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# Usability Test Report: New Hampshire

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## Executive Summary

This document describes results of a usability evaluation of the ballot design for the New Hampshire general election. The usability study collected quantitative and qualitative feedback from representative voters in New Hampshire on two proposed ballot layout styles for the general election that will be held on November 4, 2008.

- On Ballot A, candidate names were left-aligned.
- On Ballot B, candidate names were right-aligned.

This evaluation was conducted on September 9, 2008 at the Auburn Village School in Auburn, New Hampshire, and the Broken Ground School in Concord, New Hampshire. The ballots were evaluated in individual interactive sessions with **100** people who were leaving the polling place on the primary election day.

Based on our analysis, participants:

- Took slightly longer to complete the voting tasks on Ballot A than on Ballot B.
- Made more errors on Ballot A (116) than on Ballot B (92).
- Expressed equal satisfaction with both ballot styles.
- Preferred Ballot B (44) over Ballot A (28), with 28 expressing no preference.

This data suggests that the strong proximity relationship between the candidate name and the fill-in ovals on Ballot B is more important than the horizontal alignment of the names.

## Recommendations

We recommend the use of Ballot B for the November general election.

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## Background

The purpose of this study was to obtain comments and performance feedback on two proposed ballot layout styles for the upcoming general election. We plan to use this information to improve the ballot before Election Day, ensuring voters' intentions are carried out and the election runs smoothly. The ballots were evaluated in one-on-one interactive usability sessions with representative voters on New Hampshire's primary election day at two polling locations.

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## Test Objectives

This test compared two layout styles with variations in the relationship between the oval and the candidate name on the New Hampshire general election ballot. On one layout style, candidate names were left-aligned, and on the other, candidate names were right-aligned.

The goal of this usability test was to determine if either of the layouts had an effect on accuracy as voters mark their ballots. The results will be used to decide which layout to use in the November general election, and future elections.

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## Methods

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### Participants

As voters exited the polls on primary election day, they were approached and asked if they would like to participate in our study. If they agreed to participate, they were directed to the tables set up nearby where study materials and facilitators were stationed.

There were a total of 100 participants:

#### Gender

- 53 male
- 47 female

#### Ethnicity

- 100 white

#### Age

- 3 ages 18-30
- 4 ages 31-40
- 16 ages 41-50
- 34 ages 51-60
- 22 ages 61-70
- 20 ages 70 or older

**Education (highest level completed)**

- 15 High school
- 21 Some college
- 64 College degree or other higher education

**Special conditions (self-reported)**

- 2 had significant visual or hearing impairment
- 2 had a condition that substantially limits one or more physical activities
- 4 had difficulty learning, remembering, or concentrating

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**Staff for the Test**

In Auburn:

- Polling location moderator Don Stritch, a poll worker named Denise, and League of Women Voters volunteer Sue Capano helped to recruit study participants.
- Margaret Chen from the Brennan Center for Justice and Sarah Swierenga from the Usability & Accessibility Center at Michigan State University facilitated usability test sessions with participants.

In Concord:

- Polling location moderator John Cassidy recruited study participants.
- Andrew Stengel from the Brennan Center for Justice, Kyle Soucy from Usable Interface, and Laura Snow, a student at Franklin Pierce Law Center and intern at the New Hampshire Attorney General's Office, facilitated usability test sessions with participants.

Below is a table listing the names, affiliations, and roles of the test staff:

<b>Name</b>	<b>Organization</b>	<b>Role</b>
Margaret Chen	Brennan Center for Justice	Facilitator – Auburn
Laura Snow	Franklin Pierce Law Center	Facilitator – Concord
Kyle Soucy	Usable Interface	Facilitator – Concord
Andrew Stengel	Brennan Center for Justice	Facilitator – Concord
Sarah Swierenga	Usability & Accessibility Center, Michigan State University	Facilitator – Auburn

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## Test Facility

The usability sessions were conducted in the gymnasium of the Auburn Village School in Auburn, New Hampshire and the gymnasium of the Broken Ground School in Concord, New Hampshire. In Auburn, tables were set up on a stage just opposite the voting booths. In Concord, tables were set up along a wall behind the voting booths. The space protected the privacy of individuals and accommodated those with disabilities who participated in the study. The facilitator directly observed the participant during the session.

