



# Contextual Inquiry

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# Overview of Problem and Solution

America's fast food culture is a natural byproduct of the ever accelerating pace of everyday life combined with our nation's ever-widening socio-economic gap. Americans who find themselves in the lowest income brackets are presented with seemingly insurmountable challenges when trying to obtain healthy meals. The combination of a lack of time, a tight budget, and little or no convenient access to grocery stores presents a formidable challenge to this population. As we explored the topic and possible solutions, the idea of transforming such tight constraints and existing infrastructure through the use of a simple mobile application began to seem inappropriate. Consequently, our thought process shifted course.

We decided that instead of trying to create an entirely new system or infrastructure, a more practical approach would be to try and help people to make the most of what is already available in their environment. As a result, our mobile application focuses on "damage control," suggesting the best value and most nutritional food available given the current constraints of time, distance, and accessible cooking instruments. These constraints vary regularly as a person goes about their day, and as they change new and creative meal solutions would be suggested based upon a collection of aggregated and participant-contributed menu suggestions and recipes. These ideas would then be filtered through predefined user preferences, resulting in a personalized list of food that will answer the question of "what will I eat?" Through this "on-demand" system people can make the most of their surrounding environment and make educated, healthy, and cost-effective last minute decisions about food.

# Participants in Contextual Inquiry

We identified a number of people in various states of the food-buying process for our contextual inquiry. Ideally, we would have been with our participants as they were making their food buying decisions. However, this proved very difficult. It's hard to determine when someone begins thinking of their next meal, and it would usually involve being with them at work, on their way home, or early in the morning. For this reason we instead talked to people already at a restaurant or grocery store. Although some of their decision had already been made, we were still able to gather valuable insight. It is also somewhat contradictory to have someone who is pressed for time and searching for food quickly, slow down and teach us their methods and routines. Consequently, we conducted many smaller interviews with people who simply did not have time to give us a full contextual inquiry. However, it was the contextual inquiries conducted on the following participants that have primarily guided our research.

## ***Bonnie***

A member of the Postal Service, Bonnie works five days a week and commutes for over two hours every day. She does not strictly fit into our target audience, as she does not have easy access to transportation, her car, and less of a budget restriction. However, her work and commute times make time a constraining factor. Thus, she is similar to our target population in that she has little time or desire to plan her meals ahead of time. She normally plans dinner on her way home from work, and premade dishes and take-out food often work their way onto her table. Bonnie is concerned with finding items that are on sale and that fit her low-sodium diet needs but essentially she lets her stomach make the overall decision.

The contextual inquiry was performed on a Saturday in the late-afternoon. Bonnie and her family spent the day cleaning out their garage, and were surprised to find that it was 5pm and they hadn't yet considered dinner. After a quick family discussion, a rough menu was planned and she left for Albertson's – a store in which she often buys groceries. As we followed Bonnie around we watched as she juggled the constraints of her diet, her mental grocery list, and the basic meal plan created only 20 minutes earlier.

# Participants (continued)

## ***Alyssa***

Alyssa is a 22 year old vegetarian and college student. As a student, she fits our target group because she is crunched for time and lives on a budget; however, Alyssa is already a healthy eater. Her inquiry may then provide an example shopping behavior we would like to encourage in unhealthy eaters. Also, as a vegetarian, Alyssa provides a unique view into how to shop with a restrictive diet.

We performed the inquiry while Alyssa made her usual trip to Trader Joe's in the University District on Saturday. She says that she likes that the store is environmentally friendly, seems to have low prices, and carries many organic items. While Alyssa looked for the items she needed, we watched diligently and asked for details about her choices.

## ***Sean***

We met Sean, 25, at a Jack-in-the-Box in the University District. He wore a hard hat and company rain jacket, and at 12:30 on a Friday afternoon was obviously a construction worker on his lunch break. Sean met the major requirements of our target participant group. He was pressed for time, having only 30 minutes to grab lunch between his shifts, and also on a strict budget. In addition, although he owned a truck, the limited lunch time and parking difficulties mandated that he could only walk to surrounding areas.

