

INTRODUCTION

The human brain today is the same as the human brain 10,000 years ago.

Jakob Nielsen

December 7, 2009

Short-term memory is not an innate trait, we are limited to remembering about 7 chunks of information, which, on average, fades within about 20 seconds¹. In today's big data and constantly "tapped-in" users, consumers are discovering more products and information than ever before. Most of the time, people keep track of information about products that interest them by memorizing it. In an ideal world, consumers would flow from product discovery - to information gathering - to purchase, all in one time period. In this scenario, people have no issue recalling information from their short-term memory. However, the amount of information that can be retained during the present is severely limited. If there are any distractions during this time, short-term memory can disappear⁵. Ideally, an application that helps users retain/save information for longer periods of time will help them overcome short-term memory issues.

Additionally, consumers are using their time more valuably by adopting handheld devices to search for best prices, locations and reviews directly on their mobile phone. According to a PEW research report, 27% of adult cell owners used their phones to look up the price of a product online while they were in a store, to see if they could get a better price somewhere else³. Using image detection along with geo-location, people will be able to discover a list of stores nearby in which they can purchase at a discount. This could lead to the benefit of social media, where consumers who had a positive experience with a product are more likely to recommend or give a better review.

The benefits of using images to detect real life products and information are large. In fact, 34% of today's pictures are taken with a mobile phone length away from a mobile device or laptop². Being able to look up information instantaneously has become the cultural norm, and research shows this trend is growing.

There are many applications and websites that use the camera for various activities, including; capturing, editing and sharing captured images. The problem is the lack of applications that augment current text based search engines by layering photo recognition on top to more accurately locate and research a product via your mobile device. The information will allow a user to take immediate action and seamlessly pass the information between the mobile device and desktop through the cloud.

Ultimately, our desire was to gain a better understanding of the pain points for our users during product and information discovery and identify ways that technology can assist people to discover new products as fast as possible.

OhSnap!

GROUP 7:

JOHN DROGALIS, BEN HOOPER, KESHIA RICHARDSON, PRATHIMA VENKATESAN

METHODS

Research Timeline

Our timeline for conducting research and conceptualizing the design.

Fun Facts

7 Weeks

48 Coffee's

12 Meetings

Problem Space / Research

Complete

Brainstorm multiple ideas	4/17
Ideate questions for interview	4/26
Design: research, methods, detailed personas	5/15

Survey

Complete

Interpret Interview Codes to determine survey	5/8
Create Survey	5/8
Synthesize survey data	5/12

Interviews

Complete

Organize questions into final interview flow	5/2
Interviews Interview between 6 - 8 subjects	5/5
Synthesis data through coded pattern match	5/7

Insight & Design

Complete

Create multiple, high level, design concepts	5/28
Start Designing wireframes	5/31
Finalize wireframes	6/9

Participants

The majority of the survey participants owned both a smartphone (87%) and PC (96%). Of those who owned a smartphone, 88% had a camera on the phone.



Product and Information Discovery

We interviewed six participants between the ages of 25 and 30; one participant was male and five were female. We recruited participants via word of mouth. All of the participants reported that they have a smartphone with a camera.

Survey

Following the interviews, we conducted a survey; we had 63 respondents who were between the ages of 18 and 64. The greatest number of respondents was between the ages of 21 and 29. 54% of the participants were female and 45% were male (30 female, 25 male, and 8 no response). We recruited participants through social media sites such as Facebook and Google+, as well as through email using a snowball method. The majority of the survey participants owned both a smartphone (87%) and PC (96%). Of those who owned a smartphone, 88% had a camera on the phone.

METHODS cont...

Data Collection Procedure

INTERVIEW PROCEDURE

For the interview, each participant signed a consent form and Non-Disclosure Agreement [Appendix E] that informed the interviewee of the interview sessions and audio recording. Each researcher followed a script to maintain consistency throughout the interviews [Appendix A]. We asked participants about what they use their phone's camera for, how they discover new products, how they keep track of important product information, and if they share product information with others. Participants also answered questions about technologies that would better serve their product and information discovery needs, as well as basic demographic information.

SURVEY PROCEDURE

For the survey, we prepared a table of survey items that included questions along with the list of answers and the reasoning for including each question in the survey. We reviewed, edited, categorized and reordered these questions to ensure a logical question flow.

We created the survey online using Qualtrics Survey Software; the survey included skip logic so respondents answered questions that pertained to their experiences with their Smartphone and PC/Laptop (usage, product purchase, information discovery, share information and organizing information). The survey was previewed to rule out any structural or question-related errors. When our team verified that the survey could be distributed, we shared it with our friends, family and coworkers via an email link and social media. The survey link was accessible for two days; after the second day, we closed the survey and began analysis of the survey data.

Data Analysis Methods

The majority of the survey participants owned both a smartphone (87%) and PC (96%). Of those who owned a smartphone, 88% had a camera on the phone.