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## Participant's Voting Environment

The New Hampshire Secretary of State Department prepared two test ballots using races that would appear on the general election ballot in November and fictitious names. The ballots were printed on 11" x 17" white paper. Candidate names were left-aligned on one ballot, which we called "Ballot A" during the study. Candidate names were right-aligned on the other ballot, which we called "Ballot B" during the study.

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## Tasks

Participants were first presented with either Ballot A or Ballot B. An equal number of participants were presented with each ballot first. In our study, we asked participants to vote for choices we provided on separate voting instruction sheets. The voting instructions for each race were designed to "exercise" the ballot for various choices – including deliberate undervoting. The specific voting tasks are listed below and indicated in red on images of Ballot A and Ballot B (see Appendix 1 for ballot images and instructions details).

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## Test Administrator Tools

At the beginning of the session, participants completed a demographic questionnaire. After completing the voting tasks for each ballot, participants completed a satisfaction questionnaire in which they rated several statements subjectively. Then they answered several open-ended questions regarding their impressions of the two ballot layout styles and voting experience.

The test was administered with the use of a facilitator's guide, or session script, which was used to ensure that all participants received the same instructions and tasks.

For a version of the facilitator's guide/session script, refer to Appendix 2.

Test participants received verbal and printed descriptions of the voting tasks we asked them to complete for each ballot.

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## Procedure

100 participants took part in the usability evaluation of two proposed ballot layout styles for the New Hampshire's general election in November. Each of the 100 participants attempted to vote on the two ballots.

Following a meeting with the New Hampshire Secretary of State Department on Tuesday, August 26, 2008, we coordinated with the Department to conduct the study on Tuesday, September 9, 2008 and select two polling locations at which to recruit participants for the study. Participants were not compensated for their time.

The individual test sessions lasted approximately 15 minutes for each participant, and included several components, all of which are included in the facilitator's session script (see Appendix 2):

- Verbal overview description of study – We described the general nature of the study and the order of activities included in the session.
- Informed consent form for human subjects – Each participant was asked to sign the Consent Form before participating.
- Demographic questionnaire – We administered a brief questionnaire to gather background information on participants' voting experience.
- Task scenarios performance – We asked participants to pretend to vote in a real election using the two testing ballots, each with instructions on how to vote. Then we interviewed them about how using each ballot went, telling us what questions they had, what was confusing, and why they did what they did while voting. Having this verbal data helped us identify areas of difficulty, and patterns and types of participant errors.
- Post-study questionnaires – We asked participants to fill out a post-study questionnaire after voting on each ballot to obtain satisfaction ratings.
- Usability Study Debriefing – We closed each session by reviewing what had happened during the session and giving participants a printed sheet with information about how to find out more about the study.

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## Results

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### Usability Results

#### Task performance

Slightly more participants successfully completed the voting tasks for Ballot B (54) than for Ballot A (51). On average, successful completion of Ballot B (3:39) took slightly less time than successful completion of Ballot A (3:58). On average for all participants, Ballot B (3:54) took less time to complete than ballot A (4:13).

<b>Task</b>	<b>Number of participants who completed task successfully</b>	<b>Mean time to perform task successfully</b>	<b>Mean time to perform task</b>
<b>Ballot A</b>	51/100; 51%	3:58 minutes	4:13 minutes
<b>Ballot B</b>	54/100; 54%	3:39 minutes	3:54 minutes

## Task errors

The facilitators hand-scored the 200 participant ballots against the instructions that participants were given. We examined differences between how the participants filled out the ballots and how they were asked to vote in the instructions. General errors (e.g., not voting for candidates they were asked to vote for) made up the bulk of the voting errors. We also recorded overvote errors (e.g., writing-in and selecting a candidate that appears on the ballot), write-in errors (e.g., writing in the name of a candidate that already appears on the ballot), and errors due to the nature of the exercise, instructed voting (e.g., voting for names not listed on the instruction sheets).

