CALTECH/MIT
VOTING TECHNOLOGY PROJECT

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Study Shows Ballot Design and Voter Preparation Could Have Eliminated Sarasota Florida Voting Errors

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PRESS RELEASE

Study Shows Ballot Design and Voter Preparation Could Have Eliminated Sarasota Florida Voting Errors

CAMBRIDGE, February 6, 2008 –

Election results showed extremely inconsistent voting rates for two high profile races in the Florida counties of Sarasota, Charlotte, and Sumter on November 7, 2006. The expected missing selections for these races were around 1.5 percent. The second race on the ballot in Sarasota -- Congressional Race 13 for the House of Representatives CR13 -- was missing 13.7 percent of voter selections. The fourth race in Charlotte and Sumter -- Attorney General -- was missing 21 percent of selections. These races were both between only two candidates and appeared on the ballot page next to a large race that had seven candidates.

Forensic studies suggested ballot layout as the culprit (Matthew Doig and Maurice Tamman, "Analysis Points to Bad Ballot Design," *The Sarasota Herald-Tribune*, Dec. 5, 2006). Litigation has instead focused on the security of the software used by the Election Systems & Software Ivotronic machines in these elections. This release reports new data representing five studies showing that subjects did not miss Sarasota CR13 if they had a sample ballot to follow in the voting booth the studies found that more than 16 percent of subjects without a sample ballot in the booth missed the race (p=.013).

Members of the Caltech/MIT Voting Technology Project have run a series of studies to understand why the CR13 and AG races showed so few votes. Within a week of the November 7, 2006 election, members of the group had constructed an Adobe Flash-based simulation of the ES&S Ivotronic voting ballot which was refined to study various aspects of the ballot style that voters saw in Florida in November 2006. Four studies with these simulations found that each of the following user-interface features resulted in significant differences in errors:

- Bold-colored headlines above some races distract people from ones without them;

- Races with a small field of candidates can be overlooked when next to a race with a large field;

- Second-chance voting can indeed reduce errors.

The simulation studies lead to sample ballot experiments with the actual ES&S Ivotronic running the software from Florida. This study produced data showing how so many votes were lost. Participants studied and filled out sample ballots; some participants were requested to enter the polling booth with their sample ballot, some without their ballot. A total of 16.7 percent of those without the sample ballot missed the race displayed at the top of the second page of the ballot, while none of the participants using a sample ballot missed the race. To eliminate variables such as software interference with experimental results, all data was collected by video camera and scored by two separate raters.

These studies conducted principally by MIT associate professor Ted Selker, MIT researcher Anna Pandolfo, and MIT students with subject pools taken from the Boston area show that the availability of sample ballots can explain the large voting irregularities in the November 7, 2006 Sarasota, Florida election. The studies suggest that improvements to ballot layout in general could save hundreds of thousands of votes across the country in future elections.

DATA:

Ballot style experiment for FL 2006 Congressional Race 13

Subjects

Ballots tested on ESS IVotronic machines

Legend:
- Sample ballot selection
- Changed selection
- Corrected
- No selection
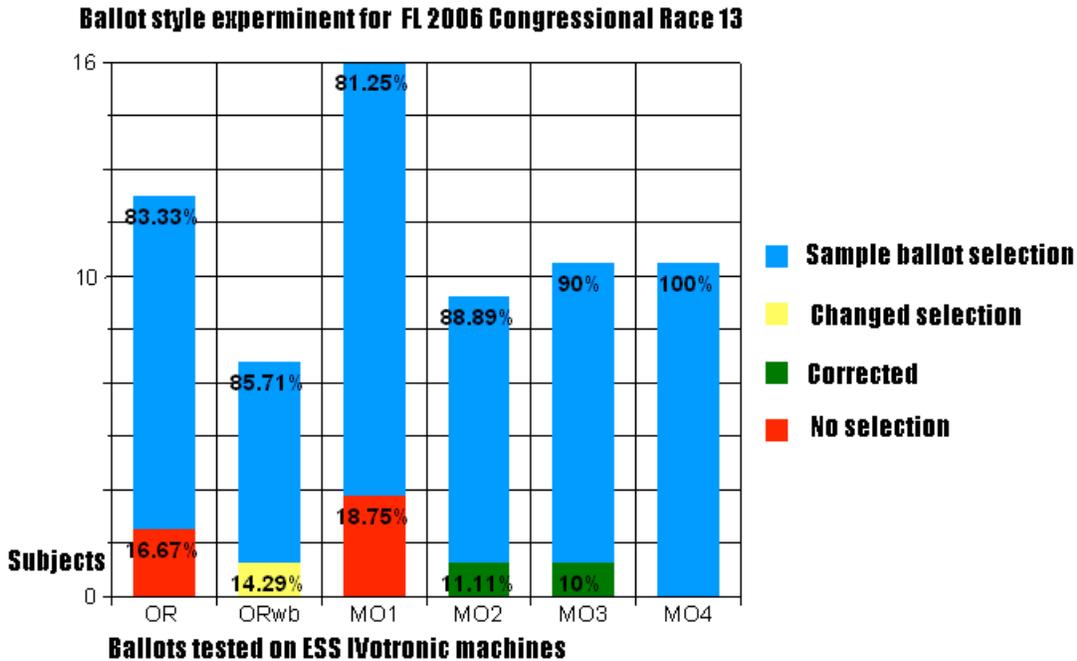
In experiment labeled OR, participants filled out the original Sarasota ballot and had no sample ballot. Of these subjects, 16.7% missed the race in question. In the next column, the chart shows that none of those with a sample ballot had this problem in experiment ORwb. The difference between sample ballots and no sample ballots for Congressional Race 13 across our experiments with 155 registered voters shows that the lack of a sample ballot reduces voting selections (P=.013.).

The ballot MO1 case shows the undervote for CR13 when it is placed at the bottom of the first page of the ballot. Experiments MO2 and M03 are also cases in which subjects didn't have sample ballots , a ballot with bold headlines announcing state and federal positions on each race mitigated problems, 10% or more still missed the candidate but came back and fixed their errors. Experiment MO4 further mitigates the danger of missing the small 2 contestant race by placing it on the first page with a headline.

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