



USABILITY TEST

For MEJO 581: User experience design and usability

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Executive Summary

The NC Health Department of Health and Human Services' COVID-19 Response Site contains a section specifically focusing on the COVID-19 vaccine. The main page of this section, titled COVID-19 Vaccine Information, was created with the intent of guiding the user through information regarding the COVID-19 vaccine's distribution and safety while also answering any related questions. Six UNC Chapel Hill students conducted usability testing on this website as part of a Usability and Design Course led by Professor Laura Ruel. This study was conducted in order to determine what difficulties users encounter in navigating the mobile site to find critical information, especially in reference to their specific vaccination grouping.

The six students conducting the usability tests utilized the same methodology in their testing, which consisted of a consent form, pre-test questionnaire, observation of the user's unguided navigation, observation of the user's completion of specific tasks, and a post-test questionnaire. A variety of participants were chosen to complete these tests in order to evaluate how easily different user groups were able to find information.

Both major and minor problems with the site were discovered, however the overall response to the NCDHHS Vaccine site's organization and ability to clearly convey the necessary information was positive. Most users were able to complete all guided tasks given to them in a short amount of time despite any setbacks or confusion experienced.

In order to improve the website and encourage North Carolinians to receive their COVID-19 vaccinations in a timely and informed manner, we recommend that the findings laid out below be considered when improving the user experience.

Methodology

Purpose

This study had three primary goals in testing the usability of the Find My Vaccine web app on findmygroup.nc.gov:

- To determine if key users are able to complete the survey truthfully to find their group

- To determine if users are able to easily find information about the vaccine and their group
- To determine if users are able to easily navigate the mobile web page

Method

A group of six students in a User Experience Design and Usability course at the University of North Carolina at Chapel Hill conducted a web usability test (attached under the Appendix) to assess how users interact with the Find My Vaccine mobile web app. Participants completed the test using an iPhone with Safari or Androids and Google Pixel phones with Google Chrome. The usability test was administered to eight volunteer participants during the weeks of February 14, 2021 and February 21, 2021. Further information on the participants can be found under Participant Profiles.

Six out of the eight tests were administered on a laptop computer over Zoom, while two were conducted face-to-face. Each test lasted approximately 20-35 minutes. The users' screen movements and audio were captured using Zoom or with Android, Google Pixel or iPhone screen recordings. The format of the usability test given and the assigned tasks was influenced by the research of Steve Krug, the Online Journalism Review of the University of Southern California's Annenberg School for Communication and Journalism and the World Wide Web Consortium.

None of the participants had previously accessed the Find My Vaccine web app. The usability test consisted of four phases: Pre-Test Questionnaire, Free Observation, Assigned Tasks and Post-Test Questionnaire. The consent form completed prior to the test and the testing instruments, including the list of assigned tasks, are attached in the Appendix.

Consent Form

Before the test, all participants were required to read and sign a consent form stating the purpose, procedures and confidentiality of the test.

Pre-Test Questionnaire

The pre-test questionnaire collected demographic information about all participants including: age, gender, race, occupation, highest level of education completed and first language. The

survey asked each participant about their Internet usage and methods of access, in addition to ranking their Internet usage frequency on a scale of 1-5. Additionally, it asked participants to rank their skill with computers and Internet literacy on a scale of 1-5. Lastly, the questionnaire asked participants about their familiarity with their North Carolina vaccine group assignment.

Free Observation

In the free observation phase, the test administrator provided the participant with five minutes to explore and get familiar with the Find My Vaccine web app as if they were an essential worker in North Carolina. The administrator observed and recorded the following activities:

- The amount of time spent on the home page before clicking on anything
- The first thing the user clicks and the amount of time spent there
- If the user hovers over or clicks any particular social media element on the home page
- The different pages that the user navigates to
- The average amount of time spent on each page of the site
- How the user navigates the sites and which links they click
- If the user ever navigates out of the site
- If the user ever attempts to click on something that is not a link
- The amount of time it takes the user to find the survey
- If the user skips over the pop-up on the survey

Assigned Tasks

The test administrators created nine tasks that users of the site may attempt, and participants were asked to complete the tasks as if they were an essential worker in North Carolina using the Find My Vaccine mobile site. This phase of the usability test was designed to assess the web app's ease of use, navigational capacity and organization. The participants were given a maximum of two minutes to complete each separate task, and if they could not complete the task within the allotted time, they were given the next task. Inability to complete the tasks were considered weaknesses of the site, not the participant.