For each contest on the ballot, at least one specific voting task (e.g., vote for [candidate name], or skip race) was listed. We considered instances in which participants' votes for candidates listed on the instruction sheets would not have been counted in the actual election as an "unsuccessful completion" of the voting task on the instruction sheet. Those instances could involve one error (e.g., not voting for a candidate listed on the instruction sheet) or multiple errors (e.g., crossing out an incorrect vote *and* incorrectly voting for a write-in candidate), but we counted the unsuccessful completion of any voting task as only one error. Errors are classified in the table below.

	<b>Ballot Style A</b>	<b>Ballot Style B</b>
<b>Total errors</b>		
Total number of errors	116	92
Total errors in state reps	72	63
<b>Errors per person</b>		
0 errors	51	54
1 error	22	24
2 errors	17	13
3 errors	3	4
4 errors or more	7	5
<b>Errors by type</b>		
<b>General errors</b>	<b>85</b>	<b>69</b>
<b>Overvote errors</b>	<b>9</b>	<b>4</b>
Simple overvote	1	1
Found name after writing in	5	0
Crossed out incorrect vote	2	3
Double vote	1	0
<b>Write-in errors</b>	<b>13</b>	<b>4</b>
Simple write in error	3	0

Wrote in name already on the ballot	10	4
<b>Errors due to instructed voting</b>	<b>9</b>	<b>15</b>
Seemed not to understand instructions	3	5
Voted for name not on instructions	6	10

The difference in the number of errors is not statistically significant; however, this does not mean that there is not a real effect, but that our data sample is not large enough for us to say that we guarantee this effect in the general population. There is a real effect shown in the data, trending toward fewer errors when voting on Ballot B.

### **Observations and participant comments during sessions**

After participants completed the voting tasks and satisfaction questionnaires for both ballots, facilitators asked a few follow up questions regarding participants' voting experience with the ballots. The following is a sample of the types of comments recorded during individual sessions:

- Many participants commented that the names of candidates for state representatives should be listed in alphabetical order, not necessarily beginning with A, to make it easier to find candidates.
- Some participants commented that party columns should be highlighted in colors (e.g., red for Republican Party, blue for Democratic Party) to make voting easier and/or faster.
- Many participants commented that there should be more space to write-in candidate names, noting that there was more space to write in a gubernatorial candidate than there was for a state representative candidate.
- Some participants commented that the specific voting instructions placed below each contest were printed in small font that may be difficult for some voters to read, particularly older voters and voters with visual impairments.
- Many participants asked why there wasn't a straight-ticket voting option on the ballot. (Note that the elimination of this option is a new change in New Hampshire elections)
- A few participants initially thought the names for state representative were a continuation of names for state senator because the contest label is placed lower on the page.
- A few older participants commented that the bubbles were hard to see on the ballot.

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## Satisfaction Results

### Post-study ballot questionnaire responses

The questionnaire used is attached as Appendix 3.

These subjective ratings data are based on a 5-point scale: 5=strongly agree, 4=agree, 3=neither agree nor disagree, 2=disagree, and 1=strongly disagree. Responses have been normalized.

These results are not statistically significant, suggesting that voters would be equally satisfied with either ballot style.