INTERVIEW ANALYSIS

Our interview data was coded using the inductive method. For the first cycle of the inductive method, we coded descriptively by assigning labels to the data using short words or phrases. We then interpreted the labels into categories using pattern coding and developed themes from the distinctive features [Appendix B]

SURVEY ANALYSIS

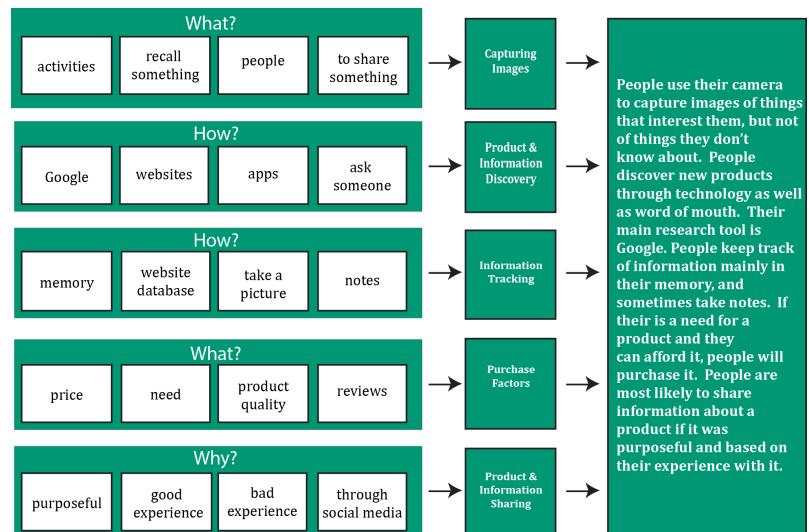
We first cross-tabulated the survey data. We then developed graphs and tables to present a visual representation of the analyzed data. We analyzed the descriptive statistics (frequencies and averages) and made comparisons with different devices (PC/Laptop and Smartphone).

FINDINGS

In the next sections we discuss our findings from the interviews and surveys.

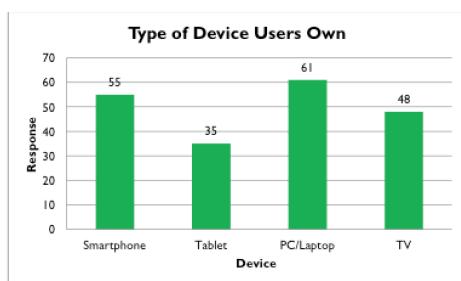
Interview Findings

Six interviews were performed and the transcripts were coded resulting in five themes: capturing images, product/information directory, information tracking, purchase factors and product/information sharing. The coding results from our findings are shown on the right.

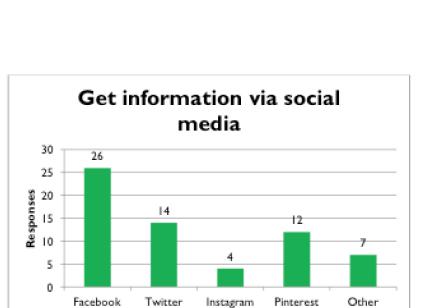


Survey Findings

Several key findings about our users were revealed from the surveys, and those are shown below.



56 out of 63 participants own a smartphone with a camera, which indicates that the majority of our survey participants own a phone with innovative features



Majority of the participants use popular social media applications to get information

The most common information to recall/retrieve later is books and grocery lists (examples also discovered during our interview process).

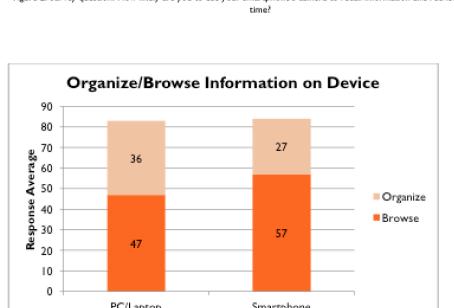
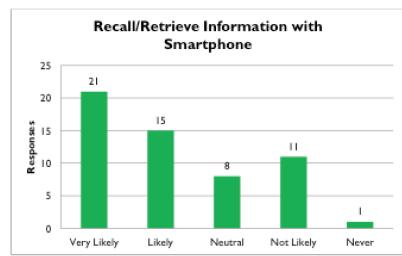


Figure 2. Survey question: How likely are you to use your smartphone's camera to recall information and retrieve it at a later time?

Participants are likely to share information about a recent product purchase or review information about a product they wish to purchase

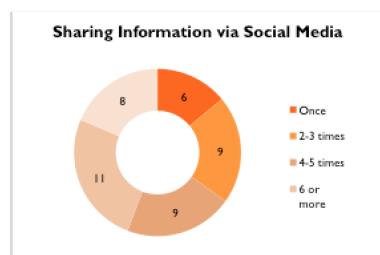


Figure 6. Survey question: In the past week, how often did you use social media to POST information about something?

Purchases are done more on PCs/Laptops compared to Smartphones/Tablets

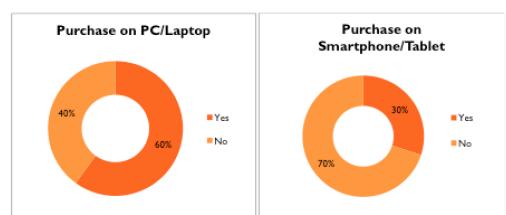


Figure 7. Survey question: In the time spent on your PC/Laptop (Smartphone/Tablet), did you purchase something?

