

OpenCongress.org: A Usability Study

Final Project for COM597: Theories and Practices of Interactivity

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Introduction

OpenCongress.org is a free, open-source online legislative resource created by the Participatory Politics Foundation and the Sunlight Foundation, “with a mission to make Congress more transparent and to encourage civic engagement” (“About OpenCongress,” n.d.).

OpenCongress.org is built using the open source platform Ruby on Rails. Since its launch in 2007, OpenCongress.org has aimed to achieve its goals by providing access to government data as well as blogs, social networking and community participation tools.

We chose to focus on OpenCongress.org for our term project because all three of us have experience working in the political arena and feel the website has the potential to greatly expand the level of engagement of America’s citizenry in the federal legislative process. With this in mind we proposed the below research question with the goal of identifying any usability issues and design flaws with OpenCongress.org’s layout and participation tools.

Research Question: Do the layout and interactive features of OpenCongress.org help politically active and potentially politically active citizens participate in the federal legislative process by providing an opportunity for them to learn what a federal bill proposes, better understand the arguments surrounding that bill, and to take some form of action?

Testing Methodology:

Our team conducted a usability test combined with a participant survey in order to answer our research question. The usability test consisted of 10 tasks divided into three distinct sections that addressed the three aspects of our research question. The participant survey consisted of 15

questions utilizing a five-point Likert scale of agreement. Additionally, the participant survey included multiple iterations of questions to ensure consistency in test participant responses.

The usability test was divided into two phases: a pilot study and a final study. We tested 6 individuals for our pilot study and 14 for our final usability test. We used Camtasia, a screen capture program, to record participant screen activity and voices.

Pilot Study

In their book *Measuring the User Experience*, Tom Tullis and Bill Albert state that when designing usability tests, “Running pilot studies is also very useful...you’ll be able to identify some of the outstanding issues that you have yet to address in the larger study“ (2009). As amateurs to the process of building a usability test, we decided early on that performing a pilot study was an important step to take in refining our testing methodologies, tasks and survey. Six diverse individuals participated in our pilot study and we ultimately made several meaningful changes to our usability test as a result of feedback and observations collected through our pilot study.

We provided the first two participants of our pilot study with a brief verbal introduction to OpenCongress.org but did not allow them to explore the website before starting our pilot test tasks. These two participants struggled with completing almost all of our tasks and appeared to be anxious throughout the testing process. Upon reflection, we realized that we were not simulating a real-life scenario because most people generally allow themselves a short period of time to review a new website before deciding whether or not the site might be useful and should be further explored. We decided three minutes would be ample time for participants to review the site and its capabilities.

In addition to providing our participants with three minutes to explore OpenCongress.org, we also quickly learned that we needed to provide participants with a hard copy of the tasks to refer to in addition to reading the tasks to them. The first two participants asked us to repeat tasks on several different occasions which appeared to make them uncomfortable and nervous. We provided the remaining four participants of our usability study with a comprehensive hard copy of the list of tasks but eventually noticed that this allowed them to read ahead and start processing tasks prematurely. In order to remedy this situation, we provided participants of our final usability test individual note cards with each task printed on it after reading the task to them. We also asked participants of our final study to make eye contact with us while we read the tasks in order to prevent them from looking at the computer screen and brainstorming ways to fulfill the task before the timer was started.

The pilot study also revealed the importance of telling the participants of our final usability test, before starting the test, that we were not testing their abilities or skills but simply if OpenCongress.org is satisfying its objectives through its website. Several of our pilot study participants were quick to ask us how they performed on our test upon completing our list of tasks and appeared to be concerned about how their performance compared with the performance of other pilot study participants. It was important to prevent this situation in our final usability test because we wanted our test to simulate a real-life scenario and these concerns would not occur if our participants were interacting with OpenCongress.org in a natural setting such as their homes.

In addition to changing the aforementioned testing methodologies in our final usability test, we also made a few changes to our tasks and survey questions as a result of feedback and observations collected through our pilot study presentation. For example, we changed the order

of tasks in Section B of our task list so that similar tasks were not presented back to back of each other. We also eliminated ambiguous language in some of the survey questions and tasks and added one open-ended question at the end of the survey in order to capture additional qualitative feedback that may not have been addressed in our tasks and survey.

