USABILITY TESTING IN THE DEVELOPMENT CYCLE

- **Presented at the National Institute of Standards and Technology**
- **Voting Symposium**
- **Panel on Accessibility and Usability**
- Gaithersburg, Dec. 11, 2003
- Sanford J. Morganstein

Our Approach to this Presentation

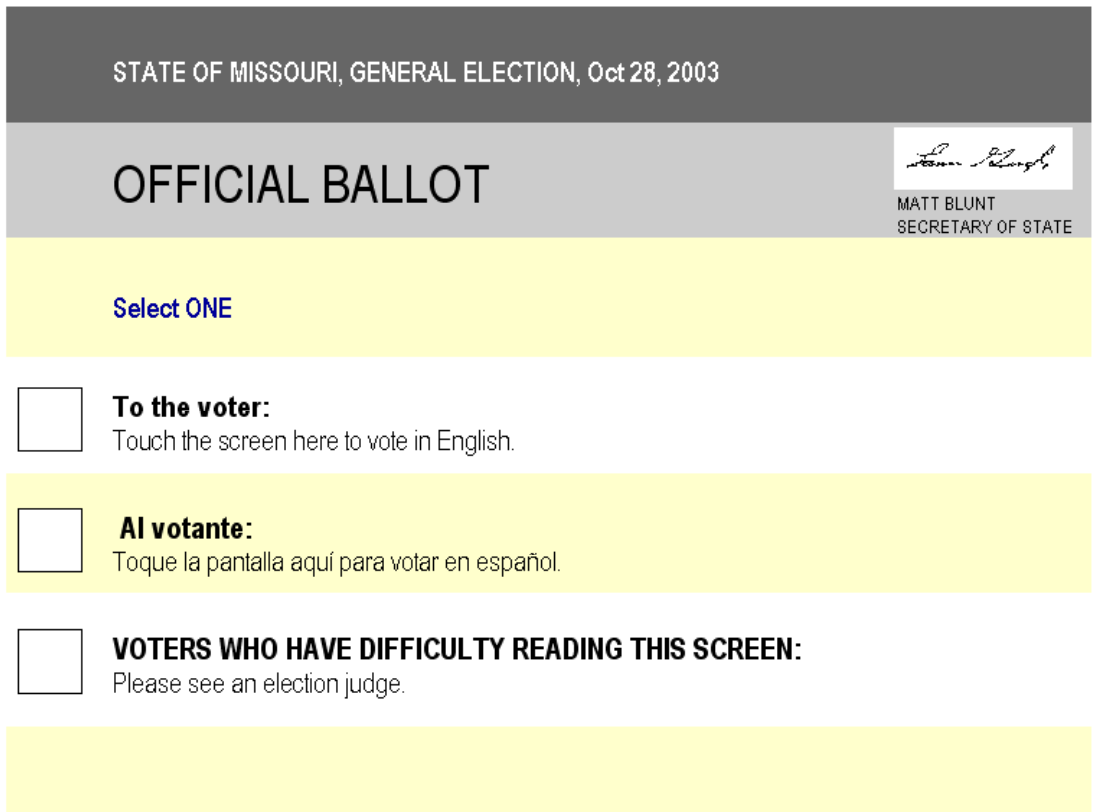
- Surprising things happen when you focus on usability and accessibility for voting
- We will show screen shots and explain design decisions that may not be intuitive
- Apologies if the screen shots are small, but we think this helps to explain the design decisions

Continual Refinement

- Design personnel and public affairs personnel participate in mock elections and focus groups
- Voting studies and/or interviews held with:
  - Disabled advocates
  - Seniors
  - Language groups
  - Election Officials

