SHMAP Usability Research Report

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EXECUTIVE SUMMARY

SHMAP is a mobile application that provides locations of store products on a digital map which can be easily accessed on a smartphone. The app will feature multiple companies with numerous store locations that users can choose from. SHMAP has two primary audiences: end-users and companies. Our report highlights the problems and questions that our team researched from both of these audiences, the methodology used, our findings and results, analysis, and recommendations.

In order to research how end-users would use SHMAP, our team constructed a usability test and a survey. Our usability test consisted of six participants. We evaluated the following features of our SHMAP wireframes: navigation, search, and the language and wording. Our survey consisted of 16 questions and we gathered 152 responses. Questions varied from multiple choice to questions on wireframes which were analyzed with a heatmap. In order to find insight into how companies perceive SHMAP, we conducted a brief 15 minute phone interview with the Sustainable Retailing Manager from Ahold Delhaize Company where we asked five questions relating to inventory and desirability.

Based on our research, we found that users have difficulties navigating through our location screen, some users looked for a home button, and most users prefer to search through the search bar. On the other end of our research, we found that SHMAP may need to rethink marketing strategies. We found that companies may not want to partner with SHMAP because of the inclusion of other stores. Additionally, we confirmed that store inventory is updated daily for many retailers. This also requires us to think about how we would like to manage inventory in the future, because inventory is a huge part of the development of SHMAP.

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INTRODUCTION/BACKGROUND

The purpose of SHMAP is to create a more streamlined and efficient shopping experience for our users. The ability for the user to search for products on our mobile app increases findability in stores. SHMAP will partner with multiple companies with a variety of store layouts.

To ensure that our design affords these capabilities, we ran a usability test, distributed a survey, and conducted a phone interview. The purpose of our research was to find usability errors within our app layout and functionality, and obtain insight into how SHMAP would integrate existing inventory into the app.

Through our research we were able to pinpoint usability issues and the language preference in our app. We will use the results of our usability test, survey, and phone interview to modify our functional prototype to fit the needs of our end-users and retail companies.

Scope

As a group, we performed a usability test on the wireframes for the SHMAP mobile application. The test covered important areas of the app including the location service, search bar, and departments listings. The group was able to gather quantitative data through metrics including errors and task completion, and qualitative data through post-test and post-task questions. After analyzing the data, we will consider the results and make any necessary changes to improve the usability and overall experience of our app.

Additionally, the group composed a 16-question survey that was distributed on social media to gain more insight into how end-users would use SHMAP. The group gathered information from Ahold Delhaize Company by conducting a phone interview with the Sustainable Retailing Manager.

Size

We conducted usability tests with six different participants from our secondary audience, end-users. Each user was given four tasks/scenarios to complete using the wireframes we provided and were asked one to two questions after each task. After the tasks were completed, each user took a post-test which consists of a system usability scale and four additional questions. Each usability test took approximately 10-15 minutes.

Our end-user survey consisted of 16 questions that ranged from multiple choice to heat-mapped wireframe questions. It was distributed through for one week and we received 152 responses. Our phone interview consisted of a 15 minute phone interview with the Sustainable Retailing Manager from Ahold Delhaize Company where we asked five questions relating to inventory and desirability.

PROBLEMS TO BE SOLVED

As a complex system, SHMAP has to solve problems for multiple audiences, including our end users and the companies that we will work with.

End User Problems

The end users of SHMAP are identified as those using shopping locator app in store. End users would use SHMAP when they are having difficulties finding an item and/or when they would like to expedite their shopping experience. Our main topic of research for end users is to identify how users will interact with SHMAP. We want to ensure that our wireframes for the mobile application are intuitive and that users have a desire to utilize SHMAP when looking for products.

Company Problems

The companies that will partner with our app will have their stores' floor layout of aisles and their inventory in our app. Our team has had a large problem with contacting retailers on the terms of desirability, revenue model, and inventory. Because of privacy concerns and/or lack of knowledge, store managers at local retailers have not been able to provide us with the information we have needed. Because of this, SHMAP needed to find at least one company representative to provide us with some knowledge on company operations.

