Design Document:

GameOn Technology (Yummly)

Team Members:

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0. Executive Summary

In the attempt to understand the potential student users of a Yummly messenger, user research was conducted. With the help of two individual focus groups and affinity diagramming on the resulting notes from the interviews, 7 main user needs and 3 individual personas were crystallized. In order to understand these personas better 3 individual scenarios and storyboards were created (one for each persona). The paper prototypes (wireframes) where improved iteratively with the help of 8 individual think alouds. In the end, a prototype was created that shows (in detail):

- the process of explaining to the Yummly messenger what ingredients are currently available,
- how the messenger suggests recipes based off of the available ingredients,
- how recipe are shortly described,
- how the step by step recipe instructions work.

1. Introduction

Yummly is an application that provides personalized recipe recommendations, semantic recipe search, and grocery delivery. GameOn was contacted by Yummly to create a messenger application for their service. In order to create a Yummly messenger for Facebook Messenger that will be used by students, one has to understand the mindset of the students with regards to cooking. As a developer one can not assume to know exactly what students need nor how students will respond to specific design solutions. To understand the potential student users, multiple focus groups need to be conducted and several iterations of design solutions need to be tested on potential users. This paper describes the process of user experience design and how it was used to understand the potential student users of a Yummly messenger and create a paper prototype for the messenger.

It is important to mention that currently no Yummly messenger existing for the Facebook messenger. In order for students to get new recipe suggestions he/she has to actively search for them online. The recipes online often come with long, time consuming, blog posts that talk about the dish. This is of course irritating for someone that just wants a new quick meal. In addition, students only get new information when they actively search for it. With a messenger this should change, not only is the recipe information stripped down to the essentials, the messenger application can in addition broadcast new personalized recipe suggestions to a (currently) non-active user. Not only does this feature act as a reminder, it can also motivate (in-active) users to cook outside of their comfort zone.

2. Focus Setting

To design a chatbot interface for the personalized recipe recommendation platform Yummly with a focus on user interaction through Facebook Messenger

3. User Research Process

Two independent focus groups were conducted. Both focus groups included four participants. Half of the participants lived on campus and the other half off-campus. Most of the students were enrolled in an undergraduate program (3 graduate students) and the ages varied between 19-24. The data collected from both focus groups allowed us to get a deeper insight into users' behaviors, patterns and general way of thinking. This allowed us to come up with a list of user needs.

3.1 Affinity Diagram

After extensive user research through focus groups and interviews, we did a walkthrough of the data obtained. The circles indicate a team members vote, each member had seven votes.