Final Usability Testing

Insights

In order to answer our research question, we conducted a series of usability tests to measure task success and time to completion, task efficiency and self-reported metrics. The chart below shows how we mapped the testing back to our research question.

Before addressing specific test results and insights, it is important to highlight a few observations concerning our test population. These participant insights help explain some of the test results we discuss later in this section. Additionally, the participant insights were instrumental in deciding the confidence interval percentage to apply to our test results.

Participant Insights

Figure 1 shows two snapshots of our test population, one sorted by level of activity and one sorted by age. For the level of activity sort, we determined the percentage breakdown of the population by age, gender, days a week on a computer, and days a week on the Internet to determine any trends. For the age sort, we determined the variation between time on the computer and the Internet based upon age brackets of those younger than 40 years and those 40 years and older.

The pivot by age within the activity sort revealed that 50% of our very active population were 40 years or older, while 38% of our moderately active participants were 40 years or older. This could be indicative of the fact that older individuals typically take a more active interest in politics than younger people. However, the digital media age provides the younger generation an opportunity to become more active but the level and type of activity can be debated. A primary example of where we can question the level of impact of political activity driven by digital media is the 2009 Iranian Presidential Election. Although a large portion of the global population weighed in on the elections via Twitter, the resulting impact on the outcome was minimal. We feel this may be a relatively accurate representation of the voting population today and therefore determined that our confidence interval on task results should be 95%.

A look at the number of days per week on a computer and the Internet by self-reported metrics reveals that 17% of the very actives are not on the computer every day of the week, while this is only true for 13% of the moderately actives. Furthermore, 50% of the very actives spent less than 7 days a week on the Internet, while only 13% of the moderates were on the Internet less than 7 days a week.

The pivot by days in a week on the computer and Internet by age sort revealed that those participants that were 40 years and older spent 14% less time a week on the computer than those that were younger than 40. Likewise, participants 40 and older spent 29% less time on the Internet than those younger than 40 years.

The correlation between age and level of political activity along with the correlation between age and experience on the computer and Internet may explain some of the test results we speak of next.

Test Insights

Our task results revealed several interesting trends among those self-identified as very active vs. moderately active politically. They also revealed common difficulties across participants with specific tasks.

Figures 2 and 3 are scatterplot diagrams of task completion times for very active participants and moderately active participants. The diagrams show two distinct differences between the test groups. In Figure 2, we see that very actives took on average more than twice as long as moderately actives (Figure 3) to complete Task 1 (Find the Local Law Enforcement Hate Crimes Prevention Act of 2009). Ideally, there should not be any significant difference between the two test groups with this particular task. However, if we consider the variations in the test population profile, we can conclude that the difference is due to the variation in level of familiarity with computers, and specifically experience “surfing the net.” Given older users may be less familiar with web browsing, we might assume that using the site’s search feature may not have been the obvious choice for locating the bill for this particular population. This may suggest a need to better highlight the search function on the site.

The second variance between the two populations occurred in Task 9 (...write a message to one of your Senators about the bill). On average, the very active participants took twice as long as the moderately active participants to complete this task. Again, we might look to the level of familiarity with web browsing as a possible reason for this disparity. We also believe that the page that the participant is beginning this task from may also be an explaining factor. Some pages allow for much quicker access to legislator contact information than others.

A look at task completion success data reveals that Task 5 (Determine if your legislators support or oppose the bill) and Task 10 (Perform the steps necessary to post a comment on OpenCongress.org about the bill) were most problematic, and had confidence completion percentages of 45-87 and 52-93 respectively. The task of determining if their legislators supported or opposed the bill was failed by 36% of the test population, and there was no substantial variance by test group, or age group. This reveals that the overall task was difficult to accomplish, and should be addressed. OpenCongress.org does provide a “My Regional Officials” box on the right side bar of all bill pages which gives their legislators’ vote information, but a small percentage (29%) of participants actually identified this feature and most sought the information in other ways. OpenCongress.org may benefit from re-designing this feature by adding further color variation or contrast. The video below highlights the feature’s poor visibility.