DISCUSSION

Our research focused on understanding how people find out about products that might be of interest to them, how they get information related to a product (online or other ways), and how they aggregate and organize the information. After analysis of the data from interviews and surveys, user personas and scenarios emerged [Appendix C]. The personas depict who our users are today, their goals, and their behaviors as they discover new products and research information on the path to purchasing products. The scenarios are what we expect the users would do with our application. We have also identified two primary tasks and two secondary tasks for users of our application.

Product and Information Discovery

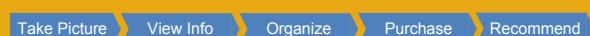
Our interviews revealed that, today, most users discover new products using technologies (websites, blogs, apps) and social networks (online and offline), and gather more information about products by doing research themselves and/or by asking people who can offer advice. With our application users will still be able to discover new products in a similar way, but with the added functionality of being able to discover a new product they don't know about by taking a snapshot of that product with their Smartphone's camera. The interviews also revealed that, today, the factors that matter most to users when deciding to purchase a product is the price, product quality, and need. The survey revealed that users also consider reviews and where they can get the product as important pieces of information. This implies that our application should highlight this relevant information instantly, helping users to efficiently make their purchase decision. According to a Smashing Magazine, product pages that lack sufficient information account for 8% of usability problems and 10% of user failure website⁴. Furthermore, our survey responses revealed that of the average time spent on Smartphones and PCs, users spent more time browsing information on Smartphones (57%) compared to PCs (47%). This implies that browsing of information should be made simple and efficient on both smartphone and PCs.

User Types & Associated Tasks

Novice:



Intermediate



Expert



Organization

Our interviews showed that today, most of the time, people keep track of information about products that interest them in their heads, by memorizing it. There are two paths that users can take:

Path 1: Discover a product, immediately get information about a product, and decide whether or not to purchase the product

Path 2: Discover a product, get information about a product at a later time, and decide whether or not to purchase the product not or at a later time

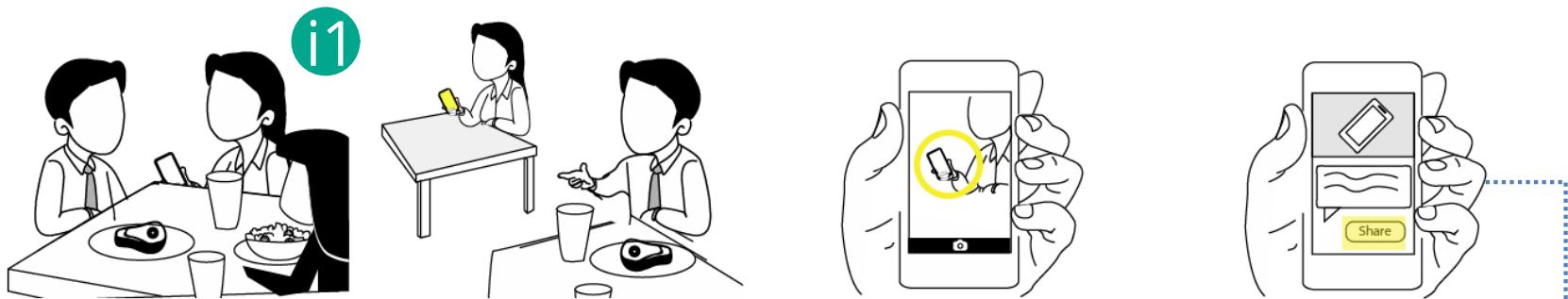
Path 1 requires the use of short-term memory. Again, the issue with short-term memory is that the amount of information that a person can 'save' is very limited. The design implication because of this limitation is that the application should allow users to save the information discovered by the snapshot of the product, so they can retrieve it later. What if users take the path of information gathering and purchase at a different time from discovering a product? In this time of Path 2, the amount of information that the user gathers about a product could be enormous. This means that users will need to use their long-term memory for storing information. It takes time to put information in long-term memory, and time and effort to get it out of memory. The difficulty with long-term memory is not with the amount of information but with the organization of the information product. Information is saved; the application should allow users to organize the information in a way that makes sense for them to be able to retrieve at a later time. When it comes to organizing information today, users mostly spent time organizing on their PCs (average 36%), compared to Smartphones (average 27%). This implies that our application should allow users to organize their product information on both devices, depending on their choice.

The following screens designs illustrate the branding, design and multi-modal layout standards for OhSnap! This show's how users of our web application will experience our application via smartphone and/or laptop (PC).

