W13 REPORT – Usability Study Report:

		
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Topic:

Our chosen interface is Save On Foods. The topic we chose was “An interface to support users in developing a broad meal plan (e.g. defining a recurring, limited duration menu that satisfies nutritional and/or dietary restrictions).” With this topic in mind, we designed a medium fidelity prototype using Adobe XD to illustrate the basic functionality of sharing, browsing, and creating pre-made shopping carts.

Evaluation Goals:

1. When a user is using the interface the first time, what are the struggles the user encounter? I.e. What task causes the most frustration, what are people complaining about the most, and how long does it take for them to finish the whole process
2. What aspects of the interface is being used the most in terms of buttons and functionalities. What usage patterns emerge? Does our mental model match theirs?
3. How does the pre-made shopping cart improve/affect users’ shopping experience?

Evaluation Description:

In total, our pool of participants encompassed six UBC students around the ages of 18 - 22. A few of our participants had prior knowledge of our medium fidelity prototype (due to them being in our class). For the concern of bias, we tried to balance that by including more individuals with no prior experience. Both our task examples were young adults; one student and one newly graduated worker. Thus, by having our participants reflect the task examples we envisioned, it allowed us to be consistent with each phase of our project.

The evaluation methods we used were the think-aloud observation of participants using the medium-fidelity prototype and the semi-structured interview of participants providing feedback and opinions in regards to their usability experience of the prototype. The interface prototype we created required a new user 5 minutes to go over all the elements and features while stating their thoughts out loud. We then asked participants to answer some follow-up questions that took about 10 minutes. Therefore, the total time for our study would be the combination of both evaluation methods, which was about 15 minutes long.

Before the think-aloud observation, participants were guided by our group members with a brief introduction on the purpose of this research and the overall process of how this research requires them to generate input on both evaluation methods. After filling out the consent forms that our group had prepared beforehand, the participants were asked to either locate a cart of their preference, or create a shopping cart to be shared with everyone else on a computer, which is preloaded with our medium fidelity prototype interface. During the observation, they were required to speak aloud their thought process as they navigate the interface. Meanwhile, the observers were using pre-constructed coding sheets to record participants’ performance in both quantitative and qualitative forms.

Afterwards, semi-structured interviews were conducted for further insights and feedback. Participants were asked to answer some pre-constructed interview questions in relation to the evaluation goals of our medium fidelity prototype interface. In particular, these questions were designed to assess and analyze the learnability, effectiveness and utility of our prototype. For later-on analysis, observers would be taking notes on participants' response throughout the interview. In the end, observers would sum up the evaluation process by inquiring participants about the research topic. Later, pre-recorded notes from both think-aloud observations and interviews were re-organized and analyzed for more in-depth results.

d) Evaluation Rationale:
For our first evaluation goal, we thought it was important to consider how fluid and learnable the interface was for a first time user. By the time we were done the prototype, we were all very familiar with it. However, we never considered if this familiarity impacted the overall design of interface. Therefore, by having an evaluation goal that considered this question, allowed us to have a better idea of its ease and learnability. We also wanted to know if there was a pattern of usage with our interface, the second evaluation goal allowed us to measure that. We wanted to see if there was a feature that was extremely popular and vice-versa. Lastly, our third evaluation goal gave us a general idea if our interface was actually worth pursuing. Although we think the prototype is a good idea, we were not conclusive if that translated to the general population. Therefore the last evaluation allowed to achieve that.

We decided to choose a think-aloud observation because it encompassed all our evaluation goals. A think-aloud observation allowed the participants to indicate the frustrations and also gives them the ability to openly complain about anything they dislike about the prototype. Thus, this form of observation covers our first and second evaluation goals. The interview afterwards allowed us to answer our last evaluation goal, which allowed us to ask the participants questions about their opinions on the interface and if they liked the idea of the interface.

e) Prototyping Rationale: The following is an overview of the layout of our prototype.

As you can see in appendix 1.0, we have a total of 10 screens where the user can read information on and interact with certain elements. We aimed for a low level of functionality within each element (low depth) and opted for a wider breadth (horizontal functionality). We made this decision because we felt that as long as the users could visualize themselves using this service, they would have adequate feedback for us. It also helps us validate the overall idea rather than focusing on specific elements. This turned out to be very effective as users had an idea of the bigger picture of what we aimed to design. Appendix 1.1 is an illustration of our overall design decision.