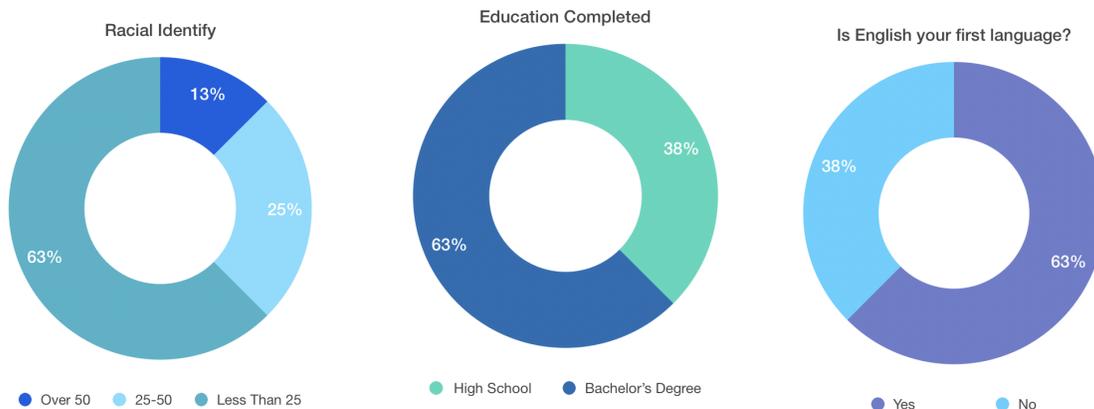
Post-Test Questionnaire

The post-test survey asked the participants to provide their opinions and assessments of the web app. There were two questionnaires, one being quantitative and the other qualitative. The

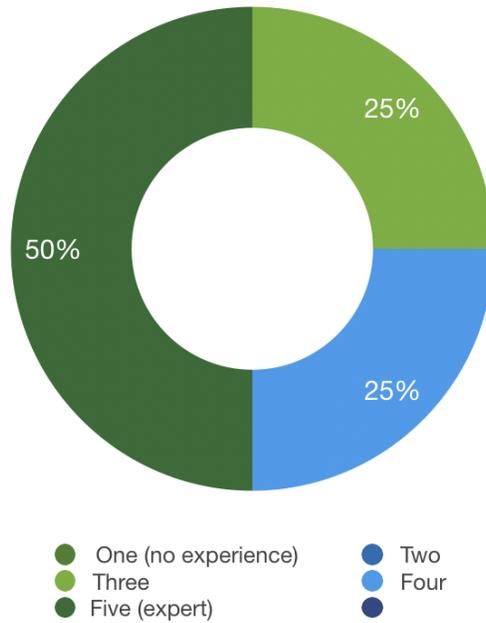
quantitative portion asked the test subjects to rank their experience with the following components of the site: available information, photos, videos, interface, navigation controls, overall impression and engagement of the site from 1-5. The qualitative portion asked the participants to answer seven questions regarding their engagement with the site and opinions on its features.

Participant Profiles

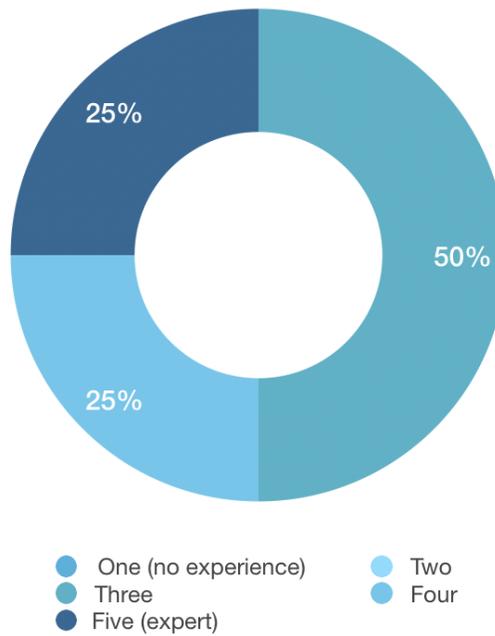
The usability test was administered to eight participants. Among the eight volunteers 62.5% (5) of the participants were under the age of 25. There were 5 female and 3 male participants, whose occupations include students, self-employed, customer service, and even a House Director of a sorority. The races of the participants include white, Hispanic, and Asian/Pacific Islander. While the occupation of student tallied more than other occupations, 62.5% of participants had completed school through a Bachelor's degree. 62.5% of participants speak English as their first language.