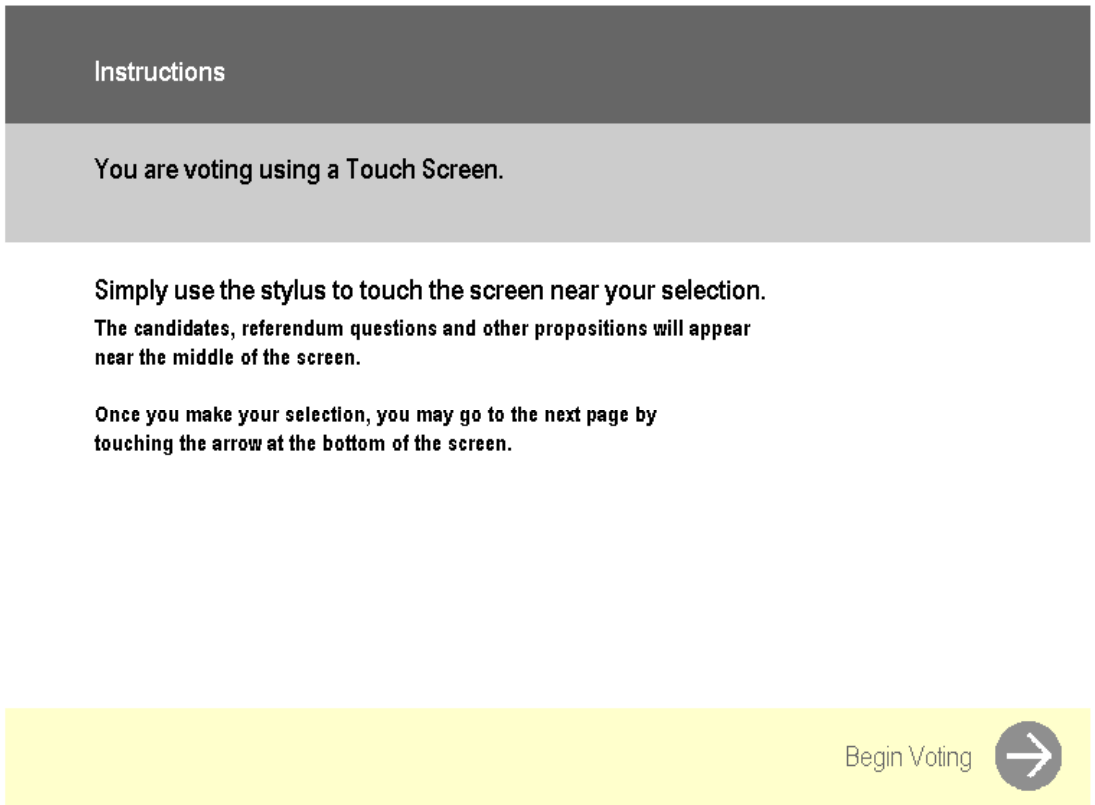
Some Background

The First Screen



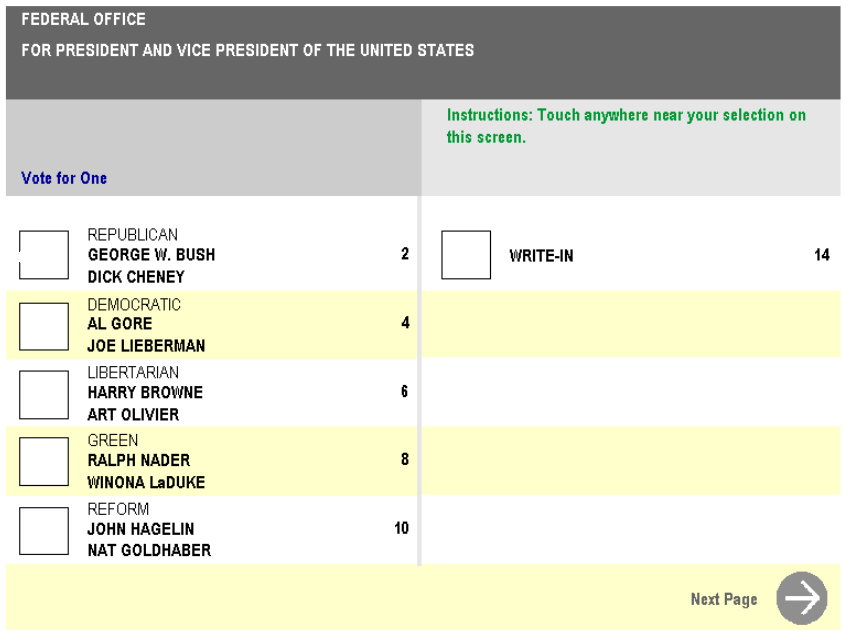
Instruction Page

The Second Screen: Instructions