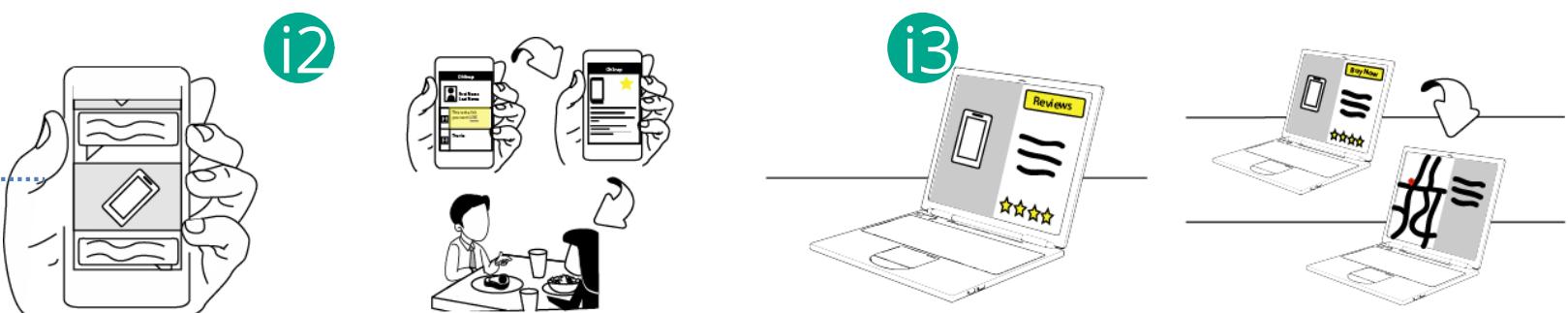
Scenario 1 - Megan (Multi-modality)



Megan and her husband are out with friends for a night out in town. They are eating at their favorite little bar and grill as a guy sits at the table next to them.



Megan's husband points out the new phone that he is using and turns to Megan and says "I think that's the new Android phone. I have read about that. It can do all these amazing things?" Megan realizes that her husband really wants this? So when he is not looking she takes a snapshot of the phone sitting on the table next to her with the "OhSnap!" application. At this point the app has recognized the phone and Megan can see that the brand and other details about the phone. Not sure, if this is the latest one that her husband was talking about so she comments and shares a snapshot of the phone with her friends. She asks "Thinking of getting this new phone for my husband? Is this the latest one? Thoughts?"



Within moments she gets a message from a girlfriend. Her girlfriend responds with, "Oh honey that was last year model. I think your hubby is looking for the New SG3 phone this one is the SG2. I snapped a photo of it two days ago at the store comparing it to another phone I wanted. This is the link to the phone you are looking for." Megan's husband says "let's go home, I'm tired". Upon returning home, her husband heads straight to bed and Megan decides to do a little more research on the phone before buying it. She gets on her laptop (PC) and opens OhSnap!, pulls up the link to the phone her friend recommended. She immediately notices the info on the features that her husband was talking about, as well as great reviews from friends she's connected to! This helps make her decision easier...she's happy.

She hits the "Store Locations" button and find out that the Best buy down the street from her work sell them.

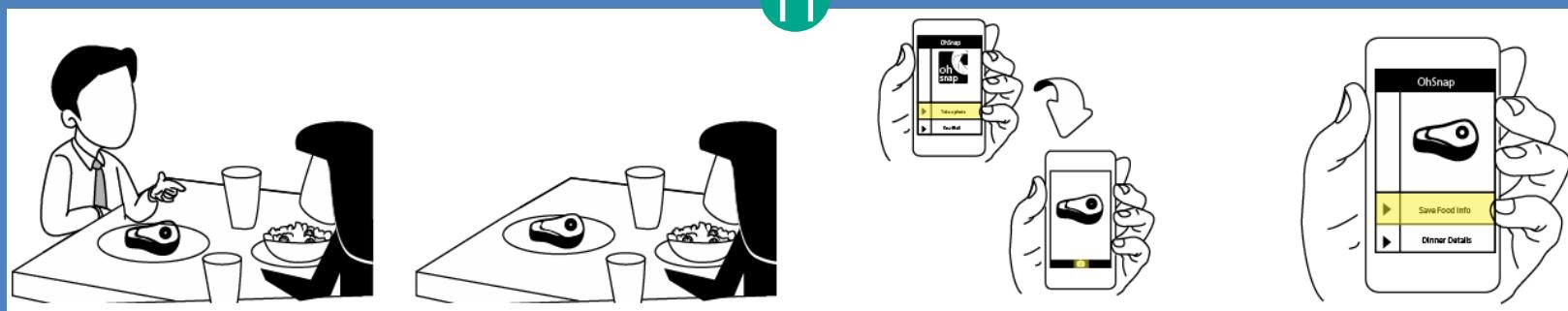
The next day she heads to the store and pick up the phone for her husband, gets it wrapped up and brings it to her husband after her shift at work.

Scenario 2 - Molly (single-modality)