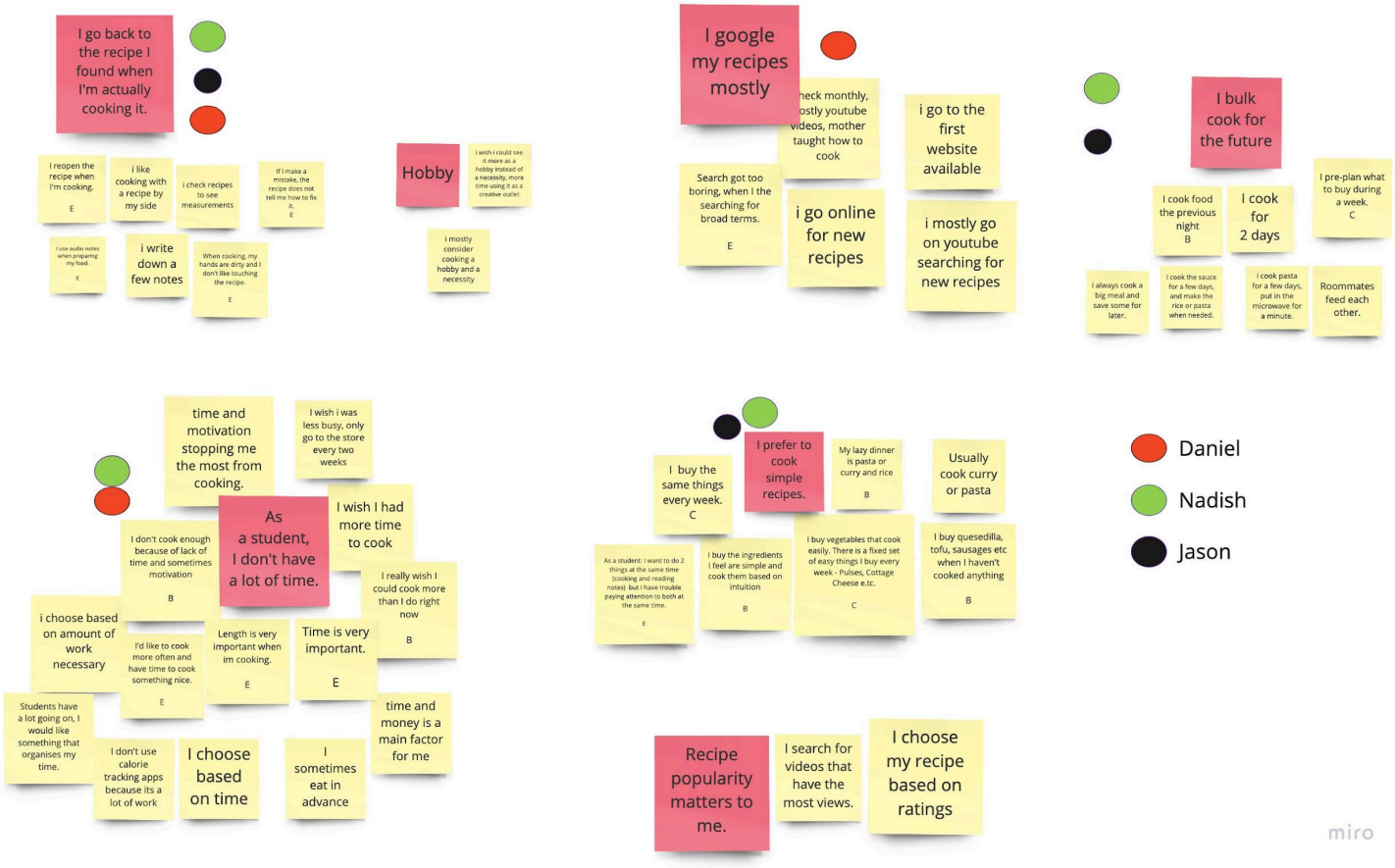


Figure 1. User Research Affinity Diagram

3.2 User Needs

By walking through the data we collected and voting on the previously mentioned affinity diagram, we came up with the most prominent user needs.

User Need 1: Users need to find recipes for the ingredients/food that they have in order to save time.

Rationale: Participants of all focus groups stated that they search for recipes based on what they have and not the other way around that is - having a recipe and going to shop. Participants also mentioned that their search time was significantly shorter when using specific keywords, otherwise the search would be unbearably long. Some also stated that they only search for recipes right before cooking.

User Need 2: Users need nicely formatted, concise recipes in order to understand them quickly.

Rationale: Most users expressed annoyance when they search for a recipe and get long blog posts out of which they have to parse out the recipes. They all expressed that if the recipe page had just the recipe, the steps, the ingredients, and that all of these were well-formatted they had a much more joyful experience. Students stated that they do not like lengthy recipe descriptions and want short, precise recipes. Students also tend to do other tasks while cooking and want to spend only a little time looking at the recipe.

User Need 3: Users need more diverse recipes in order to inspire them to cook more.

Rationale: The participants of the focus group stated that if they had a Spotify like app for cooking where they put in their preferences and it gives them options to cook, it would be the best thing ever. Participants stated that new recipes would help improve their cooking skills. During a focus group, it became clear that advertising new recipes would help motivate one to cook more.

User Need 4: Users are not able to cook some recipes due to their lack of knowledge of ingredients and where to buy them.

Rationale: Study participants stated that when they search for recipes before they go grocery shopping, they often do not know where to buy specific ingredients mentioned in the recipe.

User Need 5: Users need someone/something to teach them basic cooking skills in order to help them get started.

Rationale: Participants frequently mentioned learning how to cook from their mom or dad and proactively contacting them to help with cooking whenever needed. They also mentioned gaining new cooking ideas from their relatives as well as inspiration.

User Need 6: Novice users need guidance/correction while cooking in order to overcome the problems they run into while cooking.

Rationale: Users mentioned that they have frequent issues with the measurements of ingredients, especially if they're cooking a portion size that does not match the portion size for which they have the recipe.

User Need 7: Users need simple recipes that take less time in order to keep time for college work/studies.

Rationale: Most students in the user research mentioned that they did not have enough time to cook because they're always busy with work/studies and hence they resort to eating frozen food. Students said that they want to read lecture notes while cooking but find it hard to focus on both at the same time when the recipe is too complicated.

4. Personas

We came up with three personas - Jane, John and Nick. These three represent our user needs completely. The design process from here on focuses on improving their experience in the context of our design problem, in particular John since he embodies the most common of notes/needs from the user research.

Jane

Personal Information:

- 20 years old
- Undergraduate student in political science
- Novice computing skills
- Can cook simple meals

"I am tired of preparing the same meals every day but I have trouble understanding more complicated recipes."

Photo by Teymi Townsend on Unsplash

Day in the life:

Jane goes to class at 8am and comes home at around 5pm. She is not an expert cook but is trying to expand her skillset. While maintaining a busy student lifestyle, Jane is always trying to find new recipes to cook from everyday.

A lot of the interesting recipes Jane comes across are too difficult to follow and she has a rough time understanding them. In addition, these recipes often include unfamiliar ingredients and she does not know where to get them. Some recipes are for multiple people but Jane is only interesting in cooking a meal for herself. Since she is unfamiliar with the ingredients and is a novice cook, she has trouble adjusting the recipe to a one person meal.

User Need: 2, 4, 6

Key Goals

- Find new diverse recipes with different ingredients.
- Find concise and easy to follow recipes.

Frustrations

- Difficulty following expert recipes she found online.
- Tired of always cooking simple meals.

Personality

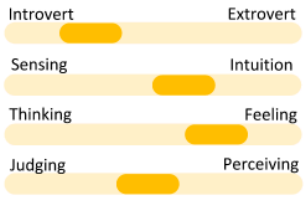


Figure 2: Jane's Persona

John

Personal Information:

- 23 years old
- Graduate student in engineering
- Advance computing skills
- Can cook for himself

"I feel I spend a lot of time cooking which affects my studies."

Photo by Eduardo Dutra on Unsplash

Day in the life:

John will make eggs or eat cereal every morning and rush to his early morning class. He often comes home around 5 p.m. and will usually work on his assignments, projects, or any other school work after eating a meal.

He cooks with whatever he has in his fridge but lately he has gotten bored of eating the same things again and again. As a result, he eats frozen foods frequently in order to add variety to his meals. He wishes he knew how to cook more with the ingredients he's comfortable with. Lately, he has been thinking about cutting down on cooking because he feels that he would rather spend the time studying, which he is struggling with.

User Need: 1, 3, 7

Key Goals

- Find simple and quick recipes that expand his skill set to make time to study.
- Find motivation to cook more.

Frustrations

- Never having enough time to cook on school days.
- Bored of making the same repetitive meals when he does cook.