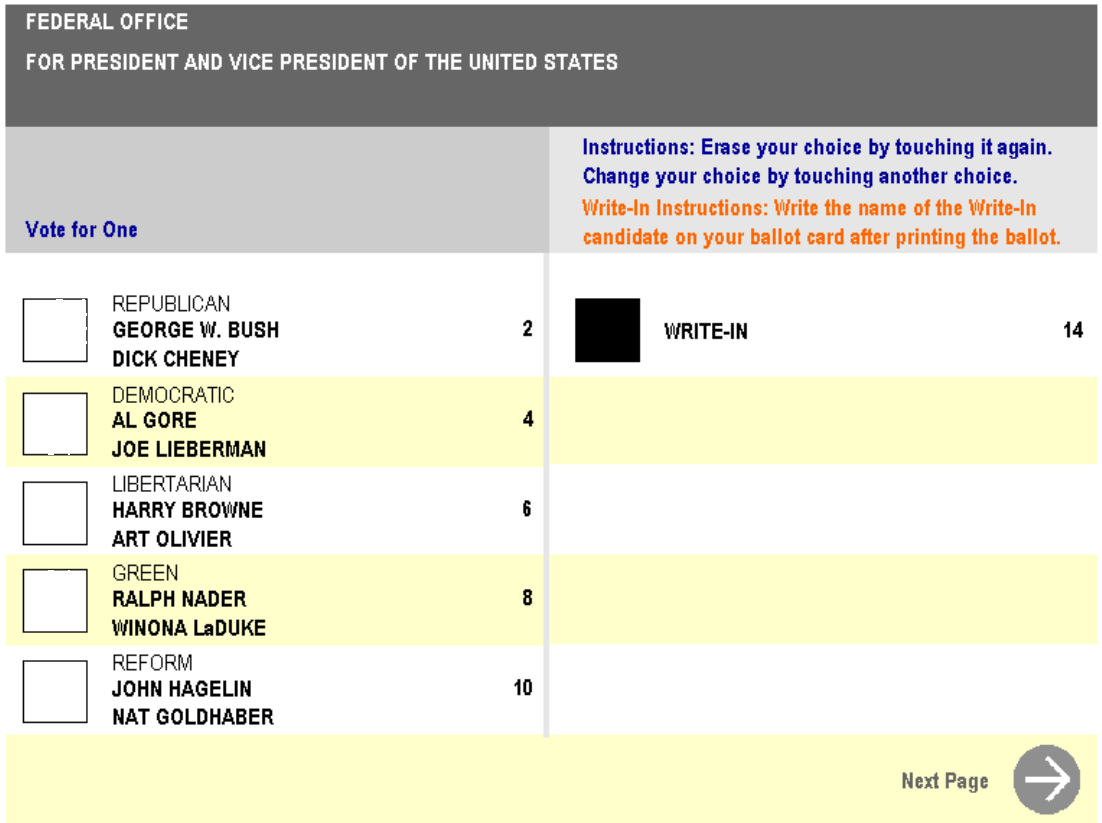
The Election That Started It All

- Audible and Visual Feedback
- Context Sensitive Instructions
- A dilemma



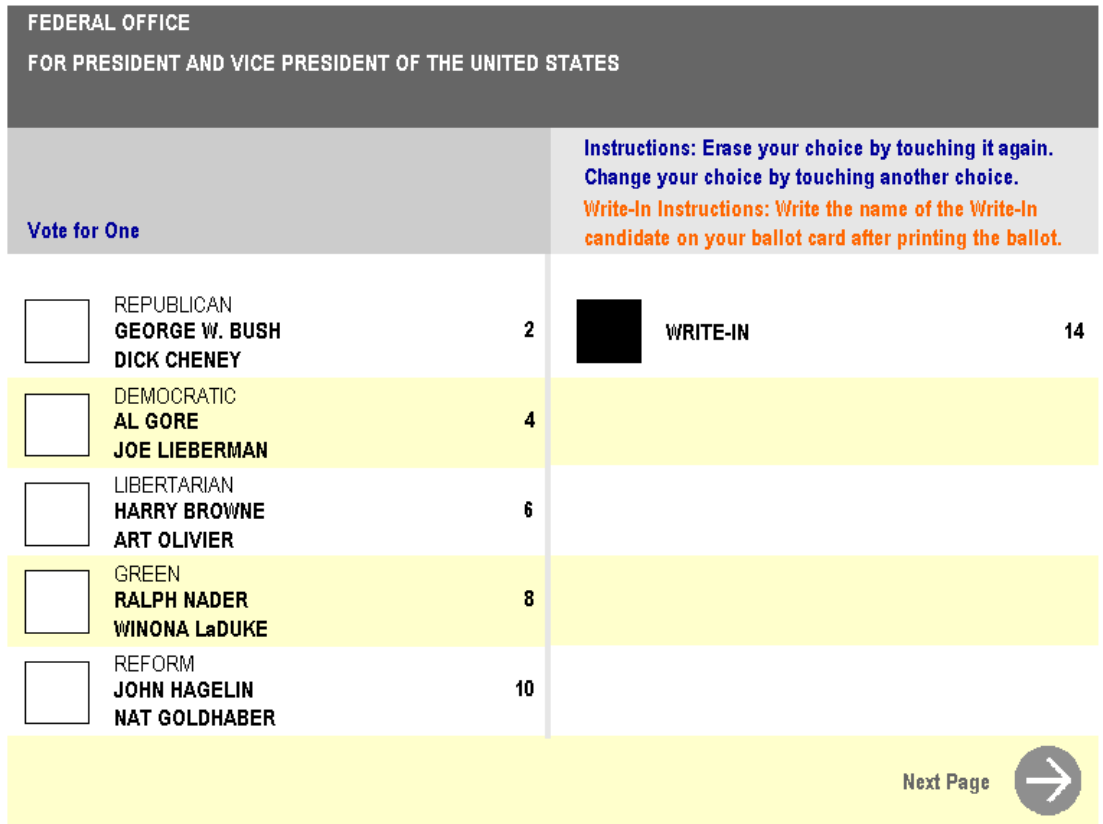
Things We Learned

- Use color, not animation, to highlight context sensitive instructions
- Some jurisdictions asked for “punch numbers”
- Scrolling disadvantages someone
- One touch choice change