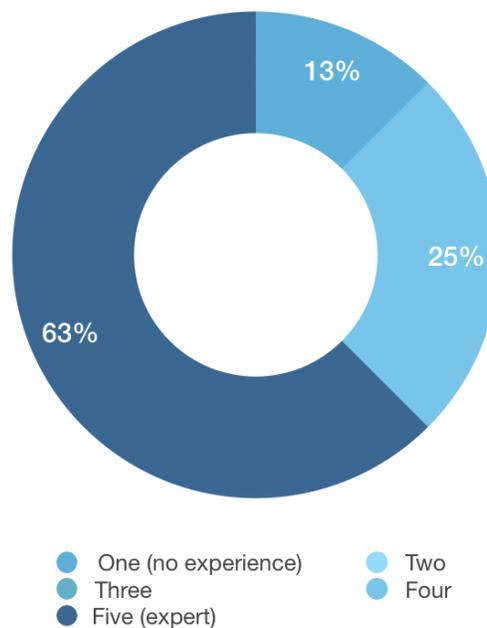
On a scale of 1-5 (with 1 being no experience and 5 being an expert) please rate your skill with: Computers In General



On a scale of 1-5 (with 1 being no experience and 5 being an expert) please rate your skill with: The Internet



On a scale of 1-5 (with 1 being no experience and 5 being an expert) please rate your skill with: Reading News Online



62.5% of participants use a mobile device to access the internet as opposed to a computer. 5 of the 8 participants said they spend around 3-6 hours on the internet each day, with one user saying they spend up to 9-15 hours on the internet. However, each participant said they check the internet for information at least once per day. Most participants —when ranking on a scale of 1-5— with 1 being no experience and 5 being an expert, chose 4 when asked how up to date they are with COVID news. The results for knowing their vaccine groups were split in half with 50% knowing their group and the rest not.

Overall the participant profiles highlight a testing group that is comfortable with technology ranging from a decent comfort level to expert level.

Limitations

This usability test had several limitations that should be considered when analyzing its findings:

- **Sample size:** Small test groups can lead to issues in the usability test. There were only eight participants, so a larger testing sample would have provided more data to analyze.

- **Inconsistencies in test administration:** Although each test administrator used the same test script, each test was given by a different student. As a result, it is likely that there were some discrepancies in how each test was given. In addition, different testing setups were used in terms of mobile phone and browser, which could have affected the results.
- **Remote format:** Due to the ongoing COVID-19 pandemic, most tests were conducted over Zoom, rather than in person. The inability to complete the tests while face-to-face could have altered the results due to factors like miscommunication and clarity between the administrator and participant. Another issue with conducting the usability tests over Zoom arose from technical difficulties, such as participants being unsure on how to share or record their screen.

Positive Findings

In general, participants resonated with the information of the site and were able to finish most of the tasks asked by the testers in the assumed scenarios. While the majority of the participants didn't speak highly of the site, there are still a few things they found valuable.

Reliable and accessible content

All of the participants reported that the information on the website was reliable and informative, though there was much useless information to their stands (This will be addressed in the "Minor Problems" section of this report). Their desired information is presented in a clear and authorized manner, which makes them feel the website is the right place to find first-hand information. Moreover, those information are demonstrated in digestible language, which can be easily understood by people from different educational backgrounds.

Cohesive design

Participants addressed that the overall design of the website is clean and cohesive. The "blue and white are not dull, instead, they provided a sense of conciseness and freshness," said one of the participants. Such design also matches the tone of the organization.

Convenient gadget

Besides the survey which helps people find their vaccine group, there are two major components that have been reported as the “most useful part”.

The first one is the group map. Some of the participants didn't have the patience to go through the survey step by step, they successfully and quickly identified their groups simply looked at this infographic and the specific group information below it.

The second one is the FAQs link. Unlike the homepage or any other section which provides general information regarding COVID-19, the FAQs contain vaccine specific information that is closely related to individuals' daily lives, the most wanted information reported by the participants. In addition, one of the participants mentioned that the link to the CDC's website gave her a sense of transparency which made her feel very comfortable.

