was that there are many different ideas about what "security" means in the context of elections.

Our research focuses on patterns of poll workers' attitudes about running the election at a polling place and what they believe their responsibilities to be. These attitudes affect many details of how poll worker teams work together and how they solve the inevitable problems that come up on Election Day.

Although there is some variation by individual poll workers, these differences seem to be tied to both the history and culture of elections in each jurisdiction and to the way an election office works with poll workers. The way they are recruited and trained, the procedures and paperwork created for them, and how they are given responsibility for running the polling place all contribute. The teams with the best balance of those elements did best at opening and closing. If they had problems, they were able to use the tools given to them to resolve them well.

2   Method

Our study used ethnographic techniques to systematically study election days from the point of view of the people who make them happen. The project included several phases of work:

- **Preparation.** The researchers reviewed manuals and forms, and reviewed or attended poll worker training where we could. We wanted to see what the materials covered and to what extent. In particular, we wanted to get a measure of how much of the content for poll workers was related to security, and of that, what it covered, including troubleshooting and problem escalation.
- **Observations.** The centerpiece of the project was observing set up and shut down of the polls. To understand the culture of security and how procedures were conducted in a real election, researchers watched without interfering with the poll workers. We also had some opportunity to observe election office operations centers and poll worker training sessions.
- **Interviews.** We conducted both informal discussions during the observation period and semi-structured follow-up interviews with election officials and poll workers.
- **Writing up.** To gather comparable material from our large team of researchers, we created a structured note-taking guide suggesting specific types of activity and materials to observe through the day. We took handwritten "jotted" notes and made sketches of the physical environment. Where allowed, researchers also took photographs of rooms, buildings, setups, and poll workers interacting with technology and materials. Afterwards, we typed up field reports, using a format that allowed easy comparison between locations.
- **Analysis.** We analyzed these field notes to reveal patterns and trends, which led to the insights in this report.

2.1 The Research Team

Because elections happen on a single day, limiting each observer to a single location, we used a large team of usability professionals and political science students to conduct some of the observations at the November 2012 and 2013 general elections. In all, 17 researchers participated in the project.

Most of the observations were conducted in pairs, providing overlap between the two researchers. We conducted training sessions before the observation days, covering the arrangements for the research, guidelines for interacting with poll workers so as not to interrupt their work, and the goals for the observations. The structured note-taking guides and template for reports from each polling place were essential in making it possible compare reports.

2.2 Observation Locations

We observed 19 elections in 12 states (Table 1). Our selection was a purposeful sample to provide a range of different types of jurisdictions.

Table 1. Jurisdictions for election observations

Location	Location type	Election type	Primary voting system
California	Metropolitan	Presidential	Paper: optical scan
Florida	Suburban/ small city	Municipal	Paper: optical scan
Illinois	Metropolitan	Consolidated	Paper: optical scan electronic: DRE + VVPAT
Massachusetts	Metropolitan	Presidential	Electronic DRE
Michigan	Suburban/ small city	Presidential	Paper: optical scan
Michigan	Metropolitan	Municipal	Paper: optical scan
Minnesota (6 polling places in 3 counties)	Metropolitan/ suburban/small city	Municipal	Paper: optical scan
New Jersey	Rural	Presidential	Electronic full face
New York	Metropolitan	Primary	Lever machines
New York	Metropolitan	Municipal	Paper: optical scan
Ohio	Suburban/ small city	Municipal	Paper: optical scan
Rhode Island	Rural	Municipal	Paper: optical scan
Texas	Suburban/ small city	Consolidated	Electronic DRE
Virginia	Suburban/ small city	Municipal	Paper: optical scan electronic: DRE

We looked for polling places:

- Where we could observe poll workers working with a variety of voting systems from paper ballots to fully electronic systems.
- Representing different areas of the country and a range of neighborhood settings from inner city to small cities, suburbs, and rural towns.
- With a variety of approaches to election administration and process.