METHODOLOGY

For our testing, we utilized the traditional usability testing, a survey, and a phone interview.

Usability Test

Methods

We chose to use a traditional usability test because we wanted to collect and analyze data from each task and also observe how the users interact with the wireframes. Before we conducted our testing, we utilized a screener to ensure that our test subjects were representative of our audience.

For our tests, a moderator and two observers sat in the room with the user as they progressed through the test. The moderator informed the user of each task but did not provide any major guidance that would help the user complete the task. After each task the moderator asked a follow-up question to gather qualitative data for the task. At the end of the test, we administered a post-test to gather any additional qualitative data. We recorded the whole session with a camera to ensure that we gathered all of the necessary data.

Users

For our usability test, we utilized test subjects that fall into our secondary audience/user group (see persona in **Appendix A**). Our secondary audience consists of users who:

- Regularly shop at small to medium sized stores
- Own a smartphone
- Are between the ages of 20 and 50
- Are looking to save time

For our testing, we gathered six participants. We originally decided on the the number five because research shows that researchers typically do not receive a large return after the fifth test subject, but we tested six due to the interest in our project. To gather participants, we recruited Lebanon Valley College students and employees over the age of 20. Since we sampled from such a small population and small age range, there may be a sampling bias. If we were to test again in the future, we would most likely test on subjects who are slightly older. To ensure that the users we tested were representative of our audience, we had them answer a screener. Below are four questions that make up our screener:

- Are you older than 20?
- Do you have a smart-phone?
- Do you go shopping in physical stores on a regular basis?
- Would you consider yourself a busy person (limited time throughout the day)?

Participants

	Subject 1	Subject 2	Subject 3	Subject 4	Subject 5	Subject 6
Gender	Female	Male	Female	Male	Male	Male
Age	25-34	18-24	18-24	18-24	18-24	18-24
Smartphone?	Yes	Yes	Yes	Yes	Yes	Yes
Shopping	Once a week	Once a month	Once a week	Once a month	Once a week	Once a week
Free Time	0-2 hours	3-6 hours	3-6 hours	> 6 hours	> 6 hours	0-2 hours

Test Tasks, Goals, & Metrics

The main goal of our usability test was to gain information on how users interact with aspects of SHMAP's wireframes. We evaluated the following features of our SHMAP wireframes: navigation, search, and the language and wording.

In order to test the usability of our app/wireframes, we developed four tasks based on our research questions. Our success metric for our usability testing was based on errors. We determined that if four out of six test subjects could complete all four test tasks without any moderate errors (errors that force them to finish the task or they fail to complete the task fully), we would consider our wireframes successful. Below are our four test tasks/scenarios:

Scenario 1: "You're going to be visiting the CVS in Palmyra. Please indicate how you would go about choosing your store."

Metrics: Task Completion, Errors

Research Question: Can users easily find the store and location that they want?

Element(s): Navigation, Search, Language

Scenario 2: "You're only getting a few things and you want to get in and out relatively quickly. In order to reduce the time spent searching, you decide to look up the items in SHMAP. Indicate what steps you would take to find the location of "Shampoo." Please find the location of "Tresemme 24 Hour Body Shampoo."

Metrics: Task Completion, Errors

Research Question: Is our search bar findable?

Element(s): Navigation, Search

Scenario 3: "You decide that in addition to the shampoo, you would like to grab something to decorate your dorm room/apartment. You're not sure what you want so you decide to browse through the departments. Indicate what steps you would take to find items in the 'Home Decor' Department. Find the Glade Candle. "

Metrics: Task Completion, Errors

Research Question: Can users easily find our departments section? Will the users know to click the symbol?

Element(s): Navigation

Scenario 4: "While looking through CVS' inventory you realize that they don't have everything you need and that you'll have to stop at Giant afterwards. Indicate how you would go about switching your store. "

Metrics: Task Completion, Errors

Research Question: How easy is it for a user to change their location/store?