The task of posting a comment on OpenCongress.org was failed by 21% of the test population (3 individuals). A review of the participants who failed Task 10 revealed a common trend. The task failures occurred with our 3 oldest participants, all of whom are 60 years and older. Again, thinking back to our participant insights, this may be indicative of level of familiarity with web browsing. To further support this theory, a majority of participants completed the task in 1 minute or less, and no other participant took longer than 3 minutes to complete the task. It is also worth noting that many participants completed the task by replying to other comments rather than posting an original comment. Users expressed frustration when trying to find the comment text box needed to post an original comment, as illustrated by the video below.

Test Insight Conclusion

After reviewing the test completion success and time data and factoring in participant insights, we can draw the following two conclusions: 1) Tasks that require cross site search and navigation may present a challenge for users that have less experience with web browsing. Our test sample shows this tends to be more reflective of an older population, which may also be more politically active; and 2) Tasks related to identification of legislators' actions or relationships with various site content can be challenging regardless of test group or age. We believe these issues represent a barrier for OpenCongress.Org in fulfilling the three site objectives identified in our research question.

Self-Reported Metric Insights

An evaluation of the survey responses from test participants reveals some disparity between how individuals answered reiterated questions. This may be a result of poor survey question design; however it may also be indicative of conflicting participant feelings about their experiences using OpenCongress.org.

Figure 4 shows the percentage of respondents who either agreed, somewhat agreed, or completely disagreed with the survey questions. Similar questions are grouped together in the graphic to clearly show related responses.

As Figure 4 reveals, participants provided conflicting responses on the questions addressing ease of navigation and ease of determining the status of a bill. Regarding the ease of navigation question, we observed that test participants felt favorably toward the site despite challenges with navigation. This observation is supported in the rate of agreement for the questions addressing:

increased interest in sharing opinions with legislators, increased interest in the legislative process, and intent to use the site in the future. We were unable to discern why respondents made conflicting statements on ease of determining the status of a bill.

Recommendations

Personalize Registered User Experience

Upon reviewing the Camtasia footage of the participants going through the usability study tasks, we noticed only two of the 14 participants (14%) actually used the "Tracked Items" feature in performing tasks despite the fact that all users were asked to "track" their legislators at the beginning of the test. This shows that their experiences using OpenCongress.org as registered users were generally no different than what a nonregistered user would experience.

We recommend that OpenCongress.org take the steps necessary to personalize most of its site content for its registered users. For example, if a registered user decides to review information about a recently introduced bill and accordingly clicks on the bill summary page, all tracked items and their relationship to the bill should be brought to the forefront. A user's view of the bill should reflect whether or not his or her federal legislators support or oppose the bill, what actions the legislators may have taken on the bill, and any blog and local news coverage. It is also important that one of the first things users see is a contact button for all of their federal legislators, not just the legislators attached to the bill's house of origin. Less pertinent information about the bill should be presented after personalized information about the bill is provided. Supplying users with access to a list of their federal legislators' recent votes on the top half of the OpenCongress Votes page and a list of the committees their federal representatives

are members of on the top half of the OpenCongress Committees page are two additional examples of how OpenCongress.org can personalize the user experience for registered users of the website.

Personalizing the registered user experience will provide greater incentive for a registered user to use OpenCongress.org on an ongoing basis by making it easy and intuitive for them to access information tailored to their specific interests, needs and circumstances.

Search Bar

One of the easiest ways to find information on OpenCongress.org is through use of the search feature located on the top right hand side of OpenCongress.org. Although this is a typical location for a search bar, we found that many of our study participants did not immediately notice it and a few completely overlooked it. To remedy this accidental oversight by users, we recommend that OpenCongress make the search bar more prominent by creating contrast from the background colors present on the website through a darker border. Additionally, OpenCongress.org may consider repositioning the search feature more centrally on each site page.