- **“I love how the FAQ is set up, it's easy to navigate and works well on mobile”**
- **“This FAQ page is really, really helpful”**

Minor problems

Minor Issue 1: difficulties changing back language

Since the website is using Google Translate, after selecting the language in the top right corner, users have to go back to the top left corner to return to the English homepage. Several participants spent a lot of time finding the button needed to convert back, reading “Show Original Option”.

COVID-19 Vaccinations: Your best shot at stopping COVID-19

You have a spot, take your shot. A tested, safe and effective vaccine will be available to all who want it, but supplies will be limited at first. To save lives and slow the spread of COVID-19, independent state and federal public health advisory committees recommend first protecting health care workers, people who are at the highest risk of being hospitalized or dying and those at high risk of exposure to COVID-19. Our goal is to vaccinate as many people as quickly and fairly as possible given the limited supply of vaccines.

Keep practicing the **3 Ws** - **wear a mask, wait six feet apart, wash your hands** - until most people have a chance to get vaccinated.



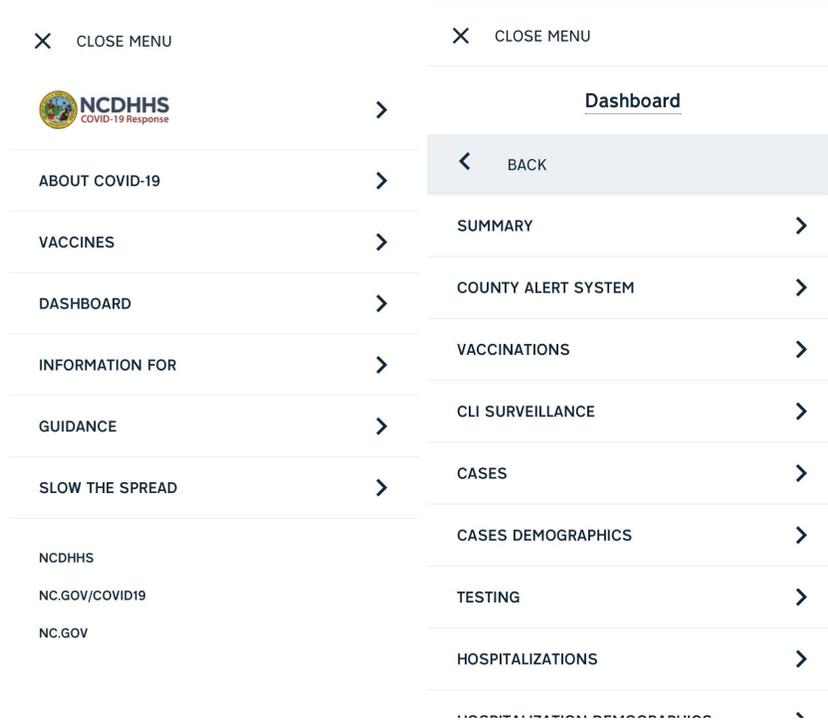


Recommendation

- It's helpful to add "English" as an option in the selection box so that people can change the language back and forth effortlessly.
-

Minor Issue 2: Too many sections in the navigation bar

Many participants shared that they felt the navigation bar is confusing and redundant. For example, under the Dashboard part, there are 14, an excessive amount for a mobile navigation bar. The navigation bar ought to be concise and serve as a guide to the site, instead of a confusion.



Recommendation

Re-classify the sections in a condensed and coherent way by potentially creating sub-groups within the options of the navigation bar.