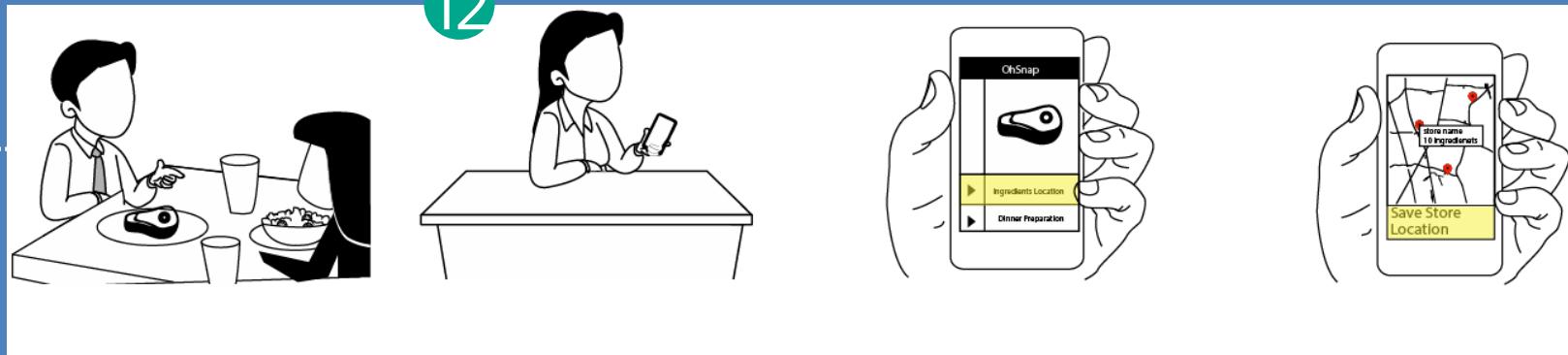
Juan, Molly's boyfriend, ordered a dish he has never tried before and is blown away at how good it is.

i1



After a few more bites he excuses himself to go to the bathroom. That is when Molly has the great idea to make this dish for his birthday next week. So she launches "OhSnap!" and takes a photo of the dish. After a few seconds the dish is recognized and appropriate data is presented to Molly. It even shows the recipe. She spots Juan coming back, so she saves the results and puts her phone away.

i2



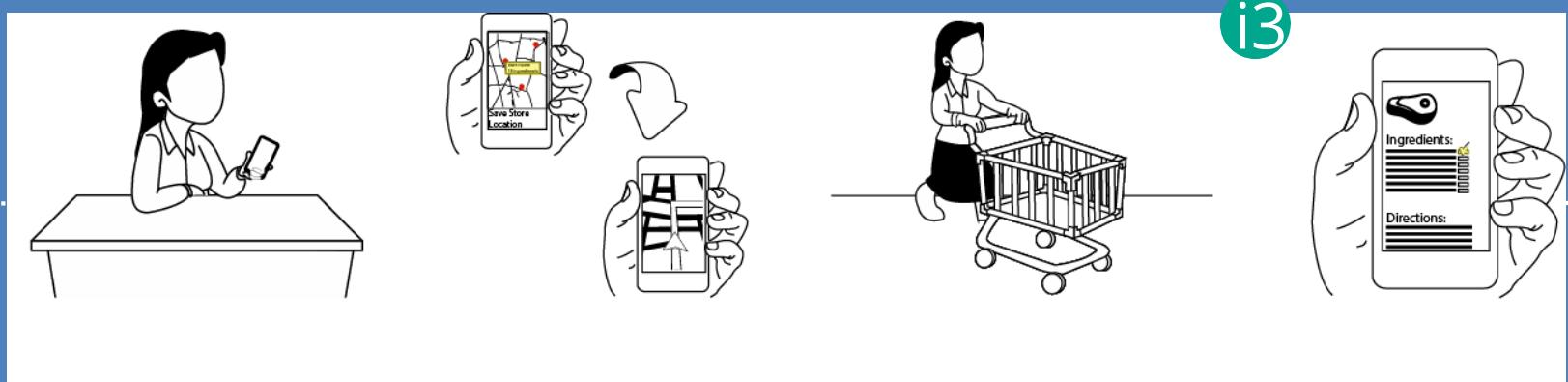
She continues her date night with her boyfriend.

Later in the week when she is in between patients she pulls out her phone and retrieves the saved results. She looks at some recipes to make the dish also sees what ingredients are necessary. She then clicks on the link to locate stores which sell the ingredients she needs.

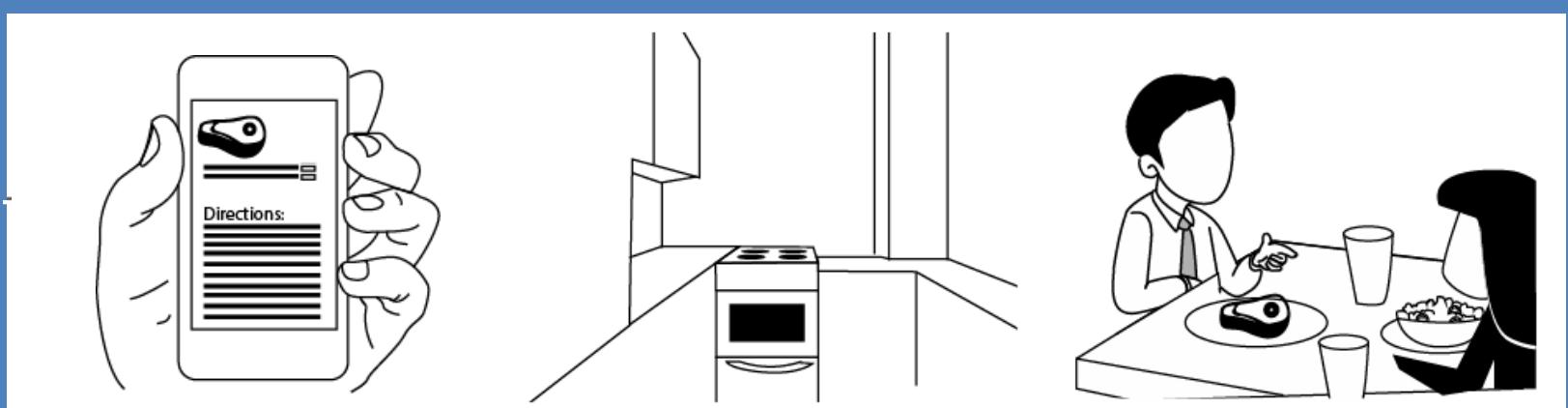
Scenario 2 - Molly Cont... (single-modality)



After a long day at work she opens her phone and retrieves the store information that carries the ingredients and its location via GPS.