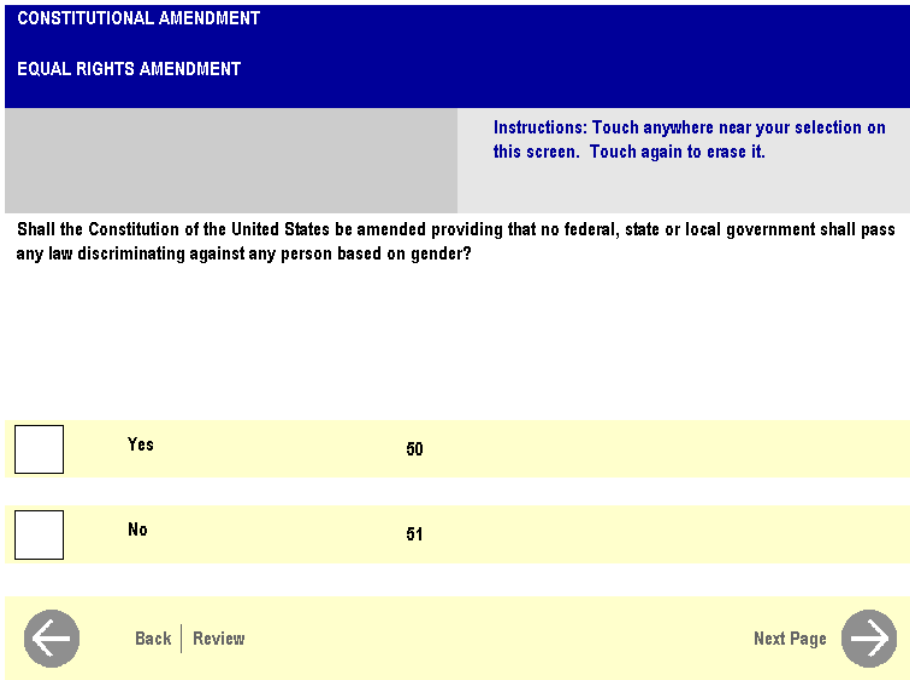


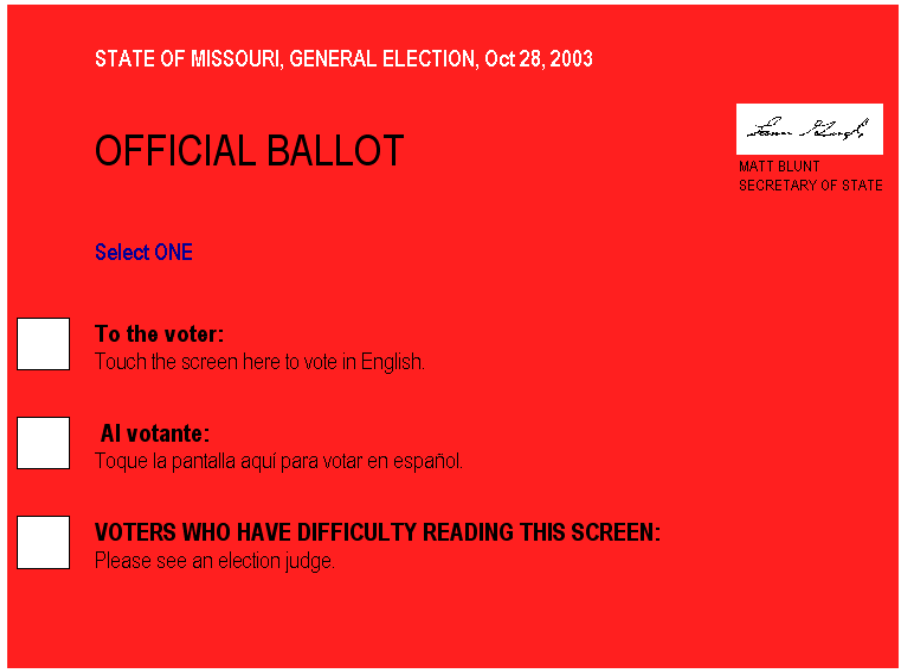
Non-Intuitive Feedback

- De-bounce or desensitize screen
- Do not provide immediate warnings for undervotes
- The Vote for more than 1 problem
- The write-in dilemma



When Laws Collide





populex

Voters Who Have Difficulty Reading

- You are hearing instructions...
- You will know you tapped hard enough...
- Beep (high)
- Beep (low)

Feedback From Blind Voters

- Provide instructions in Braille and audibly
- Have “normal” and Power User Mode
- Unsolved Problem: To skip or not to skip

Reflection and OUR Input to NIST

- "Ones man's access is another man's barrier" - Ken. Access Living; Chicago
- The twin goals of Usability and Accessibility are complementary and must be brought to bear as soon as possible (punch cards are hardly usable and are not accessible).
- The emphasis on Continual Refinement necessarily means that we have short term goals and long term goals. We should not let our long term goals get in the way of short term goals. Nor should we let our short term goals get in the way of our long term goals.
- In its Congressional Mandate, NIST should strive to balance the needs of certification against the need of improving Accessibility and Usability as soon as possible.