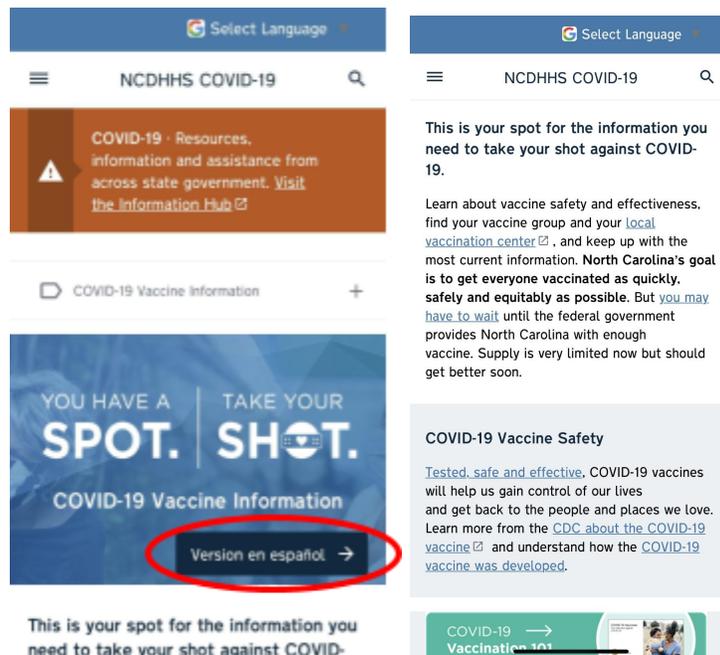
Major Problems

Major issues noted revolved around wordiness of the website, the translation of the website and the maintenance of the translation while navigating through the website as well as the change in format of the homepage.

Major Problem 1: Spanish Translation Homepage

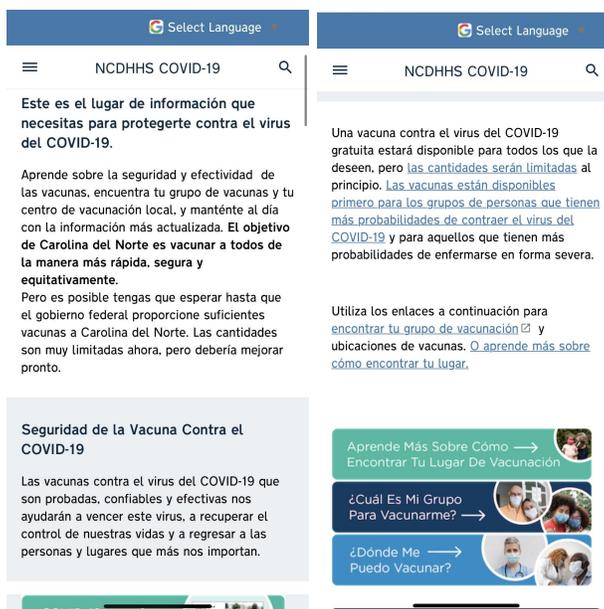
Participants were asked to convert the webpage to another language and find their vaccine group. Many users were already in the Find My Vaccine Test and used the bar at the top to automatically change the language to Spanish, navigating the site easily. However, some users used the “Version en español” button on the COVID-19 Vaccine Information homepage.

(English)



Take note of the homepage in English and the hyperlinks in the image above to the right. The users found that when the homepage was converted to Spanish, the layout, hyperlinks and overall navigation changed. The hyperlinks one user expected to find towards the top of the homepage were now further down when they translated it Spanish. .

(Spanish)



“At first I was a bit confused, I expected to find the hyperlinks in the first paragraph and I saw that there were no hyperlinks in the first paragraph when I changed it to Spanish and I was confused and concerned. I kept scrolling and found it down here. If I was using the site solely as a Spanish speaker I would have felt overwhelmed with all the placement of the links towards the bottom and I would have preferred it at the top like it was in English.”

Recommendations

- The translated homepage is text heavy similarly to the English homepage, however, it is lacking the embedded links throughout the text like the English page. The information users are searching for is now further down instead of immediately obtainable. It is recommended to move the hyperlinks to access useful information towards the top of the page as it is in English.

Major Problem 2: Spanish Navigation Continuation

Along with the alteration of the homepage when translated to Spanish, when navigating to links within the homepage, they automatically convert back to English.

Find My Vaccine Group English

YOU HAVE A SPOT. TAKE YOUR SHOT.

Para usar este sitio web en español, seleccione español en el despliegue de la esquina derecha superior.

Tested, safe and effective COVID-19 vaccines will help us get back in control of our lives and back to the people and places we love.

A free COVID-19 vaccine will be available to all who want it, but supplies will be limited at first. We want to make sure people are vaccinated as quickly and fairly as possible, starting with people who are more likely to get COVID-19 and those more likely to get dangerously sick from it.

Use this tool to find your vaccine group.

This survey will not collect any private health information. There is an option at the end to enter contact information if you would like to be notified when you are eligible for vaccination.