The selection was also a form of convenience sample, based on the election calendar for local elections and primaries in the spring of 2013 after initial observations in November 2012.

In most locations, we observed in only one polling place, and on one election, but there were exceptions:

- In November 2013, we had teams in six different places in two neighboring cities and the surrounding county, allowing us to see several sites with similar election administration and compare how the polls were run across these sites.
- In two locations, the researcher visited more than one polling place during the day, accompanied by an election official.
- In one state, the same researcher observed in two different locations; in a small town on November 2012 and in a large city on November 2013.
- In two locations, we had researchers who also worked as poll workers, and had additional experience in their polling place, providing more insights into what was different or the same about the elections we include in our observations.
- In one case, the same polling place used different voting systems for the two elections.

Within the broad similarities of elections, we saw many differences in approaches to training and support of poll workers. This is too small a sample to suggest anything other than the wide range of practices that differences in history, local custom and culture, and state law create.

Conducting most of the observations throughout an "off-year" (that is, in 2013, a year without any federal elections) had the disadvantage of being smaller, less pressured events. But it also made it possible to watch poll workers when they were not under the scrutiny and busy-ness of a presidential year. Election offices were also much more willing to allow us to observe in these smaller elections.

3   Security of Elections

We started this research focused on the security of the voting systems, and how poll workers handled them. Our results suggest that the a more nuanced view is needed.

3.1   What "Security in Elections" Means

Most of the discussion about security in elections focused on the hardware and software of voting systems themselves. Our research was designed to study how poll workers manage voting technology at opening and closing of the polls to learn:

- What kinds of common security problems do poll workers encounter at opening and closing of the polls?
- Why do these problems seem to occur? Is it the design of the voting systems, the design of election procedures, the usability of procedures and tools, or something else?
- Are there particular "pain points" where poll workers are more likely to encounter security issues or make mistakes?

We focused on the security implications of interactions between people and technology and materials rather than possible vulnerabilities in the technology, specifically. We

Table 2. Different perspectives on election security

Role	Security goals	Description
Voters	Votes cast as intended, counted as cast	Want to feel secure that they their votes will be counted. Trust in people in many different roles, as well as voting systems and other information technology
Security experts	Votes counted as cast	Concerned about hackers, intruders, and attackers
Election administrators	Election integrity	Focus on the integrity of the whole election, including ensuring that ballots are protected throughout the election

wanted to look at where there might be vulnerabilities as poll workers interact with systems, procedures, materials, voters, and one another.

There are several ways to look at security in elections, depending on your point of view. Voters have one perspective; security experts have another. Poll workers and election administrators approach security differently from either of those (Table 2).

3.2   Poll Worker Attitudes

When we interviewed poll workers and election administrators, one question we asked was, "When I say, 'security in elections,' what comes to mind?" The answers ranged from "being prepared for emergencies in polling places," to personal safety of voters and poll workers. This finding is similar to the experience of Hall et al. [5] who found that poll workers connected the idea of security to either the physical security of the polling place or the equipment.

Some of the administrators we interviewed seemed puzzled about our question. They were surprised that we would separate out security from the rest of the process.

To them, everything about elections was security: all of the procedures and policies were in place to ensure the integrity of their elections. This may help explain why poll workers didn't think of "security" as a separate duty.

There were four broad classifications of attitudes among the poll workers we met,

Table 3. Poll workers attitudes toward responsibility for their polling place

Attitude	Focus of responsibility
I'm responsible for running the polling place	Safety and comfort of voters, and maintaining an orderly polling place
I have to follow procedures	Completing all procedures correctly, as a way of running the polling place well
I have to account for paperwork	Forms and reports as a double-check on equipment tallies and to ensure that all votes are accounted for
I'm responsible for "my election"	The overall results of the election, broadly incorporating the polling place, procedures, and tallies

from a shallower to deeper sense of ownership of the polling place and the election. These attitudes are not directly related to the wide variety of formal or informal leadership structures among the poll workers [5]. For example, in some jurisdictions, there is one poll worker (or a lead and a deputy) who has explicit responsibility for the team, while in others, each poll worker is assigned their own role and responsibilities. Similarly, decision-making processes may be mandated within the team, referred to the election administration, or handled informally within each team (Table 3).

