

Consulting in Usability and Clear Communication



Assuring usability in end-to-end voting systems

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End-to-End Voting Systems Workshop
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What do you see
in this picture?



Flickr photo by matisse_enzer

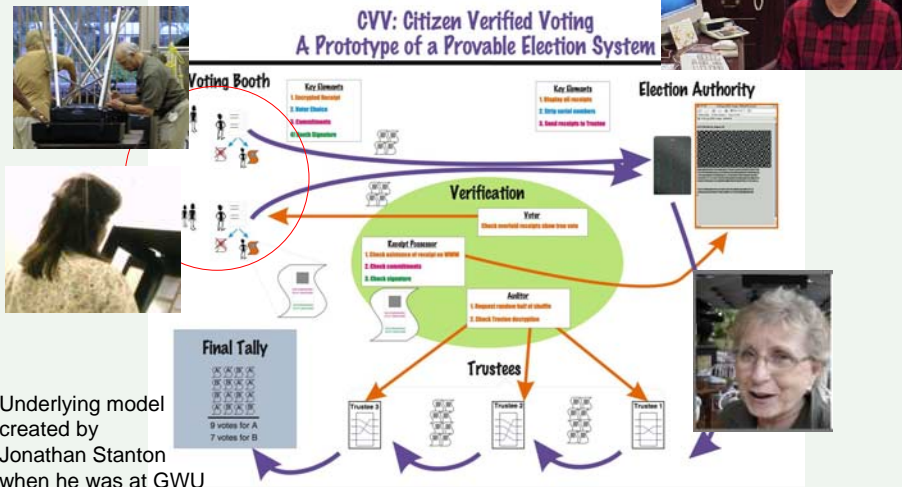
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People are part of the system



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Usability becomes an issue whenever people are involved – that means always!

Usability is the extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency, and satisfaction in a specified context of use.

ISO 9241 Part 11

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End-to-end usability is necessary for end-to-end encryption to succeed

- All the people involved
(voters, poll workers, election officials, judges)
must understand what the system is doing.
- The system succeeds only if all these people
 - accept the system
 - have confidence in it
 - use it appropriately



Photo by Dana Chisnell
used with permission

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Usability matters! Language makes a difference

- Empirical study of language
on ballots
- 45 voters, balanced for
gender, ethnicity, age,
but with focus on
lower education
- 3 locations (suburban, city,
small town)
- Tested 2 ballots that
differed only in the wording
of instructions

Instructions to Voters:

Press the box of the candidate for whom you desire to vote; yellow will appear in the box. The voter must retouch the selected item to deselect it first in order to change a vote or in case of a mistake, then the voter touches the new candidate of choice. Press Write-In to vote for a candidate who is not already listed on the ballot. On the Write-In screen, you must type the person's name and then press Accept (or press Cancel if you change your mind). Moving ahead is accomplished by touching the word **Next**; moving back by pressing **Back**.

How to Vote:

To vote for the candidate of your choice, touch that person's name. It will turn yellow.
To write in a candidate: To vote for a person who is not on the ballot, touch Write in a candidate's name. You will get more instructions on how to complete your write-in.
If you make a mistake or want to change a vote, first touch the yellow box you no longer want. That box will turn gray. Then, touch the choice you do want.

NIST Internal Report 7556
December 2008

Janice (Ginny) Redish, Dana Chisnell,
Ethan Newby, Sharon Laskowski,
Svetlana Lowry

<http://vote.nist.gov/docmap.htm>

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Participants voted more accurately on the plain language ballot

	Ballot A	Ballot B	Total
Correct	698	726	1424
Incorrect	112	84	196
Total	810	810	1620

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Participants overwhelmingly preferred the plain language ballot

Preference	# of participants	% of participants
Ballot A (traditional language)	4	9%
Ballot B (plain language)	37	82%
No preference	4	9%
Total	45	100%

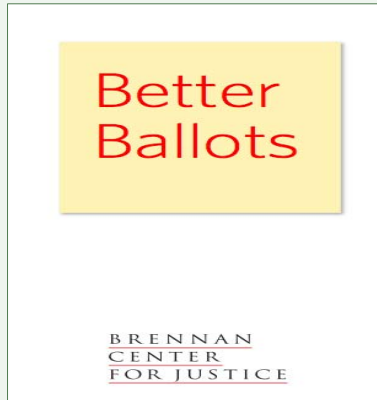
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Other examples of usability problems in language and design



Report co-authored
by Larry Norden,
David Kimball,
Whitney Quesenbery,
Margaret Chen

www.brennancenter.org/content/resource/better_ballots/

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Usability matters! A paper review / receipt must work in a usable way



Flickr photos by NCREedplayer

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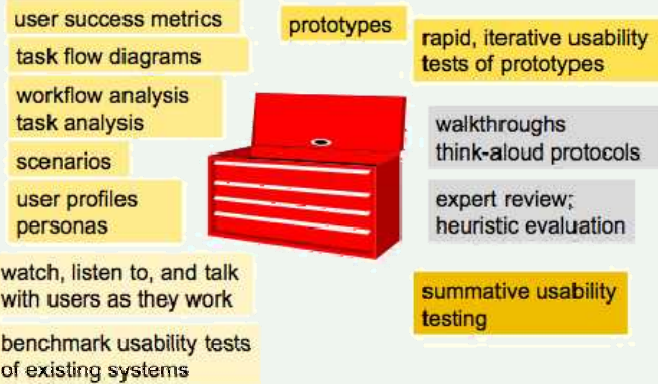
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How do you achieve a usable system?

Build usability in from the beginning.

Involve usability professionals in designing the system.



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Usability specialists can help you use the right technique for different questions

Focus group



Attitudes, opinions:
What do people think about it?
Do they like it?

Usability test



Behavior:
Can people use it effectively, efficiently, with satisfaction?

Photo from a usability test in Chicago, 2005; Donna Vitale

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Issues for us to consider together

- How do we create a system that
 - does not overburden poll workers?
 - operates in ways that make sense to voters?
 - uses language that ordinary voters understand?
 - is accessible (works for all voters)?



Without those attributes, the system won't succeed in its mission – secure, usable votes that represent the voter's intention accurately.

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Thank you

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Usability Professionals' Association
Usability in Civic Life Project
<http://www.usabilityprofessionals.org/civiclif/voting/index.html>

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