Personality

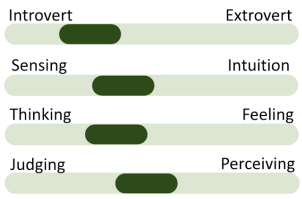


Figure 3: John's Persona

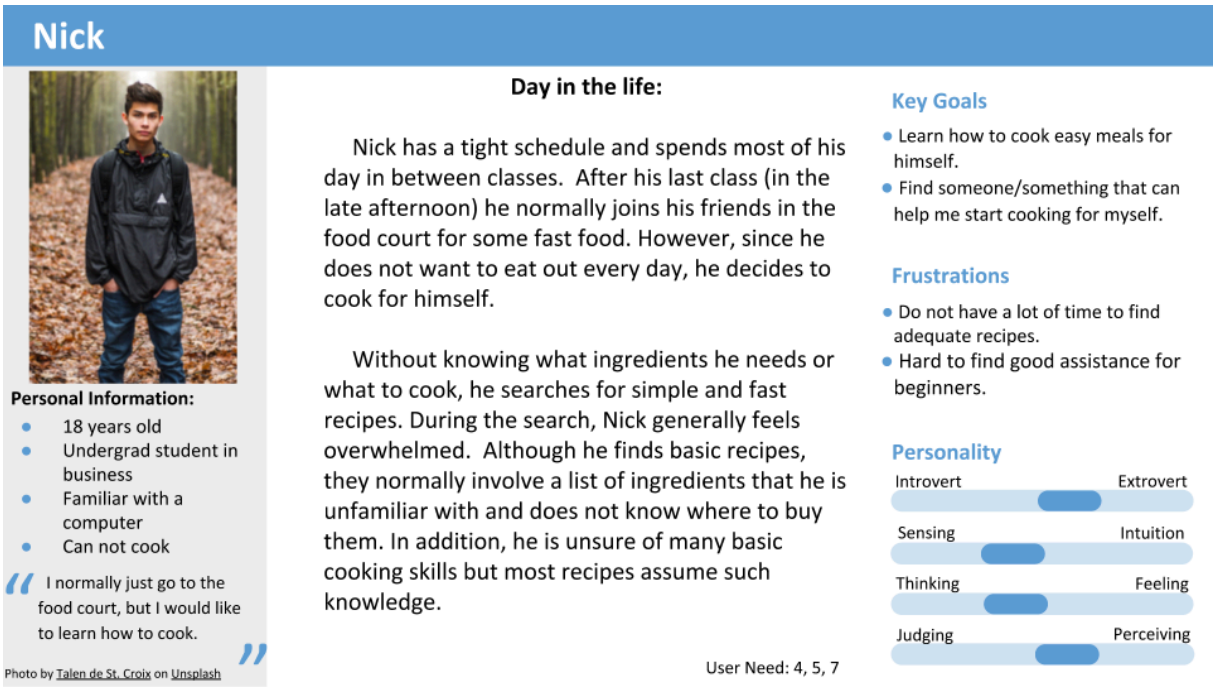


Figure 4: Nick's Persona

5. Design Solutions Brainstorming & Affinity Diagram

- **Feature 1**: Allow users to search recipes by "time taken to cook" .

  Rationale: User Need 7
- **Feature 2**: Allow users to search recipes by "ingredients".

  Rationale: User Need 1
- **Feature 3**:Ask users what ingredients they have and show recipes for those ingredients.

  Rationale: User Need 7
- **Feature 4**: Sync the user's calendar with the chatbot.
  - Suggest easy recipe on busy days.

    Rationale: User Need 7
  - Suggest diverse recipes on free days

    Rationale: User Need 3
- **Feature 5**: Allow users to get info on where to buy the ingredients for the recipe.

  Rationale: User Need 4
- **Feature 6**: Give novice users an option to take the Yummly masterclass.

  Rationale: User Need 5
- **Feature 7:** Suggest recipes being cooked in their location.

  Rationale: User Need 3
- **Feature 8**: Give recipe step by step when asked.

  Rationale: User Need 2
- **Feature 9:** Allow users to adjust portion size of recipes.

  Rationale: User Need 6

After coming up with the user needs from the user research and personas, we conducted additional affinity diagramming to come with features (of course with the personas in mind).

