

A Consideration of Voting Accessibility for Injured OIF/OEF Service Members: Needs Assessment

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Annotated Literature Review Results

Guidelines & Best Practices in Voting

Chisnell, D., Becker, S., Laskowski, S., & Lowry, S. (2009). *Style guide for voting system documentation: Why user-centered documentation matters to voting security*. Paper presented at EVT/WOTE'09: The 2009 conference on electronic voting technology/workshop on trustworthy elections, Montreal, Canada.

Unlike most research papers that focus on the usability for voters, this paper discusses the effects of usability for poll workers on the security of the voting process. In their study focusing on voting system documentation for poll workers, the authors discovered usability issues that could potentially lead to security issues. Based on their research, the authors suggest eight categories of guidelines for developing voting system documentation.

Election Assistance Commission (2005). Election Assistance Commission Guidelines. Retrieved from http://www.eac.gov/testing_and_certification/voluntary_voting_system_guidelines.aspx.

The Voluntary Voting System Guidelines (VVSG) is a set of specifications and requirements developed in accordance with the Help America Vote Act (HAVA) for testing the functionality, accessibility, and security of voting systems. The guidelines, adopted in 2005, update the Voting System Standards. Version 1.1 of the guidelines is a proposed revision to the VVSG that has not been officially adopted.

Election Assistance Commission (2007). Effective Designs for the Administration of Federal Elections.

This document discusses the importance of effective information design in creating election materials that are usable, clear, and accurate. The information design of ballots (both optical scan and touchscreen), sample ballots, announcements, instructions, and voting rights are considered. The design suggestions are informed by legislation, design principles, and research conducted involving voters, subject matter experts, election officials, poll workers, and voting equipment providers. Additionally, this report contains the results of a user-centered research process involving ten research events including pilot testing in Nebraska.

Human Factors and Privacy Subcommittee of the Technical Guidelines Development Committee (TGDC). *Usability performance benchmarks for the Voluntary Voting System Guidelines*. Retrieved November 8, 2011, from <http://vote.nist.gov/meeting-08172007/Usability-Benchmarks-081707.pdf>.

This report describes the requirements for the Voluntary Voting System Guidelines (VVSG) and the standard method for testing the usability of voting systems. Additionally, the report describes how the metrics and benchmarks were developed. The performance benchmarks were based on usability data collected on a variety of voting systems include direct recording electronic systems, electronic ballot markers, and precinct count optical scanners. Voting systems that meet or exceed the benchmarks are considered to have good usability. Voters using these systems should be able to cast their votes more accurately and with less confusion.

Laskowski, S. L., & Redish, J. (2006). *Making ballot language understandable to voters*. Paper presented at the 2006 USENIX/ACCURATE Electronic Voting Technology Workshop, Vancouver, Canada.

History has shown that simple matters such as the wording and placement of instructions can significantly affect voters' ability to cast their votes as intended. Although an extensive study of these factors in the voting domain has not been conducted, best practices have been developed from research in other domains. These best practices include but are not limited to the following: state consequences before users are likely to act, state context (consequence) before action, avoid the use of technical language, state instructions and logical order.

Redish, J. & Laskowski, S. J. (2009). *Guidelines for writing clear instructions and messages for voters and poll workers* (NISTIR 7596). Gaithersburg, MD: National Institute of Standards and Technology.

This document provides 20 guidelines for developing clear ballot instructions, both electronically and paper-based. Guidelines are divided into five categories: placement, order, sentences, words, and topics. Both good and bad examples are provided for each guideline. The document also provides guidelines for system messages on direct recording electronic voting machines such as error messages.

Stone, M., Laskowski, S. J., & Lowry, S. Z. (2008). *Guidelines for using color in voting systems* (NISTIR 7537). Gaithersburg, MD: National Institute of Standards and Technology.

This document provides guidelines for the use of color in electronic voting systems. The guidelines are intended to promote usability, such as legibility, as well as accommodate users with visual impairments, such as color vision deficiencies and low vision.

United States Department of Justice (2004). *ADA checklist for Polling Places*. Washington, DC: Author.

This document provides a checklist for evaluating the physical accessibility of polling places for individuals with mobility and visual impairments. Included are barriers to getting to the polling place, entering the polling place, and using the polling place (i.e., the voting area). It does not address the accessibility of the voting machine interface.

Voting Systems Standards, 42 U.S.C. § 15481.

These standards provide requirements for voting systems used in an election for Federal office. Included are requirements relating to the accessibility of the voting system for individuals with disabilities. Specifically, the statute states that the voting system must be accessible for blind and visually impaired individuals, and at least one direct recording electronic voting system must be available at each polling place.

Weldemariam, K., Mattioli, A., & Villafiorita, A. (2009). Managing requirements for e-voting systems: Issues and approaches motivated by a case study. Paper presented at RE-Vote09 First International Workshop on Requirements Engineering for e-voting Systems, Atlanta, GA.

From a technical perspective, the authors describe their experiences and recommendations for the process of following laws and standards for the development and management of electronic

voting systems. The relationship between system architecture and system requirements is based on finite state voting machines that determine actual behavior of the voting machine.