Sean said that he usually packed a lunch, and that when he didn't it was due to the extra time that preparation in the morning would require. When without a packed lunch, he mainly came to this fast food restaurant due to its perceived cheapness compared to surrounding restaurants. We met Sean in line, and observed him as he ordered. We then sat with him and talked about his decisions in line, and when his food came he described his experience of eating the burger.

# Results of Contextual Inquiry

The results of our contextual inquiries will guide our entire project from this point forward. It is therefore very important that we get them right and isolate the particular details that help and harm the meal buying process. It is also vital to generalize the principles so that they are applicable to our entire target population, and not just these three people, but at the same time to keep them specific enough to provide value. From the inquiries we identified a number of high-level themes.

People like their “go-to” brands. Alyssa shops at Trader Joe’s every week, and Sean hits up Jack-in-the-Box whenever he doesn’t have a lunch. We imagine that others go to McDonalds whenever they don’t have dinner plans, or always buy the same brand of milk at their favorite store, despite a better price down the street. Buying the brands you know makes shopping faster and is less risky. However, this also makes you accustomed to foods that may be less healthy or less of a bargain. Ideally, we would introduce new, better products to replace the staples currently in a person’s diet. As soon as they’re buying the “best” items, brand loyalty is a great thing.

Any recommendation system needs to be tailored to the specific user, because each person has wildly different food preferences. Bonnie seeks out items that are low in sodium, and Alyssa is a vegetarian. Sean, meanwhile, will eat pretty much anything. People usually have some idea on what to eat: Bonnie’s family knew they wanted chicken, but not the exact recipe. Users of our application should be able to tailor their results to avoid and encourage the quirks of their diets, and if they are vegetarians then recipes that include meat should never be suggested. They should also be able to suggest items such as chicken, and have a number of different chicken options returned. Completely random, or based solely on cost or health, is not the way to go. Our application should recommend the healthiest and cheapest versions of what the user already wants to eat.

# Results (Continued)

It is hard to eat healthy when you are hungry and have no food prepared. Sean claimed that he normally brought a fairly healthy lunch of a sandwich, apple, and a can of soup to work. He also told us how he could feel a difference in his mental and physical state after eating a fast food burger instead of a homemade sandwich. However, when without a packed-lunch in the middle of the day he went straight for Jack-in-the-Box instead of to the grocery store or a healthier restaurant. Other tradeoffs, such as time, cost, and taste, trump health when your stomach is growling. In the same way, Bonnie's family decided to go with the pre-roasted chicken to save time, ignoring the arguably better tasting and healthier chicken they could cook at home. Our application must bring customers back to the healthier options that they would choose if they were not so hungry or rushed. By showing that a healthier item exists, tastes just as good, and has no other tradeoffs we can help people to form better habits.

Saving on the grocery bill is currently a huge issue for many Americans, and all of our users cited money as a sticking point in their food-buying experience. Bonnie was frustrated by the wildly varying prices of even staple foods such as the Lipton Ice Tea and Triscuit crackers. Alyssa shopped at Trader Joes partly because of their everyday low prices, and Sean was eating fast food over another restaurant mainly because it is so cheap. Providing an easy way to eat better food at a lower cost would be a huge win for our application.

# Analysis of New and Existing Tasks

Our contextual observations of people shopping, ordering, and eating uncovered many examples of people eating “in the moment.” Be it the construction worker trying to find a quick bite on his lunch break or the mother trying to plan a dinner for four on her way home, the one thing that united the various eating habits we observed was a lack of planning. The men and women we surveyed knew that packing a lunch or buying enough groceries for the entire week would be healthier and more cost efficient, and claimed that they often did plan ahead. When we talked to them, though, they were less concerned about being motivated to plan because they were hungry now and this meal was already a lost cause. However, they would appreciate knowing the best possible eating option right now, given their current situation.

With this concept in mind, we developed three tasks related to “in the moment” eating habits. Because the amount of preparation time, number of people depending on you, search radius, and accessible kitchen tools are different, the ways in which people go about accomplishing the task, both with and without our application, are unique. We hope that our application will streamline the process of finding a quick, healthy, cheap bite to eat.

## ***Easy task: Ordering the best item from a particular place***

Sometimes you’re forced to eat at a particular restaurant or shop at a specific store. When eating with friends it may not always be practical for everyone to agree on the same restaurant, or perhaps only one store is within immediate walking distance. In either scenario you are often left with a suboptimal choice.