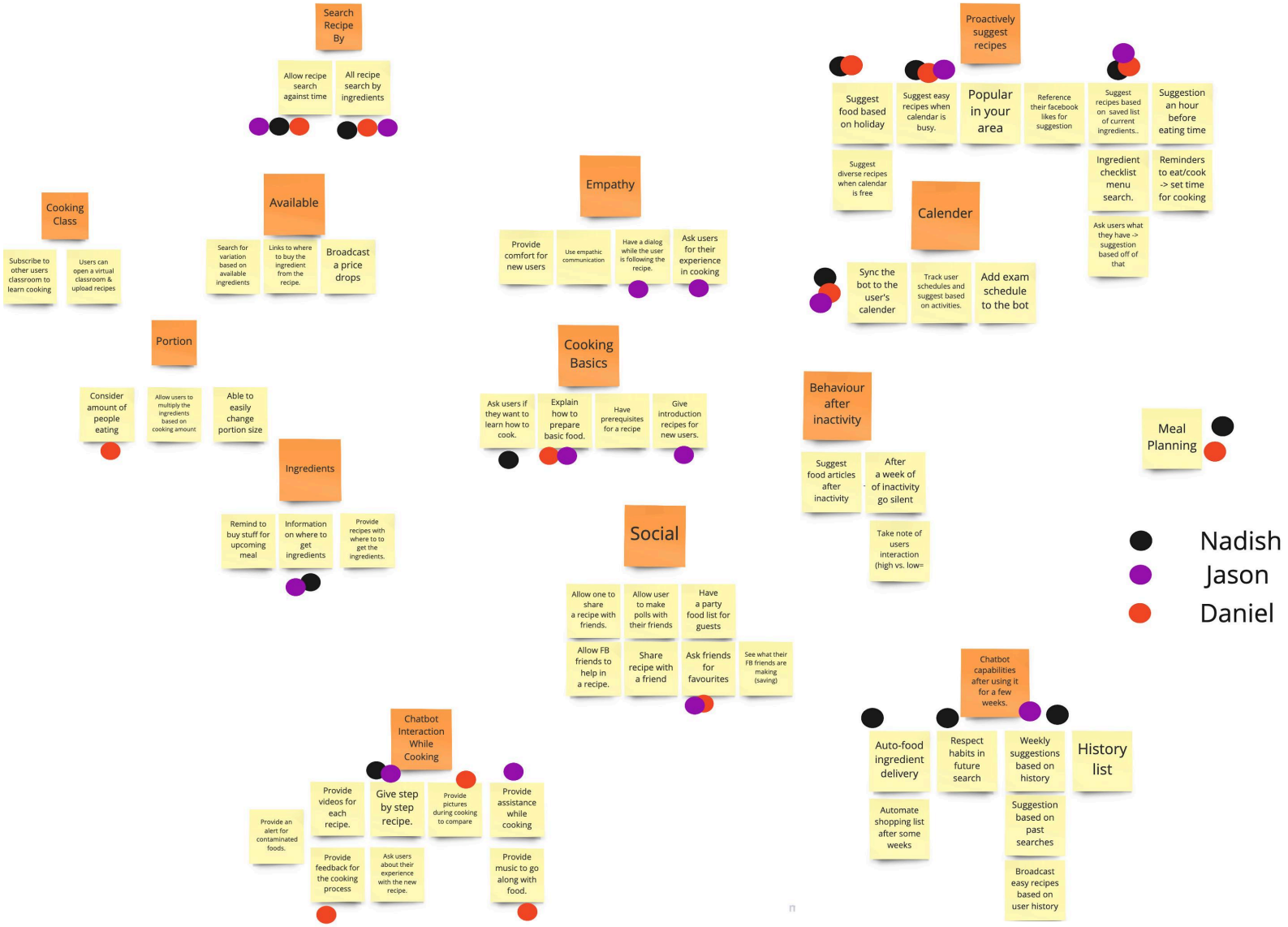


Figure 5: Affinity Diagram for Design Features

6. *Scenarios* & *Storyboards*

After the design features were developed in the last section, it was now time to test the feature list against our personas' user needs. We had three personas - John, Jane and Nick. This section contains scenarios and storyboards that reflect broadly how our chatbot helps them solve their user needs.

6.1 Usage Scenario and Storyboard for John

John has to spend a lot of time cooking when he'd rather be studying. He is also tired of eating similar things throughout the week. However, he recently bumped into the Yummly Bot on facebook which can intelligently help him cook more variety of food in less time. The bot allows him to search for recipes against ingredients. The bot asks him if he needs easy and quick recipes or if he's feeling experimental. It then gives him recipes according to his choice. The bot keeps a note of what ingredients/ dishes John usually cooks and broadcasts recipes based on that information. On days that John's calendar is packed, it suggests easy and quick recipes, but on relatively less busy days, it suggests experimental recipes that could either be tougher to make or use some ingredients that he doesn't cook with. **John now gets easy/quick recipes with familiar ingredients on days he's busy which saves him time to study and also adds variety to his array of known easy recipes.**

1. John is cooking when he'd rather be studying.

2. His friend suggests yummly, so he opens up the chatbot.

3. The bot asks for his available ingredients.

4. Chatbot asks for John's preferences.

5. John chooses quick and easy and the bot shows him the results.

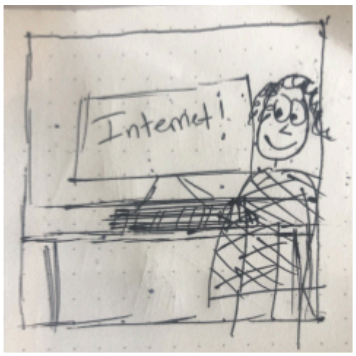
6. John is delightfully impressed and plans his next meal.

Figure 6: John's Storyboard

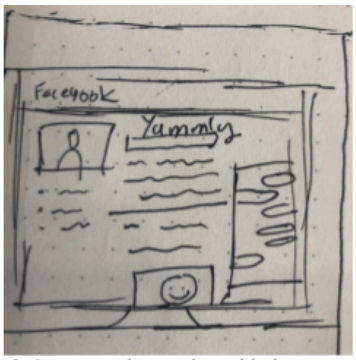
6.2 Usage Scenario and Storyboard for Jane

Jane has trouble finding new recipes with guidelines that are concise and when she does find exotic recipes, she never knows where to find ingredients. Jane discovers the Yummly Facebook account after searching for new recipe sources online. Jane continues to interact with the Facebook account and discovers the chatbot. The Yummly bot provides various options of recipes and Jane is able to narrow it down based on her preference. After choosing her recipes, the Chatbot suggests where she can purchase the ingredients while also providing a step by step simplified guideline. **Jane is then able to cook a recipe with ingredients she is unfamiliar with while also following a simple and concise guideline.**

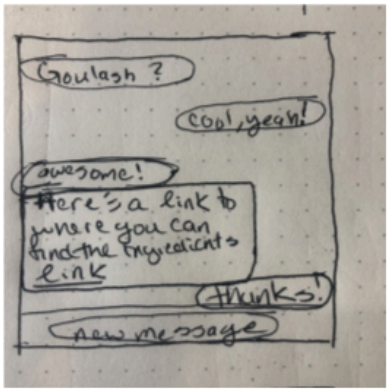
1. Jane is disappointed and bored of the food she usually cooks.