For our appearance, we chose to follow Save On Foods' color scheme but decided to trim a lot of the headings and sidebars they have. We didn't want to clutter our design with functionality that ultimately would have nothing to do with our design proposal. We went with

a minimal design, with lots of white space and rounded buttons and elements. Most users reacted positively to our appearance and design.
For reference, see appendix 1.2 for a photo of Save On Foods' current design.

Summary of Data Analysis:
After running our observation studies with the participants, we categorized our findings using an affinity diagram as evident in appendix 2.0. We divided the participants' reviews into different categories and used them to qualitatively assess our evaluation goals. We also categorized all of our data into a pros and cons diagram.

Struggles

We found that some participants struggled with some aspects of our interface during their interactions. Some users were initially hesitant to decide what to do and where to click on the new interface. One user felt that there was no appropriate feedback given after adding a pre-made cart to your grocery list and they were confused whether the items actually successfully added or not. Another user wanted to filter the carts based on common dietary criteria like 'vegan' or 'gluten-free' and they couldn't really locate the drop-down list for it.

Functionalities

After the evaluations, we found that the users' mental models were fairly similar to our conceptual model. Most participants were able to locate the buttons, links and clickable elements and used them as they were expected to. One participant felt that our interface had a "streamline design and used unified colouring, which led to easy navigation of the buttons". Participants also found the interface easy to learn and navigate. Some of the mentioned quotes said that the interface was "simple and straightforward", "minimal and free of clutters" and "easy to navigate through its clearly worded headings".

Overall Experience

We received a lot of positive feedback on the usability aspect from our participants. Some users really liked how our interface allows them to see other people's cart and the ability to add the whole list of ingredients into their own carts at once. They could see how the sharing feature can save them a lot of time of thinking what to get when they go grocery shopping. Some users also liked how our prototype provided a good mix of recipes.

We also received some criticism for the feature. One user found the "pre-made carts feature counter-intuitive" because they prefer the regular shopping experience, where you are free to search for whatever you like and have the freedom to decide on the options available on it, instead of just adding everything pre-selected.

Pros vs. Cons

We received a great mix of positive and negative feedbacks on our working prototype. Referring back to our evaluation goals, we are glad that most of these feedbacks are able to answer our questions. We discovered that our clickable elements were causing some frustrations for the users since they are not fully functional. However, most of the users were really fond of our unified coloring and minimal design principle, which led to easy navigation through the prototype. Our clickable elements were the only feature that we found to be used frequently when conducting our studies. In terms of how the pre-made shopping cart affects user's shopping experience, we were also able to see different perspectives. Some users really enjoyed how they were able to see other people's carts in order to shorten their decision time when doing grocery shopping. Some users found this feature to be "counter-intuitive" because they enjoy real-life grocery shopping experience where they were able to personally pick out the items themselves.

Categories	**Pros**	**Cons**
Clickable Elements	- Clickable elements were obvious and easy to find - Design of the clickable elements gave affordance and was easy to perceive	- Some clickable elements were unresponsive
Usability	- The ability to see other people's cars received positive feedback - The users enjoyed the ability of adding all elements in a recipe to cart all at once	**N/A**
Feedback on Features	- The users love the fact that the sharing feature would potentially save time for grocery shopping	- Pre-made carts seems counter-intuitive because it strips the user's ability to enjoy the shopping experience
Learnability & Interface Design	- Unified colouring and streamline design which led to easy navigation through the interface - Easy to read with clearly worked headings - Page was free of cluttering	N/A

Conclusions

Based on the evaluation goals, we conducted an adequate number of think-aloud observations and in-person interviews to help us analyze our fidelity prototype, which was

designed by using Adobe XD to carry out the basic functional practices of creating, sharing, and searching pre-made shopping carts. With the implementation of two major evaluation approaches, we were allowed to analyze the received data from multiple perspectives.

First of all, the think-aloud observations we conducted had reached out to 6 users and the results we received from them were being arranged into an affinity diagram. In this way, we were able to acquire a clear view on how users with similar backgrounds feel about their overall experience with the prototype interface. By stretching this evaluation to a further extent, the approach of person-to-person interviews had also provided us a more detailed insight into the effectiveness of different features and the ways in which they function to help users.

Via analyzing both positive and negative groupings of user feedback on the affinity diagram, we could easily pinpoint the struggles that our participants underwent with the functionalities and the learnability, usability, and affordance problems of the interface design in relation to its clickable elements and presentation flow. Therefore, we came to a conclusion that a successful interface design requires clear, compendious and responsive features that enable users to interact with the interface intuitively. Besides, appealing and consistent interface design can also amplify the use of interface by making it more enjoyable and easier to follow.

