# Human factors researchers test voting systems for seniors

December 27 2007

Human factors researchers at Florida State University have identified ways to improve electronic voting accuracy among older voters while also shortening waiting time at the polls. The results of their study were published in the fall 2007 issue of *Ergonomics in Design*.

During the 2000 presidential election in Palm Beach County, Florida, voting machines and ballot formats came under national scrutiny after it was found that more than 29,000 ballots were spoiled. The use of punchcard machines and a confusing ballot layout caused some voters to select an unintended candidate or double-punch the ballot. In 2004 in Ohio, the issue of time at the polls became a critical factor; despite the use of electronic voting machines, a confusing ballot layout and an insufficient number of machines caused long waiting lines and prevented some Ohioans from voting.

These problems led Tiffany Jastrzembski and Neil Charness to test ballot and machine usability with a particular focus on older voters, who – because of reduced vision and motor control – tend to have more problems using computers, especially under time pressure. These researchers adopted a gerontological approach, which implies that when systems are made easier for older people to use, performance among younger users also improves.

The researchers tested voting performance with 30 younger (18–26 years old) and 30 older (ages 64–77) study participants using four ballot layouts and machine designs: (a) touchscreen and full ballot on one

screen, (b) touchscreen and one ballot per screen, (c) touchscreen plus keypad and full ballot on one screen, and (d) touchscreen plus keypad and one ballot per screen.

The pure touchscreen format with one ballot per screen was found to produce the most accurate results, but the pure touchscreen with full ballot on a single screen showed the fastest completion times. As is often the case with human-machine interfaces, there is a trade-off between accuracy and speed. Even a small percentage of errors could potentially result in hundreds of thousands of miscast ballots, which must be weighed against the need to reduce waiting times at the polls.

Jastrzembski and Charness recommend additional studies – again with older voters – that can lead to more user-friendly ballot design and electronic voting systems for users of all ages.

Source: Human Factors and Ergonomics Society

Citation: Human factors researchers test voting systems for seniors (2007, December 27) retrieved 19 April 2024 from https://phys.org/news/2007-12-human-factors-voting-seniors.html