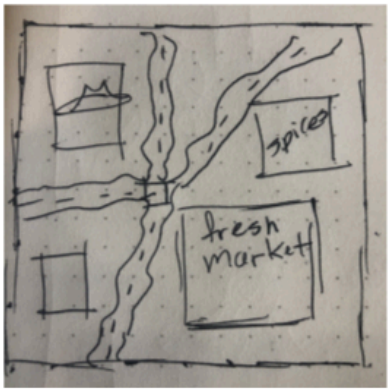
2. She searches online for new recipes and comes across the Yummly Facebook account.



3. Jane starts interacting with the Yummly messenger.



4. It suggests Jane new recipes based off of her preferences.



5. Yummly messenger also tells Jane where she can get any needed ingredients..

6. Jane can now cook the new and exciting recipe with the acquired ingredients.

Figure 7: Jane's Storyboard

6.3 Usage Scenario and Storyboard for Nick

After class Nick is very hungry and wants to eat. Since he has been going to the food court every day for the last few months, he decides to try to cook for himself. To help him out, Nick starts talking to the Yummly chatbot which can assist him to find simple recipes for other students in his area use. Since he is hungry, he asks for the bot for a simple and quick recipe. The bot gives him a shortlist of ingredients and where to buy them. If Nick has any trouble with basic instructions, the bot offers him the Yummly master class, where he can learn the basics from professionals. **Nick now has a reliable source that helps him learn how to cook simply and easily.**

Figure 8: Nick's Storyboard

7. Task Flow Diagram

The following shows the task flow diagrams of at midpoint and after numerous of iterative improvements via think aloud user tests.

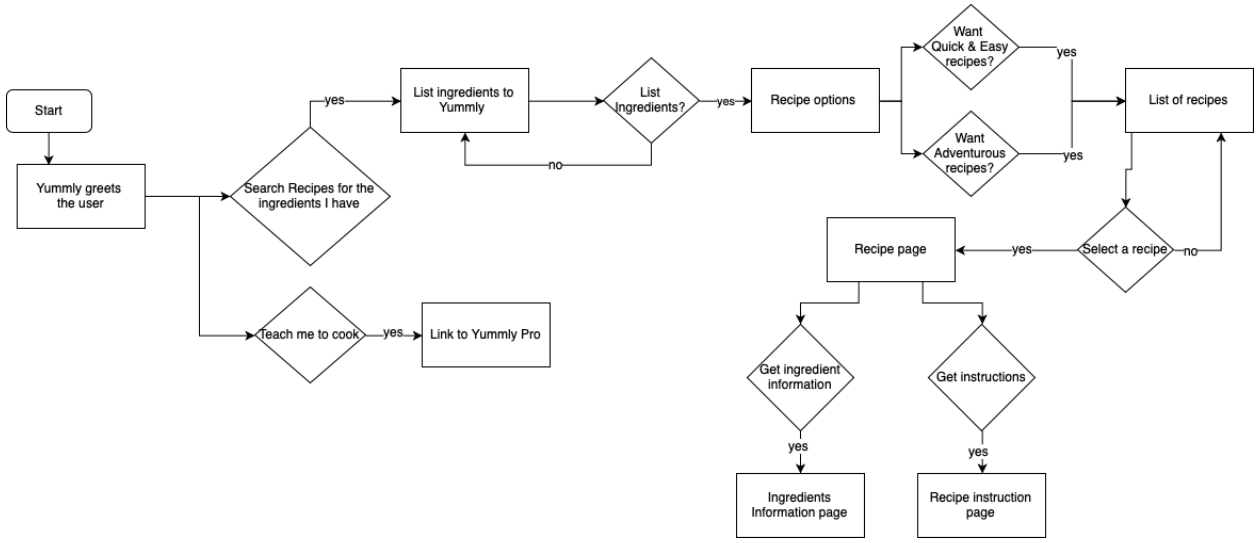


Figure 9: Old Task Flow Diagram

For the revised task flow diagram, keep in mind that since the “teach me to cook” option is simply a link, we focused on how to present recipes, give recipe suggestions, and how to tell the messenger what ingredients the user has in the updated prototype version.