She goes to the store and purchases the ingredient that she needs. She finds all the ingredients that she needs on her phone as she is shopping.



After grocery shopping, she brings home the ingredients and pulls out her phone because her phone has saved the search that transferred from her phone and sees the recipe information.

She then begins to cook. At this point her boyfriend walks into the house. She says "Happy Birthday! Dinner will be ready in about 20 minutes!"

After 20 minutes, Molly asks Juan to sit at the table, and she puts the dish in front of him. He smiles and asks, "Is this the dish from last week? How did you find the recipe?" So Molly smiles and says "So I take it you like your gift?" Juan smiles and says "Hold on I will tell you after I taste it" Molly laughs and hits Juan in the arm and says, "Yes I love it; you will have to tell me your secrets someday on how you know how to find anything and everything whenever you need it."

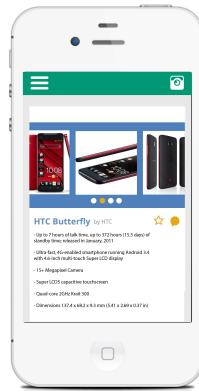
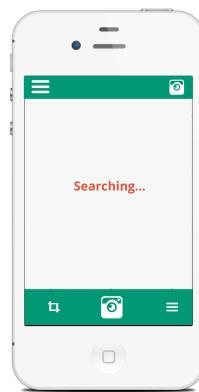
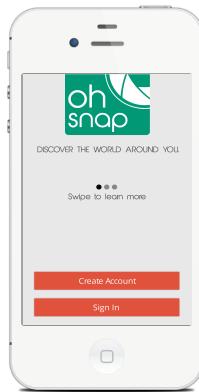
Now that you have seen possible scenarios, the screen designs will identify significant main effects and show design details for the product our target audience is using. The following screens will reiterate the previous scenarios for Megan's and Molly's experience with OhSnap!. Both users interact with our application on different levels. For instance, Molly is not a tech-savvy person therefore only use a single modality. While Megan enjoys having portability wherever she goes and uses multi-modality. Each screen shows the process they will go through to complete their task.

SCREEN DESIGNS



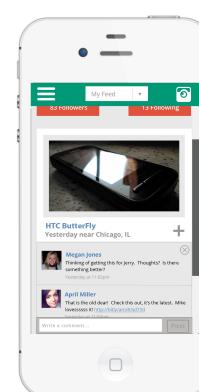
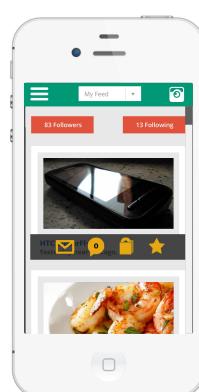
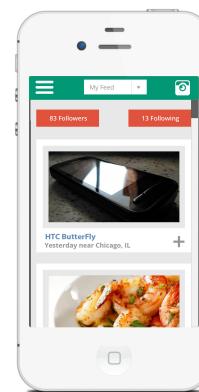
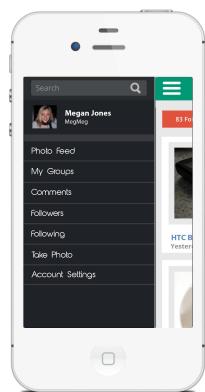
Scenario 1 - Megan (multi-modality)