3.3   The Role of Training and Tools

There was a wide variation in the tools and documentation available for poll workers during election day, as well as in the training they received. Some jurisdictions provided thick manuals and many other forms, checklists, and notices. Others took a minimalist approach, with a small manual, a few forms, and the phone number for the elections office. Like the bowls of porridge in the Goldilocks story, some job aids were too much and some too little.

Two factors seem to be at play. First, there is a desire to improve poll worker performance with each election leads to additions aimed at solving the issues in the most recent election. But patching holes in processes and procedures rather than taking a holistic view causes problems as the materials pile up. We saw no evidence that more paper was a sign of a better, more secure election. Nor did we come away thinking that the minimalist jurisdictions were lacking in security. A more important factor is having a polling place culture in which poll workers are encouraged to raise questions. This means that the process in the polling place gets more constructive scrutiny and that questions from poll workers can lead to improvements in the process.

Poll worker training also varied widely from a brief lecture on alternate election years to hands-on training where poll workers learned all of the job responsibilities and roles through scenario-based activities.

3.4   Stress Points During Election Day

As we analyzed the notes from the Election Day observations and the post-election interviews, we identified stress points throughout the process and timeline. Each point is an opportunity for procedures to break down and endanger the integrity of the election. These stress points included:

- Procedures for delivering materials to the polling place.
- The degree to which the polling place is well organized and creates easy traffic paths for voters.
- The stress of the early morning start and rapid setup.
- Documenting and troubleshooting incidents and exceptions during the day.
- Closing the polling place and packing up.
- Inventorying ballots and other materials.
- Reconciling counts from the poll book, ballots, and voting systems.
- Delivering the results and returning materials to the elections office.

In many cases, aspects of how a polling place is run are both good and bad for security. For example:

- A poll worker in the role of a "greeter" can act as a gatekeeper and an obstacle to attacks, but they may also allow known people in who should not be present in the polling place.
- Changing roles during the day makes it easy to check the work at each station as people rotate to different jobs. However, if poll workers are not properly trained, changing roles may leave problems unchecked or unnoticed. Dynamics within teams may make it difficult for some poll workers to challenge the previous workers at a station.
- Law enforcement being present can make voters and poll workers feel more secure but may intimidate some voters, and may send a message that poll workers aren't trusted.
- Relationships outside the polling place lend reputational, social pressure and trust to do the right thing the right way. They may also make it easier to conspire, or to let things go that should be checked and/or corrected.
- Poll workers who know a lot of voters coming into the polling place can tell who belongs and who does not. On the other hand, poll workers with close connection to the neighborhood may be less diligent about some procedures.
- Diversity on a team can make voting more approachable for voters of different backgrounds, leading to greater trust in the process. But, if there is racial prejudice, it may cause conflicts within at team.

Knowing that any social setting where people work in a public way, under stress, can include conflicts, we looked for the type of conflicts and how they were resolved. Some

Table 4. Vulnerabilities in process and procedures at the polling place

	Before Election Day	Setup & Opening	During Election Day	Closing & Packing Up	Counting & Reconciling	Delivering Results
People	Volunteer helpers	Relationships among poll workers Staff & trouble-shooting	Relationships between poll workers & voters Poll worker diversity Definition of "order" in polling place Poll watchers Security & law enforcement Changing roles Greeters-as-gatekeepers	Relationships among poll workers Unsupervised poll worker team	Distracted leads Unassigned poll worker team	Party-balanced pairs Attention to safety Police
Procedures	Training style	Trouble-shooting & hotlines	Demonstrating ballot marking Provisional ballots & forms Voter ID questions Election Day registration Continuous audits Trouble-shooting & hotlines	Filling check-lists Lack of direction	Trouble-shooting & hotlines Reconciliation steps	Security of transmission channel

