Voters respond favorably to touch screen voting equipment

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Voters have more confidence in paperless, touch screen systems to record their votes accurately than they do any other systems, including ones that use paper ballots, a new study says.

Voters tend to focus more on what affects their voting experience than the potential for fraud, which is the opposite of what is valued by many computer scientists and voting activists and a growing number of election administration officials, according to new research by the University of Michigan, University of Maryland and University of Rochester.

The research is the first known study to examine how voters respond to the new voting equipment since the 2000 presidential election that incorporates the principles of usability from studies of human-computer interaction research.

"Casting a ballot may seem simple, but the interactions between voters and voting system interfaces are complex," said Michael Traugott, a professor of communication studies and senior research scientist at U-M's Center for Political Studies at the Institute for Social Research (ISR). "The more effort involved in voting, the less satisfied voters are with the experience."

The relationship between effort and satisfaction does not depend on voters' levels of computer experience, said Frederick Conrad, a U-M research associate professor at ISR and one of the project's researchers.

Voting technology was scrutinized after 2000 when problems with the voting process resulted in many disqualified or missing ballots during the presidential election. The fiasco led Congress to pass the Help America Vote Act of 2002, which mandated that states replace outdated voting systems with new ones.

Researchers from the three universities combined their expertise in American politics, campaigns, and human and computer interaction to study voting technology. They evaluated six voting systems, including one prototype not available, and tested each based on accuracy, speed and ease of use. The study included responses from 1,540 voters who cast ballots on all of them.

The voting machines studied were paper ballot/optical scan, manual advance touch screen, auto advance touch screen with paper, zoomable touch screen (prototype), dial and buttons, and full-face membrane with buttons.

When people vote for more than one candidate for some offices, they vote with greater accuracy on paper ballot/optical scan systems and standard touch screen systems than on other systems. That includes those that present the entire ballot at one time or with mechanical interfaces that require a fair degree of manual dexterity to operate. However, these paper ballot/optical scan systems do not perform well when voters seek to change a vote or cast a write-in vote. This might lead voters to wonder if they completed the ballots correctly.

"We observed that voters can get quite lost in the voting process and when they do, the chances are greater they will not recover, ultimately voting for no one or a candidate other than they intended," Conrad said.

Voters found the dial and buttons system less comfortable; the ballot was not easy to understand and the voting process was slow and cumbersome.

The full-face membrane system also had low ratings due to problems with visibility and readability, such as glare on the ballot surface and small font size.

Researchers said voters have problems even with a simple system they do not use often as they may forget precisely how to work it since the last time they voted.

"The situation is more complex when individuals are first-time voters or when a new voting system is introduced," Traugott noted.

Researchers say voters should require few instructions at the polling sites, although instructions should be easily accessible for those who want them.

"The fewer mental and physical actions it takes to cast a ballot, the better," Traugott said.

Ideally, voting systems should provide feedback so that voters are aware of where they are in the voting process. Voting systems with automatic advance navigation are problematic in this respect, as they do not allow voters to see what they have done with each touch of the screen until they reach the final stage.

Other findings:

• The findings for gender support some strongly held stereotypes in American culture: women may be more likely to ask for help, but voting error rates suggest that it is men who really need it.

• Election officials must test the voting systems before purchasing them. Testing can yield insights into the robustness of the systems and enable election officials to learn about frozen screens and other glitches that can

affect system performance.

• Steps that might make voting simpler and less prone to error are reducing the complexity and length of the ballot, eliminating write-in votes and curtailing the use of straight-party features. Early voting and keeping polling places open for longer hours or even more than one day could also improve turnout.

The findings appear in the new book, "Voting Technology: The Not So Simple Act of Casting a Ballot." The other authors are Paul Herrnson, Michael Hanmer and Benjamin Bederson of the University of Maryland, and Richard Niemi of the University of Rochester.

Source: University of Michigan