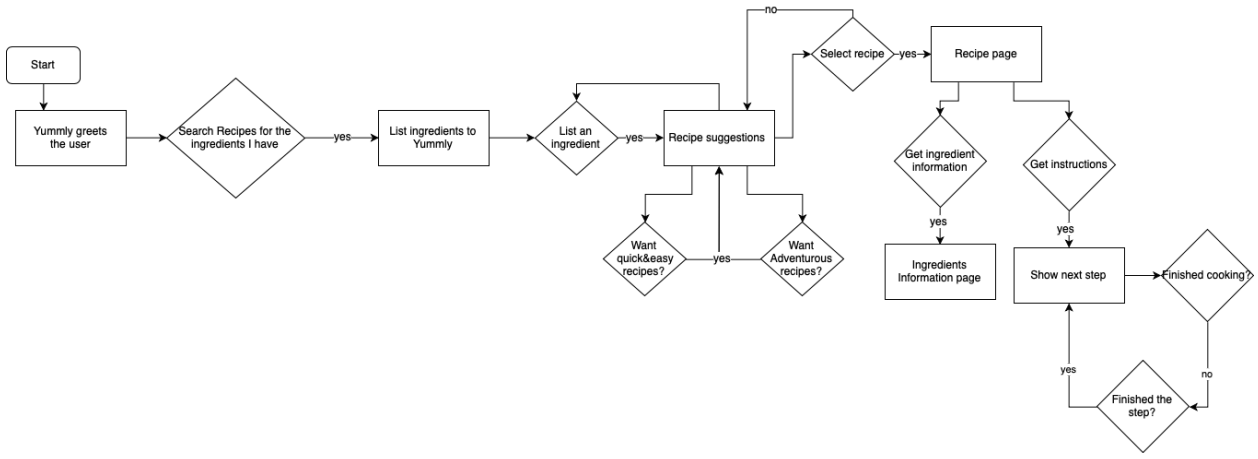


Figure 10: New Task Flow Diagram

8. Wireframe Flow Diagram

The following 2 wireframe flow diagram were introduced during the midpoint presentation. They respect the user needs of 2 personas (John and Nick).

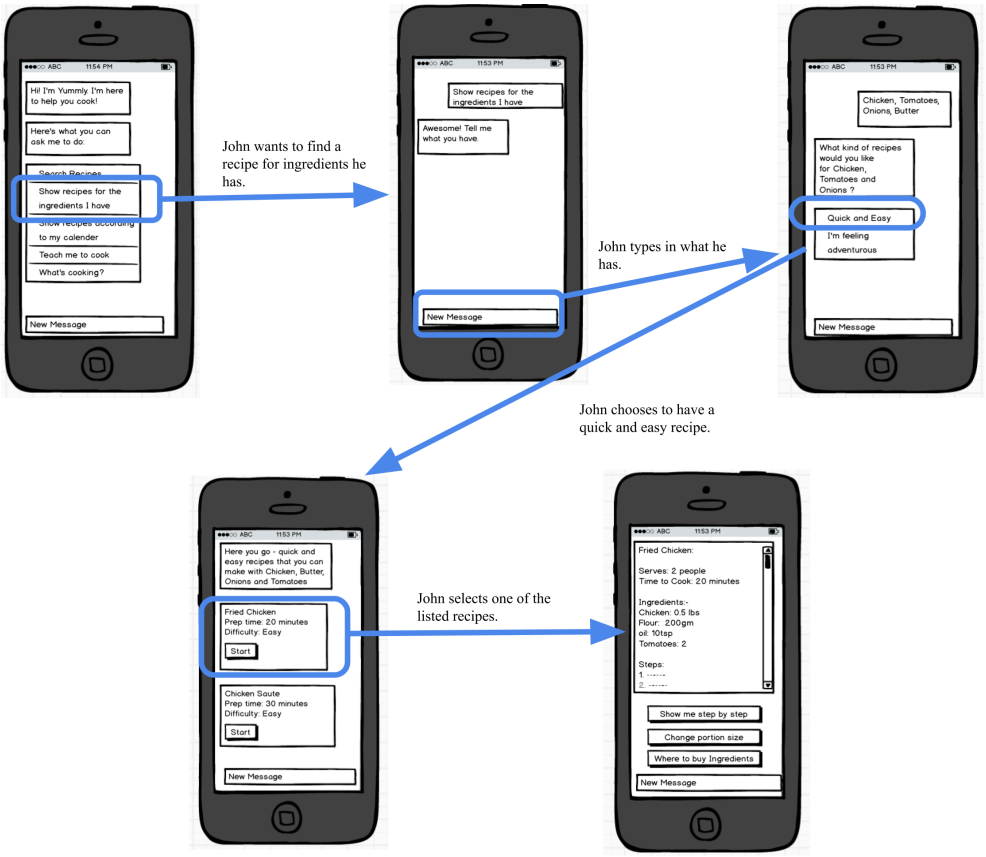


Figure 11: Wireframe for John

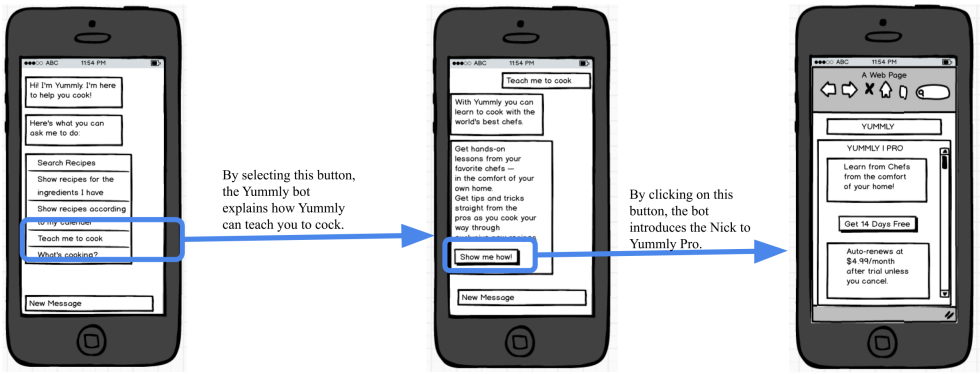


Figure 12: Wireframe for Nick

8.1 Updated Wireframe Flow Diagram:

The paper prototype (which merely includes the wireframes) was updated iteratively based off of feedback from 8 individual think aloud tests. Each test included a task that the user had to solve and required the user to describe what he sees and what he is thinking along the way.