Element(s): Navigation

After the tasks were completed, we administered a post test to gather qualitative data on our wireframes. We utilized a System Usability Scale (SUS) to inquire about the general usability of our wireframes/app. After the SUS, we asked four additional questions based on important elements:

- What additional elements do you think would be beneficial in the app?
- Would you prefer a horizontal or vertical map? Why?
- Would it be useful to have the map change orientation when you turn the phone? Why or why not?
- On a scale of 1 to 5, with five being very easy, how easy was it to predict where to go next based on the language and symbols used?

Survey

To confirm desirability, test elements of our wireframes, and give participants a look at SHMAP, we created a 16-question survey that was distributed over the course of one week (February 15 - February 22). The survey took about 5-10 minutes for participants to complete. The survey was distributed over our team's personal social media accounts.

Interview

In order to gain more insight on inventory and our revenue model, and determine if SHMAP is desirable to businesses, we set up a phone interview with Kristin Skovira, the Sustainable Retailing Manager at Ahold. During our interview, we asked five questions that are related to the three areas of concern. One person spoke with her on the phone while an observer took notes. The call lasted approximately 15 minutes. To view the questions we asked during the interview, please see **Appendix H**.

FINDINGS & RESULTS

Usability Testing

Data

In our usability testing, we tested two females and four males, ranging from age 20 to 31. All users own a smartphone and go shopping on a fairly regular basis. Four subjects go shopping once a week and two go once a month. Our participants had a wide range of free time during the day with two having 0-2 hours, two having 3-6 hours, and two having more than six hours.

To clearly view the data, we broke it down by task. For each task we measured the # of errors/type of errors and task completion. Errors were either categorized as minor or moderate. Minor errors are errors that they could easily recover from, while moderate errors are errors that either caused them to have to quit the task or instances where they didn't complete the full task. After each task, we asked them how easy they found the task on a scale of 1 to 5, with 5 being extremely easy.

Task 1

	Subject 1	**Subject 2**	**Subject 3**	**Subject 4**	**Subject 5**	**Subject 6**
# of errors	1	0	0	1	0	0
Type of error(s)	Moderate	n/a	n/a	Moderate	n/a	n/a
Complete?	No	Yes	Yes	No	Yes	Yes
Ease Rating	5	5	5	5	5	5

For the first task, we had four out of six users successfully complete the task with zero errors. Two users encountered errors during this task when they assumed that the task was complete after they clicked on

the store's logo. They failed to enter their zip code which would lead them to the next screen. Regardless of the errors, all users gave the task a five on the ease-of-use likert scale.

Task 2

	Subject 1	**Subject 2**	**Subject 3**	**Subject 4**	**Subject 5**	**Subject 6**
# of errors	0	0	0	0	0	0
Type of error(s)	n/a	n/a	n/a	n/a	n/a	n/a
Complete?	Yes	Yes	Yes	Yes	Yes	Yes
Ease Rating	5	4 or 5	5	5	5	5

For our second task, all six participants were able to complete the task without any errors. The users seemed to complete the task without any sort of difficulty and four out of five users gave it a five on the ease of use scale. There were many comments on this task including, "I liked how it even told me the aisle number, that would be so good to know," and "It even tells you the shelf number so it hits all the nails on the head."

Task 3

	Subject 1	**Subject 2**	**Subject 3**	**Subject 4**	**Subject 5**	**Subject 6**
# of errors	1	0	0	0	0	0
Type of error(s)	Moderate	n/a	n/a	n/a	n/a	n/a
Complete?	No	Yes	Yes	Yes	Yes	Yes
Ease Rating	4 or 5	3 or 4	5	5	5	5

For our third task, five out of six users were able to complete the task. The user that encountered an error made it to the sub-departments screen and then mistook the filter button to be a search bar. They believed that they could just search using that button instead of navigating and scrolling through the departments. The ease rating varied a little on this task with four users rating it a five, one rating it a four or five, and one rating it a three or four. When the participant who gave a 3 or 4 was asked to explain their rating, they said that it seems like there are a lot more steps than the search bar method.