Tutorials

Although OpenCongress.org provides information to users concerning how to use the site, it is clear from our study that this information is not easy for users to find as zero participants visited the "How to Use OpenCongress" link during their orientation periods. It would behoove OpenCongress and future potential users of OpenCongress.org if this link were made more prominent. This could be done on the welcome page after a user registers. Also, creating

engaging video tutorials might provide incentive for users of OpenCongress.org to take time to learn about how to use all of the great features provided on the website. Tutorials can be made inexpensively through the use of Camtasia or other programs. Hiring an intern to produce the tutorials might be one inexpensive option.

Reduce Information Density

Because several of our participants stated during our usability study that they were overwhelmed by the amount of information presented on the OpenCongress.org homepage, we suggest that OpenCongress reduce the number of tabs on the homepage. Although we were unsuccessful in acquiring the site analytics for OpenCongress.org, the results of our usability study suggest that the Wiki, Votes, Blog and Battle Royale tabs are the most infrequently used tabs on the website and they should be removed from the homepage. The information linked to these tabs is easily accessible through the use of the remaining tabs.

Additional Suggestions

We also noticed through our usability study that there are several minor adjustments that should be made to OpenCongress.org that have the potential to make a big difference in overall user satisfaction. For instance, there should be a greater color contrast between the text and background colors used on OpenCongress.org. Several of our study participants had problems reading content on OpenCongress.org because the text did not stand out enough from the background color scheme. Another suggestion is to add a search button next to the "Roll Call" search field. A few of our participants entered a bill into the Roll Call field but abandoned their efforts once they realized there was no button to initiate a search. Yet another suggestion

concerning the layout of OpenCongress.org is to replace the contact button on the individual legislator pages to a more prominent location. It is currently buried on the bottom of legislators' pages and is easy to overlook.

On a final note, we observed that OpenCongress.org frequently and unexpectedly logged several test participants out of the site. This caused user dissatisfaction with our test participants and should be investigated.

Conclusion

In summary, our team recognizes OpenCongress.org as being generally successful in achieving its goal of increasing civic engagement. The website's interactive features and layout are for the most part helping politically active and potentially politically active citizens participate in the federal legislative process by providing an opportunity for them to learn what federal bills are proposing, better understand the arguments surrounding bills, and to take some form of action. However, as our study results illustrate, there are several simple changes OpenCongress.org can implement to provide an even more helpful and user-friendly tool. In order to maximize our suggestions, OpenCongress.org will need to further commit to usability testing and implementation.

We hope that the findings and suggestions provided in this term project are points of inspiration for the administrators of OpenCongress.org.

What's Next

Tullis and Albert tell us that, "Perhaps the best way to measure the impact of subtle design changes is through live-site metrics from A/B testing" (Tullis & Albert, 2008).

If given the opportunity to move forward with our OpenCongress.org usability study, our next step would be to test our recommendations through A/B testing. This would involve creating a live template of OpenCongress.org that includes our recommended changes to the site and running a new test group through our usability study using the template. We would then compare the results of our initial usability test to the second usability test using Z-Scores with the goal of determining the impact of our recommendations. We would also conduct heat map testing if we had additional time to move forward with our term project. Among other things, heat mapping would provide us with greater insight into how people interact with OpenCongress.org.

The main reasons why our team did not conduct A/B testing, Z-Score analysis and heat map testing include lack of time, skill set and resources. The OpenCongress.org administrative team can conduct these steps without incurring substantial costs. A/B testing can be done using the existing OpenCongress.org website and style sheets. Additionally, there is a variety of low-cost heat mapping programs that the OpenCongress.org administrative team can use for usability testing.

What We Learned

We learned early on in our project that one of the more difficult aspects of designing a sound usability test is determining the correct language to use in the test. We identified some potential problems with language used in our final task list and survey that are important to mention. For instance, one of the tasks read, “Determine if one of your legislators supports or opposes the bill.” We now realize, after receiving user feedback, that it would be less ambiguous a task had we stated, “Determine if your representative voted for or against the bill.” Ambiguous language should also be avoided in survey questions as well, but also important is the order of the survey

questions. We reiterated questions to provide stronger data for our study. However, the reiterations were not evenly distributed in the final survey, which resulted in participants noticing the “same question being asked twice.”

Ultimately, our team found this term project to be a very worthwhile experience and we are all confident we acquired valuable tools and skills from it.