<b>Mean Scores for:</b>	<b>Ballot Style A</b>	<b>Ballot Style B</b>
Easy to use	3.64	3.55
Easy to mark	3.90	3.76
Confidence using this ballot	3.89	3.86
Most people would use ballot with ease	3.55	3.51
Instructions were easy to understand	3.85	3.89
Not awkward to use this ballot	3.39	3.40
Wouldn't need help to use this ballot	4.17	4.18

### Post-study ballot preference ranking

After participants completed the voting tasks for both Ballot A and Ballot B, facilitators asked them which ballot they preferred voting on. Some participants immediately expressed a preference for one ballot over the other, while others expressed that preference after facilitators informed them of the layout difference between the two ballots.

<b>Ballot A</b>	28
<b>Ballot B</b>	44
<b>No Preference</b>	28

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## Conclusions and Next Steps

This evaluation yielded much useful information on the usability of the two proposed ballot layout styles for November general election in New Hampshire. Although the difference in the number of errors made by participants when voting on Ballot A and Ballot B is not statistically significant, the data indicate that there is a trend toward fewer errors when voting on Ballot B. For this reason, we recommend the use of Ballot B (right-aligned names) for the general election in November. A strong proximity relationship between candidate names and fill-in ovals is more important than the alignment of names on the ballot.

The purpose of this study was solely to evaluate what, if any, impact the horizontal alignment of candidate names with respect to fill-in ovals on the ballot had on the successful completion of voting tasks. Based on the findings of this study and the comments recorded during individual participant sessions, we recommend additional usability testing of New Hampshire ballots to help ensure that all aspects of the ballot design, including font size, line spacing, use of borders, and instruction language, enhance the voting experience.

## Appendix 1: Voting Instructions

### Ballot A (Left-Aligned Names)

Contest Identification	Instructions
For President and Vice-President of the United States	Vote for the candidates for the Democratic Party
For Governor	Vote for Josiah Bartlett
For United States Senator	Vote for Richard Coote
For Representative in Congress	Vote for Nicholas Gilman
For Executive Councilor	Skip this race
For State Senator	Vote for Moses Dow
For State Representatives	Vote for David Alley Scott Carter John Stark Jacob Freese Asa Parker Kristen Partridge James Poole Daniel Eaton Robert Cain Ann Waldron Christine Goodman  Write in Marcia Colgate
For Sherriff	Skip this race
For County Attorney	Vote for the candidate for the Republican Party
For Treasurer	Vote for the candidate for the Republican Party
For Register of Deeds	Skip this race
For Register of Probate	Vote for Nathaniel Parker
For County Commissioner	Vote for the candidate for the Republican Party

**Ballot B (Right-Aligned Names)**

Contest Identification	Instructions
For President and Vice-President of the United States	Vote for the candidates for the Democratic Party
For Governor	Vote for Mike Porter
For United States Senator	Vote for Patricia Dawkins
For Representative in Congress	Vote for Debbie Brown
For Executive Councilor	Skip this race
For State Senator	Vote for Linda Bargmann
For State Representatives	Vote for Greg Ward Patricia Alexander "Jim" Lee Carrie Steel-Loy Richard Mitchell Don Maygee Henry Ash Gail Moses Kenneth Mitchell Fred Stein David Davis  Write in Melinda Pennyman
For Sherriff	Skip this race
For County Attorney	Vote for the candidate for the Republican Party
For Treasurer	Vote for the candidate for the Republican Party
For Register of Deeds	Skip this race
For Register of Probate	Vote for Althea Sharp
For County Commissioner	Vote for the candidate for the Democratic Party



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## Appendix 2: Facilitator's Session Script

### Preliminaries (approximately 3 minutes)

Greet the participant at the check-in table. Read this to each participant:

"Thank you for agreeing to participate. We'd like to get your feedback about the ballot design for the General election. We are trying to understand how well different options work for people like you.

For the next few minutes, I'd like you to pretend you are voting in a real election as you use two different versions of a ballot. We will observe you doing that, and then ask you some questions about how it went. We'll give you instructions about how to vote, but otherwise, just vote as you would at a real election. You can ask for help just as if you would ask a poll worker to help you.