Design Recommendations:

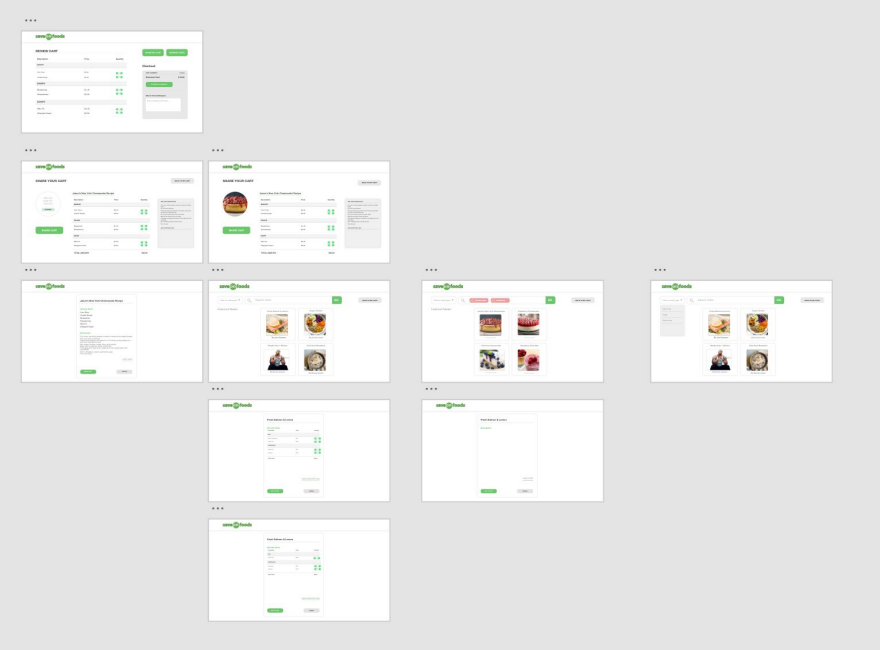
Based on our evaluation process and the feedback we received from the participants in our prototype walkthrough, there are some pieces we found that worked well, and some that we would modify. First, our decision to make our buttons placed in the same position on different pages lead to high learnability and offered affordances that allowed users to quickly know where an action such as clicking on “share cart” would lead them. Due to this feedback we would likely choose to keep our button color, size and naming similar to what it is now, as we found our current prototype offers a good experience for new users in this regard. Another element that worked well in our current design was the Something we would like to add to our design is feedback after a user takes a significant action such as adding a preselected cart to their current cart. Our current design created some confusion in this area, so we would add feedback such as an animated check mark symbol after a successful cart add, or a change in color to give feedback and communicate that the action our users took was successful. Another element that several users suggested that we add to our design is the ability to double or triple the amount in a preset cart. For example, if a vegan cart was created for a single adults weekly diet, then a couple may want to get the same cart but double the amounts in the cart. This functionality could be added through a “serving size” or a “cart size” button on the page where a users chooses to select and add the cart to their current cart. We could also add social media links to easily share carts there, such as Instagram, Pinterest and Facebook, as suggested throughout our tests.

Self Critique:

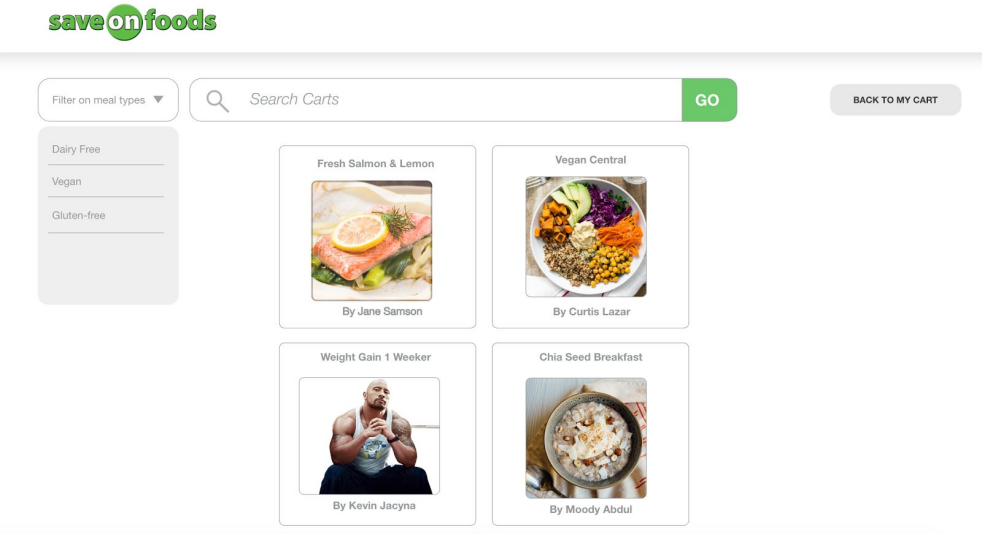
Although our evaluation goals were mostly qualitative in nature, we were able to get strong, actionable feedback throughout the evaluation process. Something that worked well for us was how we viewed setting our evaluation goals as an iterative process, and asked TA's for feedback on them on several occasions. Had we not gone over our evaluation goals many times, and made a good effort to get as close to optimal as we could we would not have received nearly the same value from our evaluation. Spending time on getting the evaluation goals right is something we would do again. Something we would think about doing differently in the future would be including a larger amount of participants in our study. Since we only had six participants, it was at times difficult to find commonalities amongst their responses, although we found an affinity diagram to work very well in helping us to find these common responses. Adding a few more site navigation elements to our prototype would have also assisted in allowing our users to know where they are within the context of the Save On website while doing our study, which would have made it more clear as to where our prototype fit in. We made the decision to not include these elements as we believed that they were not critical to understanding how our prototype would work and wanted to keep it simple, however it may have been worth including them. Along the way we did a good job as a team in listening to every idea that a team member came up with, and encouraging creative and wild ideas in our brainstorming sessions. This enabled us to work effectively as a team, and ultimately come up with a prototype that we are proud of and would be excited to implement.