start
i1



end
i1

start
i2

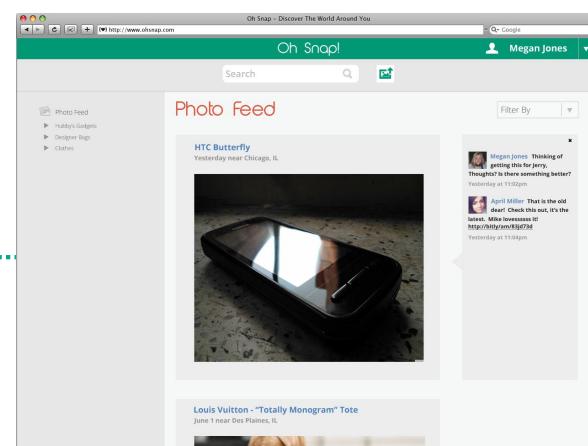
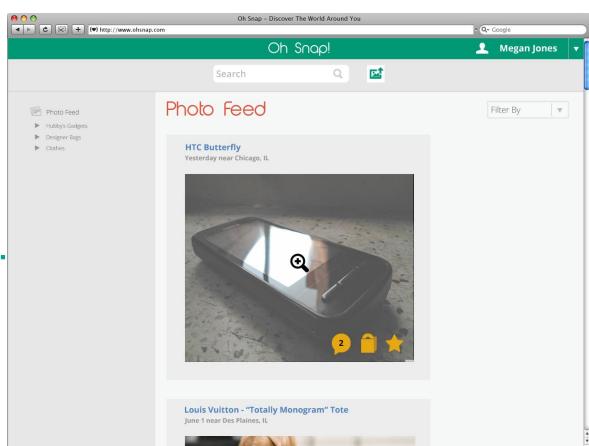
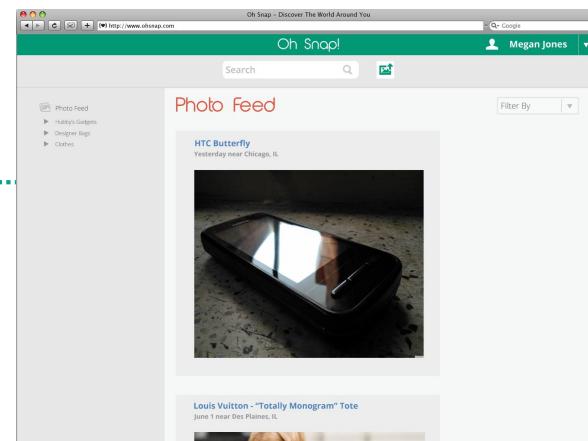
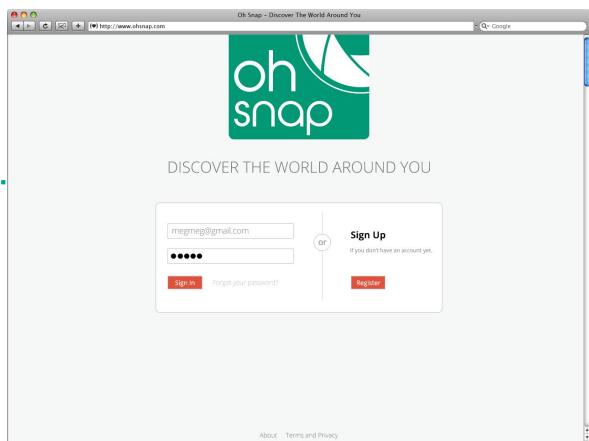


end
i2

SCREEN DESIGNS

Scenario 1 - Megan Cont... (Multi-modality)

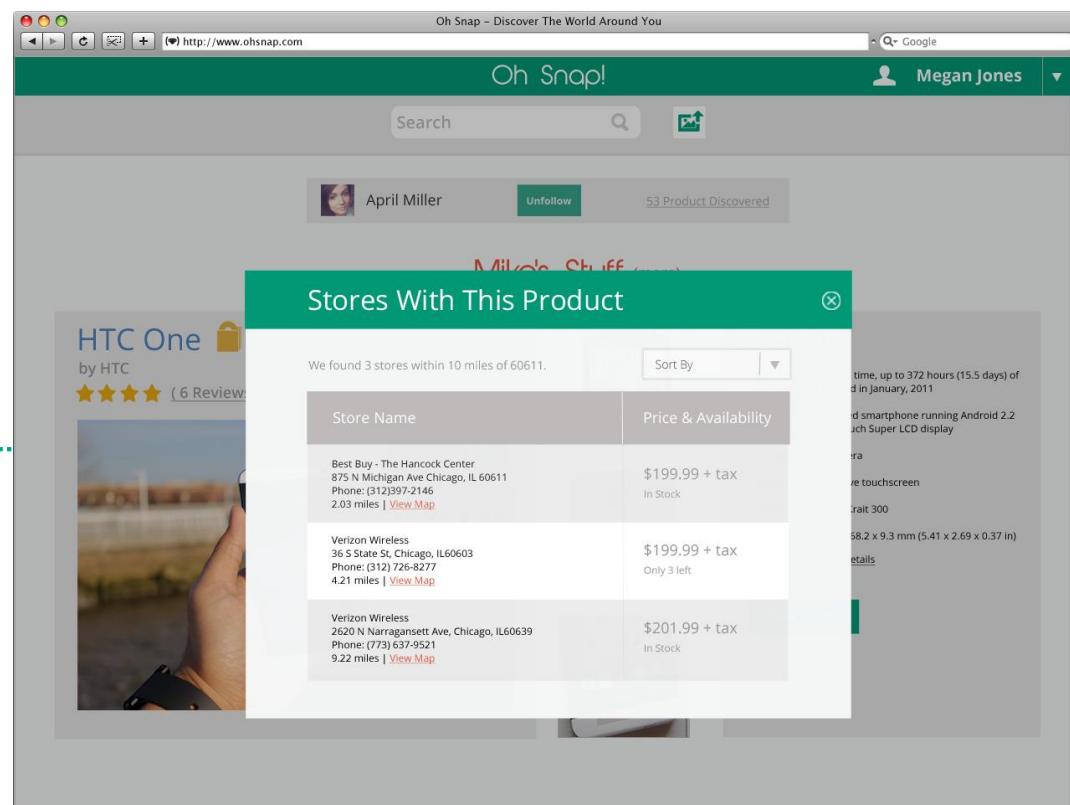
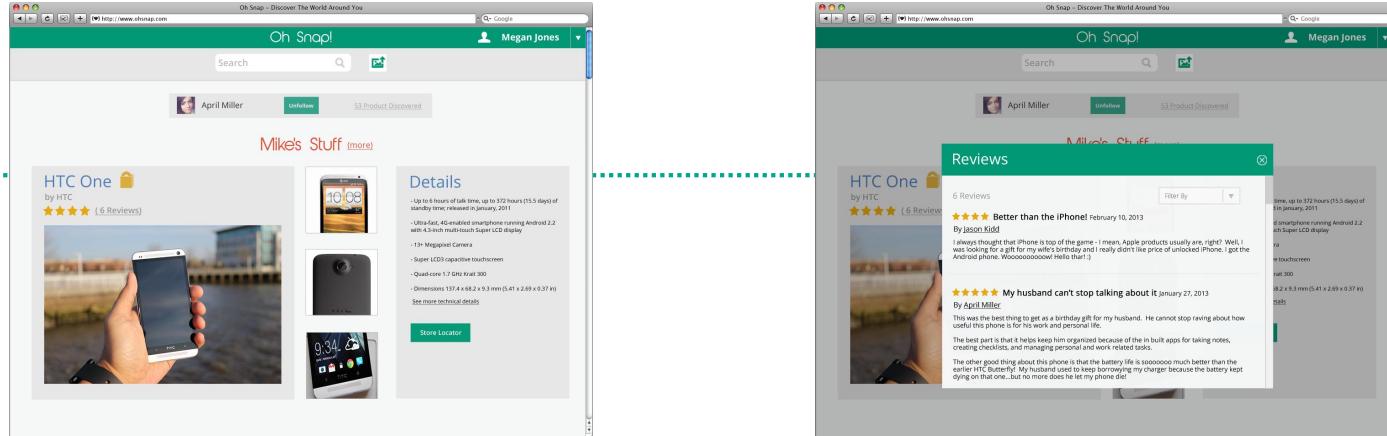
start
i3