When you have finished voting, I'll ask you some questions about what you thought of the ballot and what the experience of using it was like. Then I'll ask you to fill out a brief questionnaire. The whole thing should take about 15 or 20 minutes.

Please remember that you are not being tested in any way. Your taking part in the study helps us evaluate how well the ballot works. Do you have any questions at this point?

Before we get started, we have some paperwork to get through."

- Consent form – This must be done before you can go on. – (see forms file )
- Demographic questionnaire – (see forms file )
- While the participant is completing the questionnaires, the moderator selects the test materials marked for the order in which the participant should complete each ballot.
- The moderator for the session greets the participant and takes them to the place where they will run the test. Have the participant sit/stand at the voting station or table being used to vote. Make adjustments as necessary for people with disabilities.

### Voting Tasks (approximately 5 minutes each)

Introduce the ballot and give the ballot to the participant.

"Thanks for doing that. I appreciate it. Now we're ready to start evaluating the ballot. As I said, we're going to have you use the ballot to vote. Although this situation will be similar to voting in a real election, I'm going to ask you to vote for specific candidates in each race.

"This is the first ballot I would like you to use. [Hand the person the ballot and instruction sheet]

"Now let's go over the list of things I want you to do. Please read through it. [Pause while the person reads it. When the person is done reading it, continue.]

“Okay, let’s get started. Are you ready to vote? Please try to do what you would normally do, not what you think I want you to do.

“From this point on, you should treat me like a poll worker. If you have questions or problems with the ballot, ask me, the poll worker. I’ll note your question and if it is appropriate, I will help you.”

While the participant is voting, observe them without disturbing them. Don’t teach them how to use the ballot! See notes on the observation sheets below.

When they are done ask the participant to talk about the experience. “How was that?”

Ask participants follow-up questions if you need to. Try to keep questions open-ended. For example, if the participant missed a race or didn’t vote according to your instructions, go to that place in the ballot and say, “Tell me more about what you did on the ballot here and why.” Or, “I see you said that you strongly disagree that you feel confident using this ballot. Tell me about that.”

“Please fill in this questionnaire for me, with your reactions to this ballot.” [Hand the person the post-task questionnaire, marked for the style and order of ballot they

Repeat this for the 2nd ballot.

[When they complete the second ballot, ask these final questions, and record the answers on the note-taking sheets]

“Thanks. Now, let’s look at the two ballots.”

- Which one was easiest for you to mark correctly?
- Which one do you think that New Hampshire should use in the general election. What’s your first choice?
- Do you have any comments about these ballots?
- Ask them about problem areas and other observations from the two ballots now, if time permits.

Then wrap up the session by thanking the participant. Hand them the “Information about the Study” paper that they can take away with them.

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## Appendix 3: Post-Study Questionnaire

Circle the word that most closely describes your reaction to each statement.

1. I believe that I was able to mark my ballot accurately following the instructions:

Yes	Not Sure	No
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2. I thought the ballot was easy to use.

Strongly agree	Agree	Neither Agree nor Disagree	Disagree	Strongly disagree
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3. The instructions for this ballot were difficult to understand.

Strongly agree	Agree	Neither Agree nor Disagree	Disagree	Strongly disagree
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4. It was easy to mark my choices.

Strongly agree	Agree	Neither Agree nor Disagree	Disagree	Strongly disagree
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5. I would imagine that most people would be able to use this ballot without problems.

Strongly agree	Agree	Neither Agree nor Disagree	Disagree	Strongly disagree
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6. I found this ballot awkward to use.

Strongly agree	Agree	Neither Agree nor Disagree	Disagree	Strongly disagree
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7. I felt very confident casting my vote using this ballot.

Strongly agree	Agree	Neither Agree nor Disagree	Disagree	Strongly disagree
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8. I would need help to use this ballot.

Strongly agree	Agree	Neither Agree nor Disagree	Disagree	Strongly disagree
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