Task 4

	Subject 1	**Subject 2**	**Subject 3**	**Subject 4**	**Subject 5**	**Subject 6**
# of errors	0	0	0	0	0	0
Type of error(s)	n/a	n/a	n/a	n/a	n/a	n/a
Complete?	Yes	Yes	Yes	Yes	Yes	Yes
Ease Rating	5	2 or 3	5	5	5	5

For our final task, all six users were able to complete the task without any errors. All but one user gave it a 5 on the ease of use scale. The participant who gave a rating of two or three, wasn't completely sure about hitting the location button in the top right corner. They expected there to be some sort of home button or SHMAP's logo that would take them back to the opening screen, which happens to be the location screen.

Post-Test/SUS Results

At the end of each test, we had the participant fill out a series of post-test questions and a System Usability Scale (SUS) questionnaire.

Post-Test

To get a better look at the post-test responses, we divided the data up by question.

Question One:

When asked what additional elements would be beneficial, participants suggested multiple elements involving the location screen including adding a preferred store option and an addition way to get back to the screen such as a home button. Other suggestions included coupon alerts, more labeling, and verbal indications of locations. Two users did not have any additions.

Question Two:

When asked if they prefer a horizontal or vertical map, five out of six participants indicated that they would prefer vertical because they either have their phone on portrait lock or they feel it would fit better on their phone screen. The sixth participant asked if it would be possible to have both and make the map rotate based on the position of the phone.

Question Three:

In a follow-up to the second question, we asked participants if they thought it would be useful to have the map change orientation based on the position of the phone. Four out of six users gave a definite yes,

because they would be able to choose the way that they prefer. The fifth user said that it could, but it wasn't necessary. The sixth user said "no" and that they could turn the phone to better orient themselves in the store. We believe there was confusion with that question for the last user, but we cannot make assumptions.

Question Four:

Lastly, for the fourth question we asked users to rate the predictability from the language and symbols on a scale of 1 to 5. Four users responded with a five and the other two responded with a four.

SUS Results

Overall, the SUS score for the SHMAP wireframes was a 93.5, which is not far from the ideal score of 100.

To calculate the score for each user, we averaged each participants' answers and multiplied that number by 2.5. The highest rating was a 100 (two participants) and the low was a 85. The other scores were 87.5, 90, and 95.

In addition to looking at the overall scores, we also looked at the average rating for each question. The highest scoring questions were 6,"I thought there was too much inconsistency in this website," and 10, " I needed to learn a lot of things before I could get going with this website," which both received all fours. Question 3, "I thought this website was easy to use," also received an average of 4. The lowest scoring question was question 9, "I felt very confident using this website," which received a 3.4. To view all of the data please see **Appendix D** or **Appendix G**.

Survey

Our survey consisted of 16 questions and included multiple choice, scale, and heat map questions. Of our 153 participants, 117 were female and 36 were male. Ages ranged from 18-74. To view all of the questions please view **Appendix I**.

Our first two questions focused on demographics: gender and age. Our next 11 questions focused on general shopping habits.

- When asked “how often do you search for items on your smartphone while in the physical store?” 45% of our participants responded with “sometimes.”
- When asked “when you can't an item in a store, what best describes the actions you take?” 47% of our participants said they find an item for help and 42% said that they search for the item in a different aisle.
- When asked “would you rather use a kiosk in the store to search for an item or your mobile device?” 66% of participants said they would use a mobile device.
- When asked “how do you search for items online on a store's website?” 60% responded with search bar, 24% responded with departments, and 15% responded with filters.

Our last three questions asked about our wireframes for SHMAP that were also presented in the usability test. For these questions, participants were able to click on our wireframe to indicate how they would search for items. Our results were given to us in the form of a heatmap.

Interview

During our interview with Kristin Skovira, Sustainable Retailing Manager at Ahold, we asked approximately five questions related to inventory and desirability. To view all of the questions, please

see **Appendix H**. The first two questions we asked involved how often they update their inventory and how they update it. Kristin was able to tell us that they use a computer-aided system to keep track of their inventory. It is constantly automatically updated, but they occasionally have to go in and manually update it due to system error. The system automatically resets every two weeks which accounts for new products, discontinued items, etc. We also asked about the layouts of the stores, since we will need to create multiple store layouts for the majority of companies we work with. We learned that each store within the Ahold organization has a different layout; no two stores are the same.