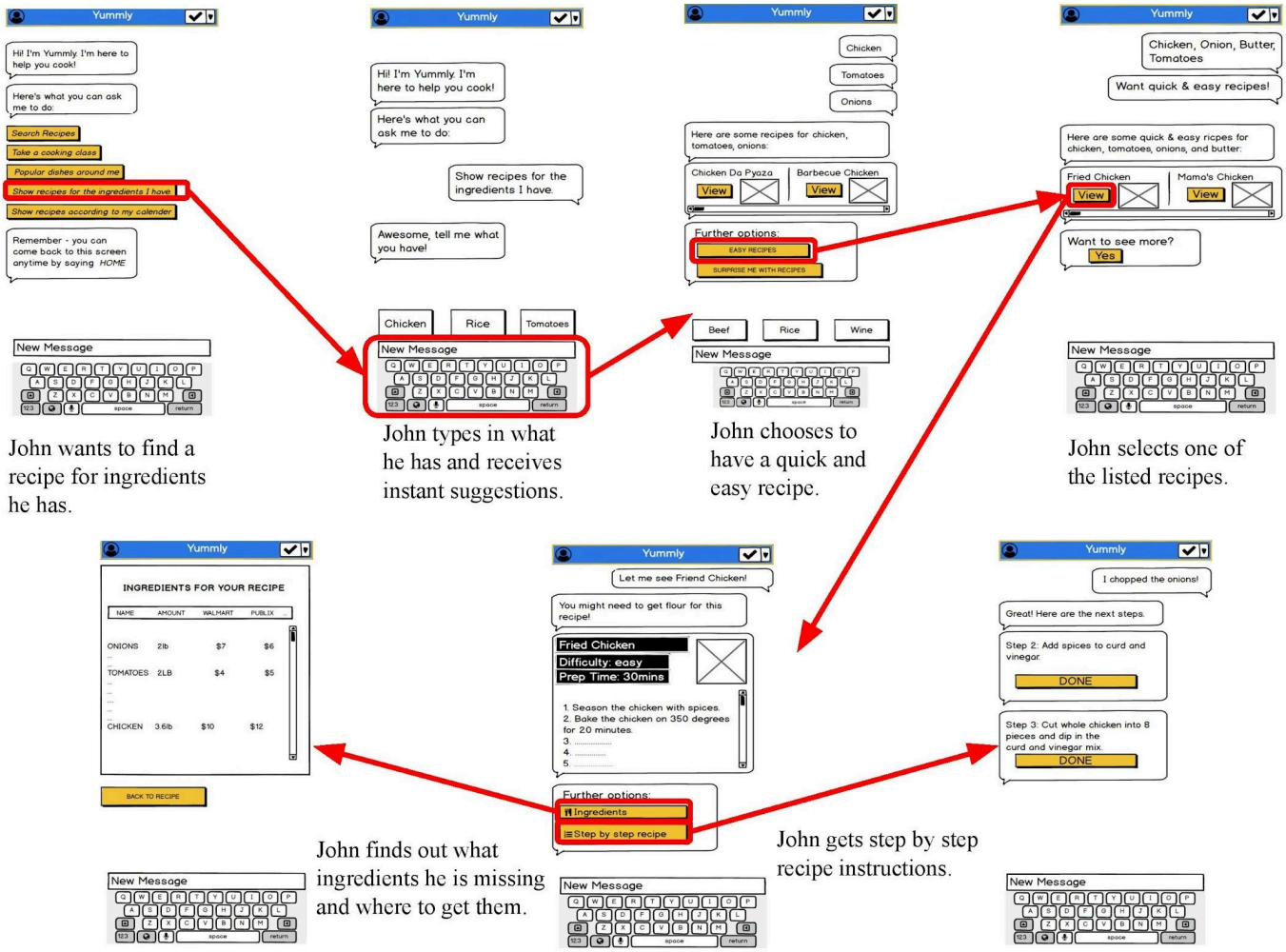


Figure 13: Screens of the Updated Wireframe & Interactions

9. Client Feedback from Midpoint

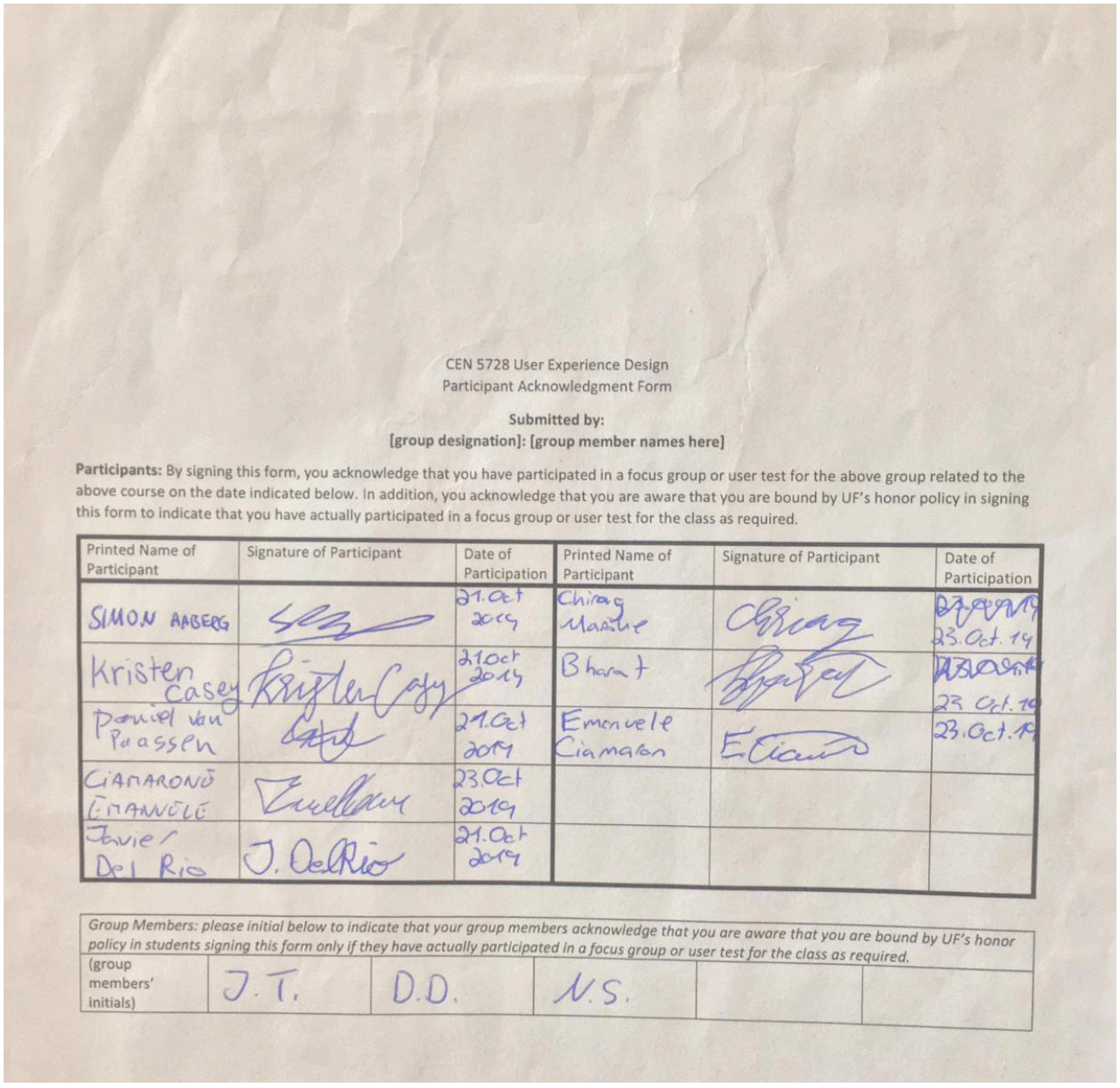
At the midpoint of the project the client (GameOn) explained that we had understood and identified the core features of Yummly well and that we are going in the right direction in regards to understanding the user. The client thought that the features that we came up with (e.g. calendar sync) were very interesting and suggested exploring further how one can actually include this in a prototype. In addition, the client asked us to consider additional features into the prototype, e.g. add easy recommendations to aid the search of a recipe, and test how potential users would respond to such features.

With that feedback in mind, we set out to pick a few specific features (e.g.: quick recipe recommendation and step by step instructions) that align with the needs of our most common persona (John) and see what implementation has the best response and thus iteratively improve the prototype.

10. Next Steps

The next big aspect to consider is broadcasting personalized new recipes when the client is offline or currently not interacting with the bot. In order to test broadcasting features, the users need to have already interacted with the prototype before. To be able to recommend a recipe, the messenger must have some data of the user. After this feature is properly implemented into a prototype, we believe that the first beta prototypes of the messenger can be programmed and released to the public.

11. Appendix:



CEN 5728 User Experience Design
Participant Acknowledgment Form

Submitted by:
[group designation]: [group member names here]

Participants: By signing this form, you acknowledge that you have participated in a focus group or user test for the above group related to the above course on the date indicated below. In addition, you acknowledge that you are aware that you are bound by UF's honor policy in signing this form to indicate that you have actually participated in a focus group or user test for the class as required.

Printed Name of Participant	Signature of Participant	Date of Participation	Printed Name of Participant	Signature of Participant	Date of Participation
SIMON AABERG		21.Oct 2019	Chirag Maniar		23. Oct. 19
Kristen Casey		21 Oct 2019	Bharat		23 Oct. 19