When users transitioned from the Spanish translated homepage to the vaccine group quiz they encountered the vaccine group quiz in English. The paragraph above the beginning of the quiz informs users of how to convert the quiz into Spanish, however, it is low in opacity and does not stand out on the webpage.

“If I would have come to this page I would have been oh no it’s in English and then I saw the paragraph saying to convert it”

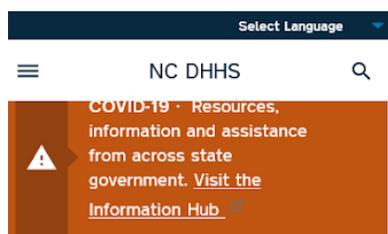
Recommendation

- Create a landing page in Spanish for users that are using the Spanish converted homepage so that they can immediately begin to take the Find My Vaccine

Group in order to prevent confusion or frustration about having to translate the page again.

Major Problem 3: Hierarchy in Interactivity

Most elements could be found by the participants within a fairly short amount of time. The infographic was the only task assigned that was consistently difficult or impossible for the user to find. So, if most things could be found one must ask why user's expressed malcontent with the clarity of the site's organization?



This is your spot for the information you need to take your shot against COVID-19.

Learn about vaccine safety and effectiveness, find your vaccine group and enough vaccine. Supply is very limited now but should get better soon.

COVID-19 Vaccine Safety

[Tested, safe and effective](#). COVID-19 vaccines will help us gain control of our lives and get back to the people and places we love. Learn more from the [CDC about the COVID-19 vaccine](#) and understand how the [COVID-19 vaccine was developed](#).



Users were asked to answer a post-test question about their least favorite part of the site and many responded along similar lines, conveying their frustration with the text heavy homepage and information dense paragraphs.

“Everything else tied. All of it was exactly the same and vague, you had to click on everything until you found what you wanted. Things were hard to find.”

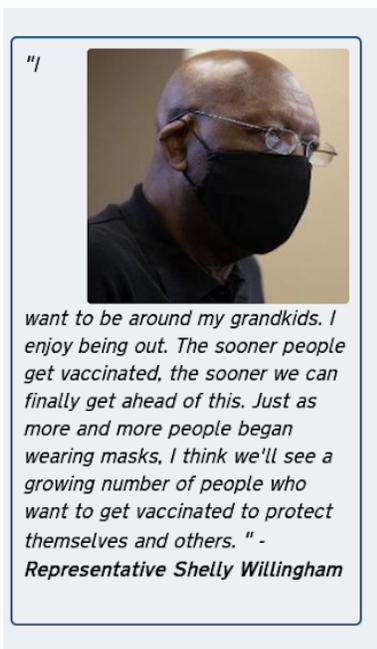
The same users that gave these answers were able to complete nearly all tasks given to them. These complaints indicate that while the website has all the information needed in locations that may be technically accessible, they are not in locations that users intuitively look at.

“It’s just too wordy, way too wordy”

“Front page, lots of different pieces of text, didn’t prevent navigation.”

To the left is a continuous screenshot of the NCDHHS COVID-19 Vaccine page as it is seen on iPhone 6, 7, and 8 resolutions. Contained in this image is the length of the page from where it opens down to the buttons containing links which direct the user to the tools that tell them their vaccination group and where they can get vaccinated. Multiple lengths of each of these phones' resolutions fit within this screenshot meaning that users must scroll past multiple other buttons and long

paragraphs, that they often do not read, in order to find the information most relevant to their common question:



“When and how can I get vaccinated?”

Earlier in the page are included links to the survey and map tool to find where and when a user may be able to receive a vaccine, but those links are not obvious as they are buried in a paragraph of text. The users find themselves searching for answers given the established hierarchy of the page; so, when their internal hierarchy does not match the one laid out on the page, they find the page frustrating and confusing even if the information is found eventually.

Looking to the screenshot on the left, one will notice that a different, more brightly colored, trio of buttons are included at the top of the page. None of these take you to the group survey or vaccine location map but they are staged to be of more importance. As a result, one user never navigated to the group survey to find her vaccination group but instead clicked the first orange button and completed almost all tasks by utilizing the Frequently Asked Questions.