Appendix A

1.0 Overview of medium fidelity prototype in Adobe XD

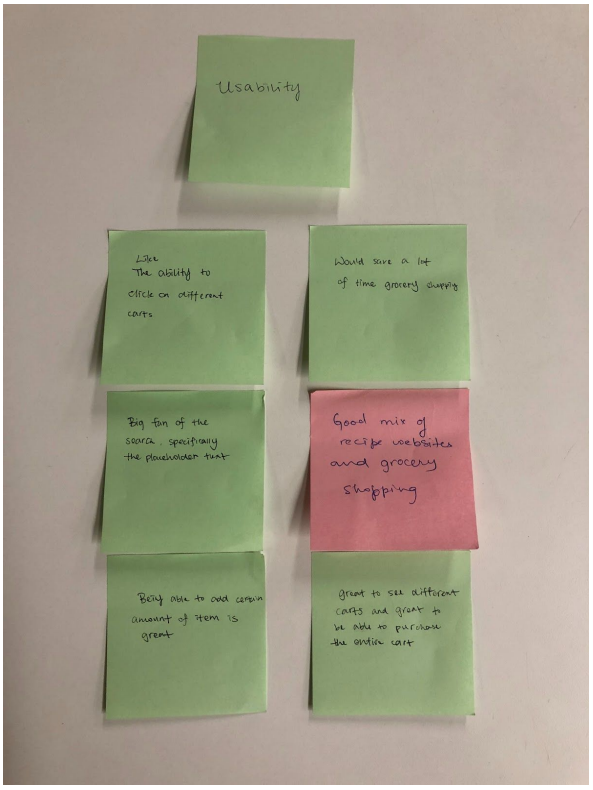


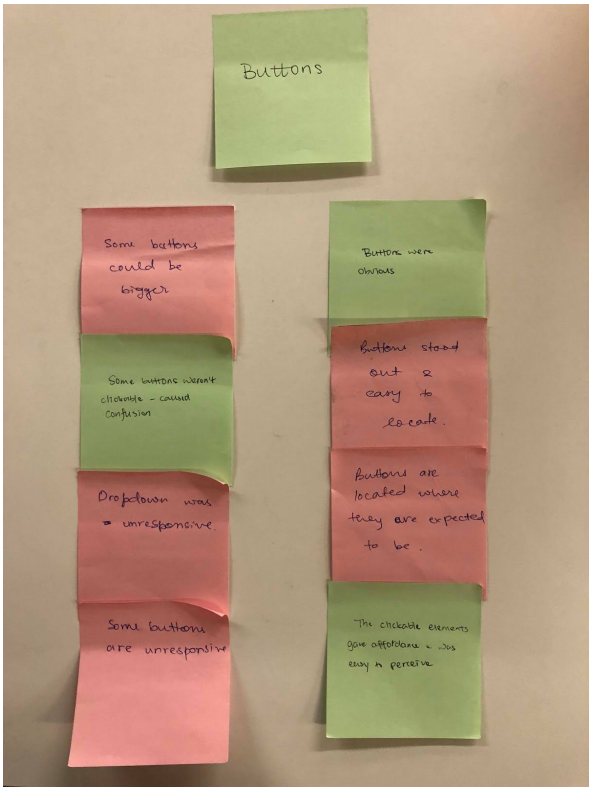
1.1 Design of browse cart screen

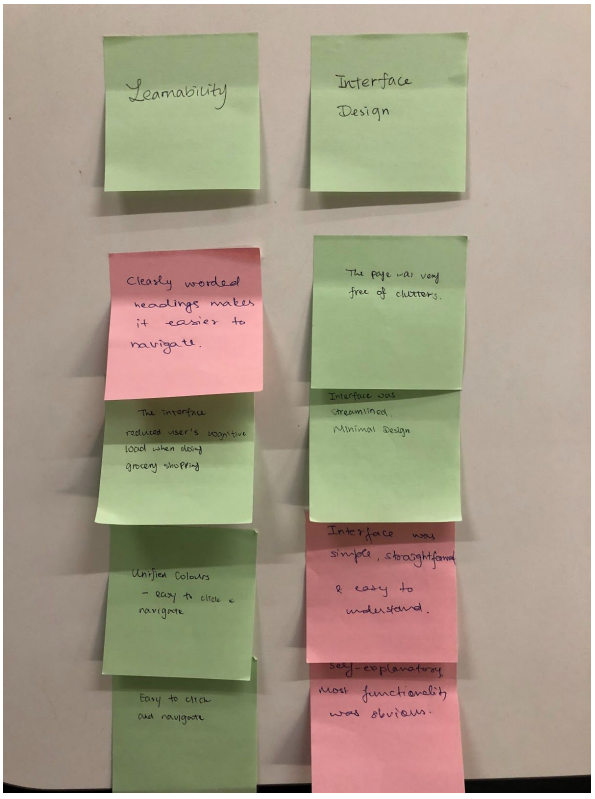


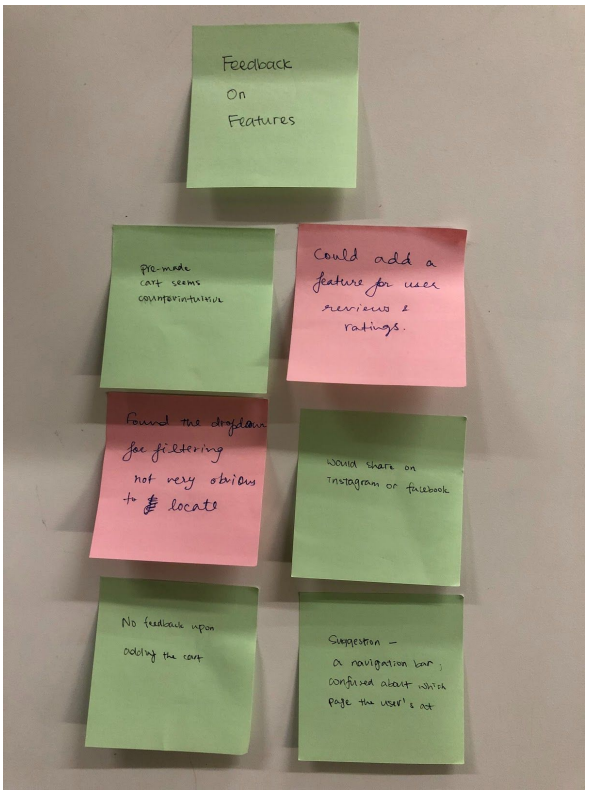
1.2 Save On Foods current design of website

2.0 Affinity Diagram









Medium Fidelity Prototype Video:

https://youtu.be/nDkop8guQzY

Interview Questions

1. How do you feel about the process of using our interface? Was it easy or hard to learn? What was easy/hard about it?

2. How useful do you think the clickable elements are? Do you find the clickable elements easy to perceive while using our interface?

3. What difficulties have you encountered during your experience with the interface? Was it hard to overcome the challenges?

4. Do you think the pre-made cart element has effectively improved your shopping experience? Why or why not?

Coding Sheet

Coding Sheet

Date	
Observer name	

Participant name	
Consent form signed	Yes / No

Time Taken			
User goal	Browse	Share	Checkout/view cart
Time Spent			

Steps	Action	Hesitation (Y/N)	Time	Problems	Comments
1					
2					
3					