Rather than just randomly ordering “whatever looks good” at the moment, you decide to do the smart thing and ask for help. Our application on your mobile device will help you decide what to eat in a more sensible manner. By using GPS to determine your position, it knows that you are in that new seafood restaurant on the pier. It knows that you are a vegetarian, but like to eat fish, and have serious allergies to mushrooms. Using these pre-defined needs and preferences, the application looks at what dishes are available, and offers you half a dozen choices, ranked by best price, most healthy, most recommended, and most similarity to dishes you have liked in the past. The list can be sorted by any category, making it easy to find the absolute healthiest item or all items under \$10. You may now pick from these half dozen choices, all of which you are likely to enjoy. You tell it which you decide on, and, after you have eaten you have the option to tell it whether you liked the dish or not.

*(Continued)*

# Analysis (Continued)

## *Easy task (Continued)*

Using our application as a guide through an unfamiliar menu is a smart solution that will leave you satisfied with your meal. The ability to sort menu items by healthiness is especially valuable, as it promotes eating healthy even when at restaurants or on the go, two frequent trouble areas for dieters. It also helps the user avoid the pitfalls of advertising--being suckered into buying something because it is shiny or slickly advertised when it is an inferior product.

## ***Moderate Task: On a lunch break at work, find a quick healthy bite to eat***

Packing a lunch is of course the healthiest and cheapest way to eat at the office or at school. But sometimes you forget. In that case, you have 30 minutes, have no food, and have to eat. You need to get some reasonably priced, reasonably healthy food, fast, so that you can eat it and get back to work. As it stands, our contextual inquiries have shown that most people would just go to the place that they always go, or eat at the first place they find in a particular direction. These are hardly informed decisions.

Our mobile application would use GPS to place you at your office, and the time of day to realize you're trying to find lunch. You told the application in the initial set-up that your workplace has a sink, a hot-water heater, and a microwave, but no oven or stovetop. You also indicate that this will be a quick lunch of 30 minutes. Knowing these restrictions, the application filters out options requiring time or tools that you do not have available to you.

The application lists a variety of food choices and where they are located relative to your current position. Many of the top ones involve going to the small corner market 3 blocks down the street. A peanut butter sandwich, canned tomato soup, and fruit are all available... and those are all items you like and would have brought in a pack-lunch if you had had time. The application also lists the turkey sandwich from the Subway on the ground floor of the building, and the Mongolian Beef you grabbed yesterday at the Chinese restaurant across the street. But that Chinese food is listed as having 1200 calories, and the Subway, while healthy, costs twice as much as a sandwich at that market. You have to walk a little farther, but feel much better about your lunch-time decision knowing that you saved money and are eating better.



# Analysis (Continued)

## ***Difficult Task: Plan a dinner for four on your way home on the bus***

Later that day, you remember that your significant other is coming home late, and asked you to have dinner ready. So you quickly think of something to make. Rather than preparing macaroni and cheese from a box, or picking up a roasted chicken from the store, as you might do without anything to help you decide, you use our application to find more healthy, cheap and easy alternatives.