(Continued)

Table 4. (*Continued*)

	Before Election Day	Setup & Opening	During Election Day	Closing & Packing Up	Counting & Reconciling	Delivering Results
Paper	Detail in instructions Training manual	Detail in instructions Checklists	Provisional ballots Incident reports Audit forms	Checklists Envelope design & number Seals & closures	Reconciliation forms Checklists	Checklists Envelope design & number Checking paperwork
Polling Place & Policy	Delivering materials and voting systems Troubleshooting	Setting up boundaries Traffic flow & management Closures & seals Crosschecking among precincts	Voter ID Election Day registration Cross-checking Position rotation Entry and exit traffic flow Size of space	Closures & seals Containers with visible contents	Transmitting files Reconciling	Double-checking transmitted tallies

were minor, but others, more serious from the perspective of this paper, were about election procedures. In some places, these disagreements were resolved by the lead, but in most, there was a process of discussion and consensus. In one location, poll workers voted on issues when necessary. Good poll worker teams had established procedures for resolving differences of opinion about their work (Table 4).

4 Conclusions

We learned that election days can be chaotic, with many stress points and that planning for security must take this into account. You don't deploy over a million temporary workers and not get some variation in their diligence and effectiveness.

We especially noticed that the most empowered teams had the easiest time navigating the stress points and places where security issues were most likely to come up.

- The teams worked well together and had ways to resolve disputes.
- The leads were given—and took—strong responsibility for the overall election in their polling place.

- They had forms and checklists that helped the teams catch mistakes before they became big problems.

Training, trust, and constraints contributed to successful poll worker performance. To help poll workers do the best job possible:

- Train well, using scenarios and role-playing to anticipate events that come up at the polling place.
- Trust poll workers and then leave them alone except when they need support.
- Put appropriate constraints in place to guide their work. Good checklists, for example, restrain poll workers by providing models for how to complete procedures correctly.
- Give them responsibility, from picking up the election materials to delivering the final results.
- Have strong expectations (and appropriate penalties) for any indications that they have not reconciled the election results carefully, or not completed the paperwork correctly.

Getting this balance right is all a Goldilocks Problem. Simply adding more and more materials, checklists, training, or other support can be just as bad as not having enough. Each aspect of the process must be balanced. Luckily, this can be done through experimentation over many elections.

  In most of the places we studied, poll workers have, and use, procedures designed for security. Security is not a separate layer consciously, explicitly carried out. Election officials approach security as an part of elections and attempt to design election procedures to support trust in the election. Poll workers use those procedures to their best ability. But, when procedures don't make sense, or aren't complete, accurate, or clear, poll workers can rationalize and improvise, which usually results in a good or improved result, but can open the door to unintended vulnerabilities.

4.1 Future Research

The security vulnerabilities in an election are distributed among people, processes, paper, and procedures and training. However, the issues around reconciling after closing the polls deserve specific attention. There has been so much emphasis on getting the polls open on time that our observations suggest that processes and procedures are optimized for opening the polls, with less emphasis on efficient and easy closing and shutdown. Future research should focus on improving poll worker performance, learning best practices in training and support materials [5, 6], and making the end-of-day procedures easier to complete accurately.

  Specifically, research could look for answers to these questions:

- How detailed and prescriptive should instructions and procedures be?
- How can materials be designed so their function is easy to understand?
- How much documentation is needed? Should manuals be a reference book or a how-to guide?
- How can checklists and other forms be more helpful both to poll workers as job aids and as a check on the processes in the polling place?

- How can reconciliation forms be more effective in helping poll workers accurately account for the voters and ballots from their polling place?

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