continued

SCREEN DESIGNS

Scenario 1 - Megan Cont... (Multi-modality)

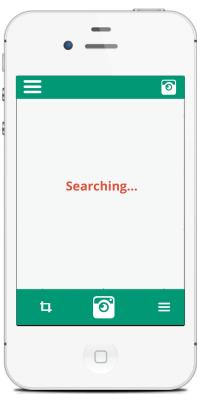
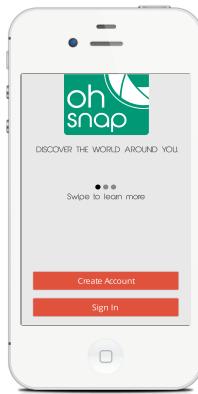


SCREEN DESIGNS

Scenario 2 - Molly (single-modality)

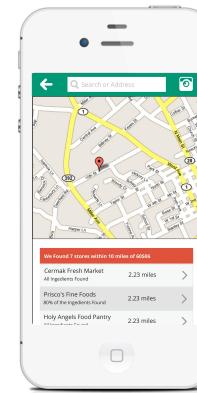
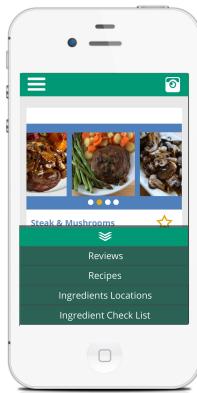
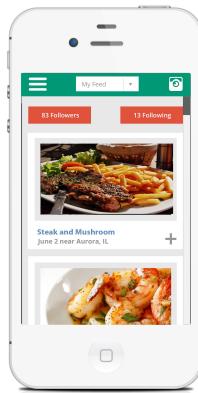


start
i1



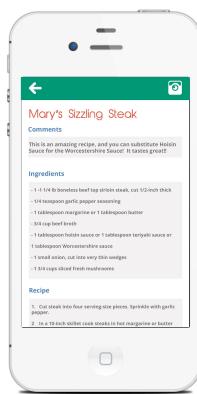
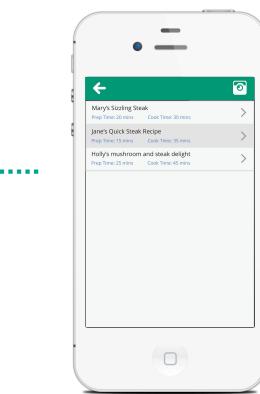
end
i1

start
i2



end
i2

start
i3



BIBLIOGRAPHY

¹Short-Term Memory and Web Usability - Nielsen Norman Group. 2012. 14 May. 2013

²Mobile is changing the way we share our lives - Blog - 1000Memories. 2012. 14 May. 2013

³Pew Internet: Mobile - Pew Internet & American Life Project. 2012. 14 May. 2013

⁴Fadeyev, D. (2009). 10 Useful Usability Findings and Guidelines. Smashing Magazine, 24.

⁵Norman, D. A. (2002). The design of everyday things. Basic Books (AZ).

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