Find Your Spot to Get Your Shot

A free COVID-19 vaccine will be available to all who want it, but [supplies will be limited](#) at first. [Vaccinations are first available to groups of people who are more likely to get COVID-19](#) and those more likely to get dangerously sick from it. Use the links below to [find your vaccine group](#) and vaccine locations. [Or learn more about how to find your spot.](#)



Recommendations

- Reposition and recolor the buttons on the page using a hierarchy based on what most people come to the page searching for, ensuring that the first buttons allow users to find their vaccine group and where to get vaccinated. FAQs were the most used web page and should also be placed towards the top of the homepage as they can answer most users' questions.
- Reduce the amount of text at the beginning of the page and move larger paragraphs closer to the end. Following both of these recommendations will result in less scrolling for the user and they will feel more comfortable navigating the site with ease.

Catastrophic Issue: Difficulties Going Back

The usability test encouraged and required testers to use embedded links in the website in order to gather various information regarding the COVID-19 vaccination. When trying to return to the vaccine homepage, many participants struggled as a back button was not eligible to be accessed sometimes. Leading the users to have to reload the page and then go back to the homepage.

“I have no way to go back, how do I go back? For one thing I can’t navigate in and out of this thing once I’m somewhere it won’t let me go back. This is not very friendly for older people, I would be done by now”

This problem arose in 50% of users.

75% of the users that struggled to return to the previous page were 20 or 21.

When attempting to navigate back to the homepage a “Not Found” page appeared stating that “The requested URL was not found.” The problem was discouraging for users, leaving them frustrated and somewhat defeated by not being able to simply navigate the website.

Recommendations

- In order to make the website user friendly for all ages, the navigation needs to be working. Going back to the vaccination homepage should be a simple task. This is a glitch in the website that needs to be looked at so that citizens can use it how it was intended.
- A link back to the homepage at the end of Find My Vaccine Group could be helpful or a link to take the quiz over again
- Lastly, a “Not Found” page could contain a link to the homepage of the health department website so that users can at least get out of it quickly.

Appendix

Consent Form

The researcher (your name here) is conducting a usability study to evaluate the design of the NC Health Department Covid-19 Vaccine Website. The results will be used to help improve the site design.

Procedures:

As a subject you will be asked to:

1. Fill out a pre-experiment questionnaire.
2. Be observed as you spend a specified amount of time viewing the presentation.
3. Complete a series of tasks on the site.
4. Complete post-experiment questions.

Confidentiality:

Participation in this usability study is voluntary. All information will remain strictly confidential. The descriptions and findings may be used to compile a report about the site's effectiveness. However, at no time will your name or any other identification be used. You are at liberty to withdraw your consent to the experiment and discontinue participation at any time without prejudice. If you have any questions after today, please contact put your name, number and e-mail here.

I have read and understood the information on this form and had all of my questions answered

Participant's signature

Date

Usability tester

Date

Test Script

- **Web browser should be open to Google or some other “neutral” page**

Hi, _____. My name is _____, and I’m going to be walking you through this session today.

Before we begin, I have some information for you, and I’m going to read it to make sure that I cover everything.

You probably already have a good idea of why we asked you here, but let me go over it again briefly. We’re asking people to try using a Website that we’re working on so we can see whether information is clear and accessible. The session should take about 30 minutes to an hour.

The first thing I want to make clear right away is that we’re testing the *site*, not you. You can’t do anything wrong here. In fact, this is probably the one place today where you don’t have to worry about making mistakes.

As you use the site, I’m going to ask you as much as possible to try to think out loud: to say what you’re looking at, what you’re trying to do, and what you’re thinking. This will be a big help to us.

Also, please don’t worry that you’re going to hurt our feelings. We’re doing this to improve the site, so we need to hear your honest reactions.

If you have any questions as we go along, just ask them. I may not be able to answer them right away, since we’re interested in how people do when they don’t have someone sitting next to them to help. But if you still have any questions when we’re done I’ll try to answer them then. And if you need to take a break at any point, just let me know.

You may have noticed the microphone. With your permission, we’re going to record what happens on the screen and our conversation. The recording will only be used to help us figure out how to improve the site, and it won’t be seen by anyone except the people working on this project. And it helps me, because I don’t have to take as many notes.

If you would, I’m going to ask you to sign a simple permission form for us. It just says that we have your permission to record you, and that the recording will only be seen by the people working on the project.

- Give them a recording permission form and a pen
- While they sign it, **START the SCREEN RECORDER**

Pre-Experiment Questions for a Usability Test

Age: 20 _____

Gender (check one, if other please specify): M F _____ Other: _____

Race (circle one):

White

Black, African-American

American Indian

Hispanic

Asian or Pacific Islander

Other: _____

What is your occupation?