Our fourth question asked her what she additional elements she would expect to be included in the app and if she felt it would be beneficial to companies. Overall, she had a few concerns about the desirability and functionality. Her main concern was that their company would be in the same app as other companies. Having multiple companies in one app allows consumers to quickly see if another store has an item that the original company doesn't, which could hurt their business. She also seemed to have a concern about the number of different layouts, but we had not previously expressed that we would be changing out the store layouts. Finally, we asked if she had any insight into what kind of revenue model a service like this would have and what kind of revenue model the companies that work with utilize. Unfortunately, she does not handle any of their contracts or deal with any outside companies/services so she wasn't able to provide any details due to lack of knowledge and privacy concerns.

ANALYSIS

Usability Testing

Finding 1 - Location Screen

The main problem that we encountered during testing involved the location screen. Before testing we knew that we were going to have to change elements of the screen, but the testing providing us with even more insights. Three out of six participants failed to fully complete the first task. Those three participants clicked the store icon and thought they were finished instead of clicking the icon and then entering their zip code. Between these observations and our qualitative data, we were able to discover that the two different sections led the users to believe that they could choose one or the other. The first participant indicated that we should incorporate some kind of location service that would show your location because if you were looking for CVS, it could be "CVS of anywhere." We plan on taking this note into consideration and using geolocation to create a seamless location selector.

Finding 2 - Location Button

During our testing, we tried to create a task that would evaluate the use of symbols as our main navigation. While the hamburger navigation symbol and the geolocation symbol are pretty universal, we assumed that it could increase cognitive load and confusion in some users. During our testing, five out of six users knew to utilize the location symbol right away. The second user had a bit of hesitation and indicated that he "guessed" he would click on the symbol. While he recognized the symbol, he thought it would be helpful to have a logo or some type of home button in the top left corner that would take the user back to the home (location) screen.

Finding 3 - Search Options

Within in the SHMAP wireframes, users have two options when searching for an item. Users can either search through the search bar or they can browse through departments and sub-departments. For the testing, we had the users utilize both methods to ensure that there weren't any major issues. During our testing, all six users were able to complete both tasks with zero issues. However, we were able to gather additional data that indicated to us that the search bar may be the preferred option. After each task, we asked the user to rate how easy they thought the task was to complete on a scale of one to five, with five being very easy. The majority of the tasks were rated a 5 by the participants, but the task involving departments received one rating of 4 and another of a 3 or 4. The subject who gave the 3-4 rating explained that he gave that rating because of the number of steps needed versus the task involving search (task 2). Another subject (#5) immediately made note of both options to search. When asked about his preferred way to search for an item, he said the search bar. While we still plan to have both a search bar and a departments listing in our app, this shows us that more users will likely use the search bar, so it needs to be powerful and prominent.

Finding 4 - Screen Options

Before testing, the question was raised of if we should just have a vertical map or if we should allow the map to change orientations when the phone is tilted. To answer this questions we asked the users two questions related to screen orientation in the post-test. Those two questions were:

- Would you prefer a horizontal or vertical map? Why?
- Would it be useful to have the map change orientation when you change the phone? Why or why not?

Five out of six users indicated that they would prefer a vertical screen in response to the first question due to various reasons such as ease of use, better fit, and portrait lock. The other user indicated that it may be helpful to have both. While the majority (5/6) responded with strictly vertical, the majority (5/6) indicated that it could be useful to have the orientation of the map change when the user changes the orientation of the phone. The on user (subject #6) said "no" because they could "turn the map to better orient themselves in the store." While we can't assume what they were thinking, it appears that they misread the question. Regardless, of the one outlier, it seems that changing the orientation would be a helpful, although not necessary, feature for users.