Daniel van Paassen		21.Oct 2019	Emanuele Ciamaron		23.Oct.19
CIAMARONI EMANUELE		23.Oct 2019			
Javier Del Rio	J. DelRio	21.Oct 2019			

Group Members: please initial below to indicate that your group members acknowledge that you are aware that you are bound by UF's honor policy in students signing this form only if they have actually participated in a focus group or user test for the class as required.					
(group members' initials)	J.T.	D.D.	N.S.		

Figure 14: Participation Acknowledgement Form (Focus Groups)

CEN 5728 User Experience Design
Participant Acknowledgment Form

Submitted by:
[group designation]: [group member names here]

Participants: By signing this form, you acknowledge that you have participated in a focus group or user test for the above group related to the above course on the date indicated below. In addition, you acknowledge that you are aware that you are bound by UF's honor policy in signing this form to indicate that you have actually participated in a focus group or user test for the class as required.

Printed Name of Participant	Signature of Participant	Date of Participation	Printed Name of Participant	Signature of Participant	Date of Participation
Jesse Smith		11-25-19			
Julia Woodward		11/25/19			
Jeremy Block		11/25/19			
Donald Honeycutt		11/25/19			

Group Members: please initial below to indicate that your group members acknowledge that you are aware that you are bound by UF's honor policy in students signing this form only if they have actually participated in a focus group or user test for the class as required.

(group members' initials)					

CEN 5728 User Experience Design
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Printed Name of Participant	Signature of Participant	Date of Participation	Printed Name of Participant	Signature of Participant	Date of Participation
Leopold Schiller	Schiller L.	Nov. 27. 19.			
Christophe Fritsche	C.F	29. Nov 19			
Marcel T.	M. Tiller	29. Nov 19			
Josin V.	Josin V.	30. Nov 19			

Group Members: please initial below to indicate that your group members acknowledge that you are aware that you are bound by UF's honor policy in students signing this form only if they have actually participated in a focus group or user test for the class as required.

(group members' initials)	J.T	D.D	N.S		

Figure 15: Participation Acknowledgement Forms (Individual Thinkalouds)