Customer Service Clerk _____

Highest level of education completed (circle one):

High school

Some college

Bachelors

Masters Degree

Doctorate

Is english your first language? (check one): Yes No _____

On average, how many hours do you spend on the Internet each day (circle one):

None 1-3 3-6 6-9 9-15

Which device do you use more often to access the internet?

PC mobile

What type of Internet access do you have? (circle one)

Dial up Broadband/Cable DSL Don't Know

On a scale of 1-5, with 1 being never, and 5 being at least once a day, how often do you use the internet to get information? (circle one)

1 2 3 4 5

On a scale of 1-5 (with 1 being no experience, and 5 being expert) please rate your skill with:

Computers in general: 1 2 3 4 5

The Internet: 1 2 3 4 5

Reading news online: 1 2 3 4 5

Online Shopping: 1 2 3 4 5

Watching Videos Online: 1 2 3 4 5

Blogging: 1 2 3 4 5

On a scale of 1-5 (with 1 being no awareness, and 5 being extremely aware) please rate how well you stay up to date with Covid news:

1 2 3 4 5

Are you already aware which vaccination group you fall under according to North Carolina's guidelines?

Yes___ No___

Which group do you believe you fall under? (please circle one)

1 2 3 4 5

Free Observation Checklist

I'm going to pull up a website about N.C. Covid-19 Vaccine. Pretend you are an essential worker in North Carolina, and peruse the site as you normally would. What do you notice and what stands out to you? Feel free to navigate throughout the site, and I will let you know when the time is up. (5 minutes).

1. How long does the user spend on the home page before clicking on anything?
2. What does the user click on first? How much time did they spend here?
3. Did the user hover over or click on any particular social media element on the home page?
4. Approximately how many different pages did the user navigate to?
5. What was the average amount of time spent on each article/page of the site?

Page:	Time spent:
Home page	
About Covid-19	
Vaccines	
Dashboard	
Information	
Guidance	
Slow the spread	

6. How did the user navigate the site?

Type of Navigation:	Number of times used:
Links within articles	
FAQ Sheet Links (colorful buttons)	
Menu	

7. Did the user ever navigate out of the site?

8. Did the user ever try clicking on something that was not a link? If so, what?

9. How long does it take for the user to find the survey? Do they skip over the pop-up?

Usability Tasks

Now that you have become acquainted with the site, I am going to ask you to complete a few tasks. Remember that this is an assessment of the site, not your ability to complete the tasks successfully. Complete the tasks however you would in a normal setting, keeping in mind that you are “an essential worker in North Carolina.” Please

share your thoughts aloud as you navigate the website and walk me through your process.

For tester: Allow a maximum of 2 minutes to complete each task.

1. You work in an assisted living facility, please find your vaccine group.
2. English is not your first language, please change the website to your first language and find your vaccine group.
3. Find out if the vaccine can give you Covid.
4. Discover how much the vaccine will cost using the website and its links.
5. Find out what you should do after you take the vaccine.
6. Find out when your group will be vaccinated, in this instance you are an essential worker working in a grocery store.
7. Find an infographic discussing the vaccine, your vaccine group, and what the vaccine might entail. Download the infographic.

Post-Experiment Questionnaire

Rate your overall impression about the following elements.
(Circle one: 1- poor , 3 -neutral, 5- excellent)

Site components**Information Available**

Not readable	1	2	3	4	5	Clear
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Photos

Dull	1	2	3	4	5	Lively
------	---	---	---	---	---	--------

Video

Not interesting	N/A	1	2	3	4	5	Interesting
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Interface

Unorganized	1	2	3	4	5	Well-organized
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Navigational controls

Weak	1	2	3	4	5	Strong
------	---	---	---	---	---	--------

Overall impression

Negative	1	2	3	4	5	Positive
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Engagement of the site

Negative	1	2	3	4	5	Positive
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**Post-Experiment Discussion Questions
for a Usability Test**

What was your favorite feature of the site and why?

What was your least favorite feature of the site and why?

What was the most useful feature of the site and why?

What part was most difficult to navigate and why?

What part was easiest to navigate and why?

Did you find the information easily? Why or why not?

Do you find the site engaging? Why or why not?