Survey

Finding 1 - Finding items is difficult

Majority of our participants confirmed the problem: finding items in the store can be difficult and time consuming. We found that most of participants a) ask someone for help or b) continue to look in a different aisle. Because our users are staying in the store and have the initiative and motivation to find the desired item, SHMAP has the potential to help users find items and be the solution.

Finding 2 - Mobile device preferred to search for items

Majority of our participants would prefer to search for items on a mobile device over a kiosk. While many stores provide kiosks to help shoppers find items, our survey shows that there is desirability to view this on a mobile device.

Finding 3 - Search bar is the preferred search technique

While SHMAP has three current search options, we found that these search options do align with users' shopping habits. Majority of our participants said they would use a search bar. Other participants said they would use departments and filters. Because of this, we would like to keep the search bar our primary searching component and ensure this is the most prominent way to search on SHMAP.

Interview

Finding 1 - App could increase competitive environment

The main concern that the Sustainable Retailing Manager at Ahold had with our product was the inclusion of multiple companies in one app. Much like having similar retailers in the same town, having similar companies in an app, could potentially hurt their business. At this point, we don't have time to pivot (again) so it is crucial that we find effective ways to market our service to companies. We need to find a way to ensure that they focus on the positives, mainly a better customer experience, than the potential negatives.

Finding 2 - Inventory management

Over the past few months, the group has had concerns over the creation and management of inventories. We weren't sure how the inventory would be updated as everyone we talked to in the fall semester indicated that their inventory was updated pretty regularly. This interview confirmed that companies generally updated their inventory on a regular basis - typically daily. This requires us to think about how we want to ensure that the inventory stays updated. We also found out that Ahold relies on a computer-aided system to control their inventory. We were originally thinking of having a member of

the SHMAP team manually update the inventory but with the number of inventories and companies, it may make sense to look into some systems that we can utilize in the future (SHMAP 2.0).

RECOMMENDATIONS

Based off of our usability testing, survey, and phone interview we have analyzed our data and have recommendations for SHMAP. As we move forward with the development, we need to make adjustments to the locations screen, add a home button and/or logo, and create an effective marketing strategy.

Because our participants were confused on our location screen, we will need to make adjustments to it to provide better user experience. We plan on integrating geolocation into the app to allow for seamless store location. Additionally, we may consider adding a primary location or store option.

Due to the fact that we have recently pivoted, our wireframes did not include SHMAP branding or a home button because we initially planned to be integrated into an existing retailer's app. Moving forward, we will need to enhance the branding of SHMAP in the app and provide a place for user's to return to the homescreen. In return, this will create brand recognition and provide users with a better app experience.

Additionally, we will need to consider how we will market SHMAP to potential retailers. Because, our research showed that companies may not want to partner with SHMAP because of the inclusion of other stores, we will need to show companies the benefit that SHMAP can provide to not only the end-users but also the retailers.

APPENDICES

- Appendix A: Persona
- Appendix B: Script
- Appendix C: Usability Test Data
- Appendix D: SUS
- Appendix E: Post-Test
- Appendix F: Post-Test Results
- Appendix G: Graphs
- Appendix H: Interview Questions
- Appendix I: Survey

Appendix A: End-User Persona

Cal Davis is a white, 21-year-old male, college student. Cal is a busy full-time college student who makes weekly trips to the store to pick up products he needs. Cal has a very busy schedule since he is taking 6 classes and has to practice every day for the tennis team. He already has to make time to study for his classes, complete homework, and complete other activities that pertain to his college lifestyle. In his free time, Cal enjoys attending sporting events and playing Dungeons and Dragons. He owns an iPhone 7, and like most people his age, he keeps up with the latest technology

Taking a weekly trip to the store is difficult for Cal to fit into his busy schedule. He hates wandering around the store to find the items that he needs. He can never find someone to assist him and gets easily frustrated with how much time he wastes searching for individual items out of the large inventory. Even though Cal goes to the same store every week he gets easily overwhelmed by the amount of products available and ends up leaving without products he needs because he doesn't have enough time.

