Do You Know Who You Voted For?
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Why Study DRE/Printed Ballot Usability?

Direct Recording Electronic (DRE) preferred over all other methods of voting (Campbell & Byrne 2009)

- Voter-verified paper audit trails (VVPAT)
  - Used for audits
  - Printed ballot
  - Serves as official record, DRE does not record vote
  - Reliant on voter review

Only 6 states are entirely paperless (Smith et al. 2012)

Absence of research and confusing graphic design (Kimball & Kropf 2005) causes “residual vote rates [to] exceed the margin of victory between candidates” (Norden, et al. 2008)

- Correlation between high residual vote rates and “poor and confusing ballot designs”

Previous Findings: Review Screens Don’t Work

Everett (2007)

- 8 of 27 contests added, removed, or changed on electronic review screen
- 32-37% error detection rate

Campbell & Byrne (2009)

- Increased detection rate to 50% with usability improvements
- Highlighted undervotes
- Added party indicators
- Emphasized checking review screen in instructions

Jenkins & Sandman (2016)

- Priming voters improved error detection
- Signs at polling station have no effect, but verbal cue from ‘poll worker’ does
- Error detection rate 8-25%
- Lower rate due to errors only present on printed ballot (not electronic review screen)

Building on Previous Research: Conditions

ESS vs Voting Systems Assessment Project (VSAP)
- VSAP focused on human-centered design

5 vs 40 contest ballot
- Previous studies only tested 27
- See the effect of voter fatigue on error detection

1 change vs 40% changes
- Previous studies changed 30%

Change location beginning vs middle
- Can we change your vote for President?

Priming vs no priming
- Do verbal and written reminders to check your selections help?

Error Detection and Reviewing Observations

17.6% overall error detection rate
- Similar to Jenkins & Sandman (2016) 8-25%

37% reviewed electronic screen
23.1% reviewed paper ballot
- of those 76% noticed changes

Discussion

Significant:
- Verbal cue from ‘poll worker’
- Cost-effective method of increasing accuracy
- Voter fatigue increases with ballot length
- Runoff elections less threatened

Not Significant:
- Change location
- Presidential vote at risk
- More changes =/= more accuracy
- Paper ballot design

Positive comments on:
- VSAP electronic ballot design
- Recognizable (non-political) names

References


Jenkins, S., & Sandman, C. (2016). The effect of priming on voter verification. Rice University, Houston, TX.