The ideal shopping experience for Cal would be:
Cal drives 15 minutes to the store in order to pick up items that he needs. He pulls out his iPhone and looks up the first product that he needs on a mobile app. He immediately goes and picks up that product and then types in the search for his next product. Cal's shopping experience takes only 15 minutes because he was able to locate his desired items within a matter of seconds. Cal checks out of the store and heads back to school to make it to the basketball game on time. He is relieved that his shopping experience was so simple and fast.

Quotes:
"Trying to find all of my items on my own is a waste of time because I am not sure where everything is. I am very busy with homework and I just want to get in and out as quickly as possible."

"Shopping isn't my ideal 'free time' so being able to get that over and done with makes me able to fit in activities that I actually like to do, such as playing Dungeons and Dragons."

Appendix B: Script

Introduction:

"Hi, welcome. Thank you for coming."

"I'm [name]. I am a member of a capstone group at Lebanon Valley College who is creating a start-up company called SHMAP. Our company is in the process of creating an app that features a shopping location service which would allow you to easily search for items and view them on a digital map. This is [name], who will be observing what we are doing today. We've brought you here to see what you think of the app, what seems to work for you, what doesn't, and how you interact with certain elements of the designs."

"We are going to be video recording what happens here today and taking notes, but it is for analysis only. It will only be seen by members of the testing team and our professor, Dr. Jeff Ritchie. During the testing it is important to remember that we are testing and evaluating the system, not you."

"The testing we are going to do today will go like this: We will provide you with a scenario and task, which you will then complete with the designs we provide to you. After each task we will ask you a question that relates to the task you just completed. While completing the tasks, we would like you to "think aloud" as best as you can. We'd like you to speak your thoughts as often as you can. Just narrate what you're doing, sort of as a play-by-play, telling us what you're doing and why you're doing it. After all of the tasks are completed, we will ask you some follow up questions. Are there any questions?"

"Now I'd like to read you what's called a statement of informed consent. It sets out your rights as a person who is participating in this kind of research. As a participant in this study: You may stop at any time, ask questions at any time, or leave at any time. Your answers are kept confidential. Are there any question before we begin?"

"Now I'd like you to complete a couple of tasks with the wireframes we have given you. Work just as you would normally, narrating your thoughts as you go along. Please indicate when you are done with a task."

Test:

For the following scenarios, imagine that you are actually using the app either while shopping in the store or preparing to go to the store:

Scenario 1: "You're going to be visiting the CVS in Palmyra. Please indicate how you would go about choosing your store."

Measurements:

Time	# of errors and type	Completed?

Follow-up Question(s): On a scale of one to five, with five being very easy, how easy do you think it would be to select the store you are looking for in the actual app?

Scenario 2: "You're only getting a few things and you want to get in and out relatively quickly. In order to reduce the time spent searching, you decide to look up the items in SHMAP. Indicate what steps you would take to find the location of "Shampoo." Please find the location of "Tresemme 24 Hour Body Shampoo."

Measurements:

Time	# of errors and type	Completed?

Follow-up Question(s): On a scale of one to five, with five being very easy, how easy do you think it would be to search for an item in the actual app?

Scenario 3: "You decide that in addition to the shampoo, you would like to grab something to decorate your dorm room/apartment. You're not sure what you want so you decide to browse through the departments. Indicate what steps you would take to find items in the 'Home Decor' Department. Find the Glade Candle. "

Measurements:

Time	# of errors and type	Completed?

Follow-up Question(s):

- On a scale of one to five, with five being very easy, how easy do you think it would be to browse for items in the app?
- What other departments would you expect to see listed?

Scenario 4: "While looking through CVS' inventory you realize that they don't have everything you need and that you'll have to stop at Giant afterwards. Indicate how you would go about switching your store. "

Measurements:

Time	# of errors and type	Completed?

Follow-up Question(s):

- On a scale of one to five, with five being very easy, how easy is it to change stores?

"This concludes the end of the test. We will now have you take a post-test that asks you about your experiences during this test. Once again, there is no wrong answer. The information we collect will be not be attached to your identity in any way. Thank you for participating in the test. Do you have any questions or comments on the project?"