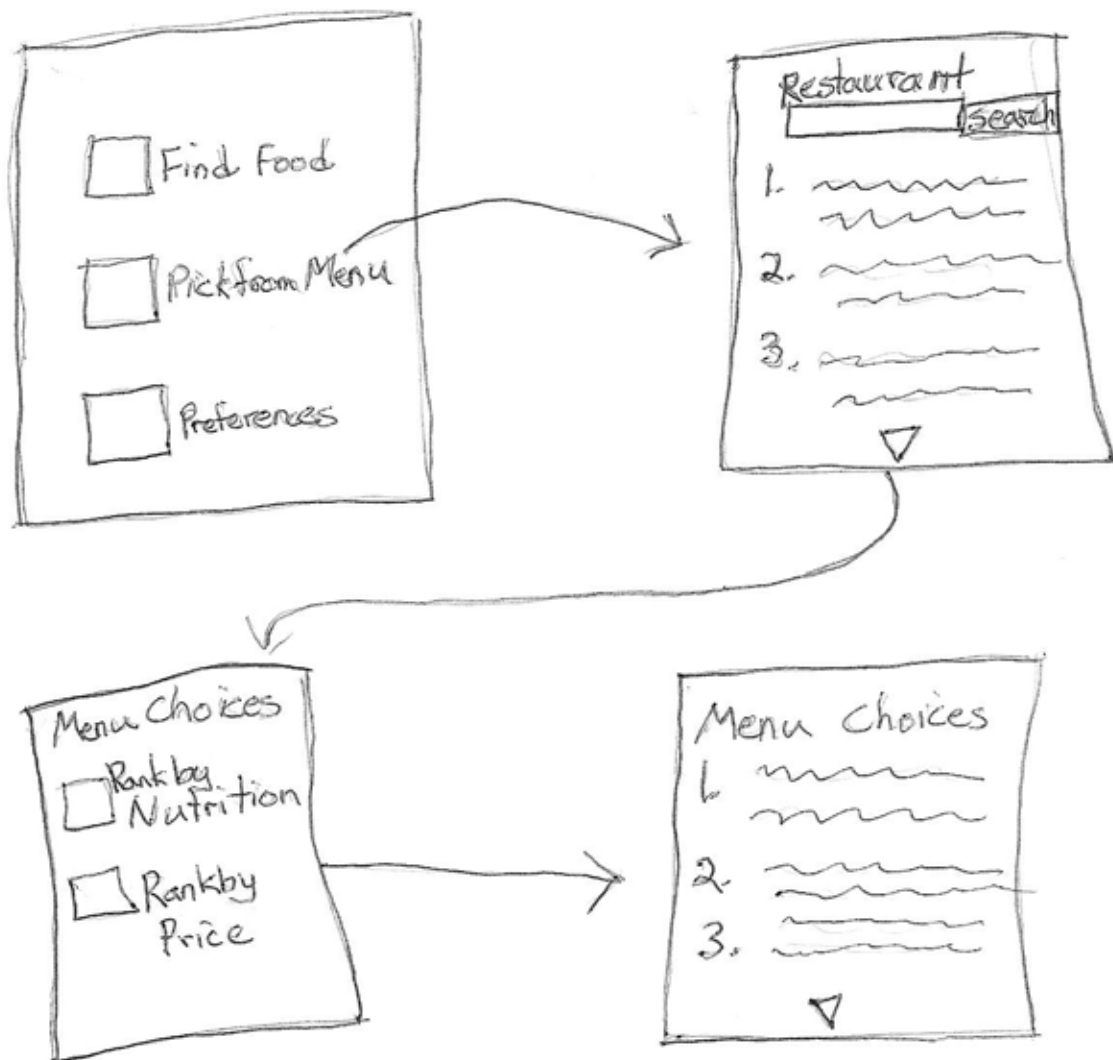
It's now approaching dinnertime, and you're taking the bus home. The application suggests recipes based on the stores you're passing, and alerts you when to get off for each. It's easy to constrain the searches to only dishes with chicken or that do not contain tomatoes, based on the current preferences and feelings of you and those you are cooking for. You know that you'll need dinner finished in about an hour so that everyone can eat as they arrive home, so you specify that timetable to the application. This weeds out the more involved recipes, but leaves many healthy and tasty options to cook at home. It also suggests takeout from that new sushi restaurant that got so many good reviews,

You end up scrolling through the list of the top ten suggested meals and selecting a recipe for pork chops in an apple sauce. Next, a similar screen suggests where you should buy your ingredients. That delicious organic butcher shop is at the top of the list, but even with the marked sale price it's too expensive for your budget. Next in line is a grocery store, but it's a little out of the way. You'll have to make a bus transfer, which is listed along with the total price of all items from that store. Another option is a smaller grocery store at the next stop, but you're unsure if it will carry all of the ingredients. But, sure enough, the application lists that you can get everything there and the price is about the same as the bigger store.

At the store, you pull up the ingredients list. You know that you already have applesauce at home, so you skip them on the list. You're also presented with an option to search for linking side dishes that nutritionally complement your meal and are convenient to your current location. You pick up a can of green beans and make your way home, where you follow the recipe and get dinner on the table just in time.

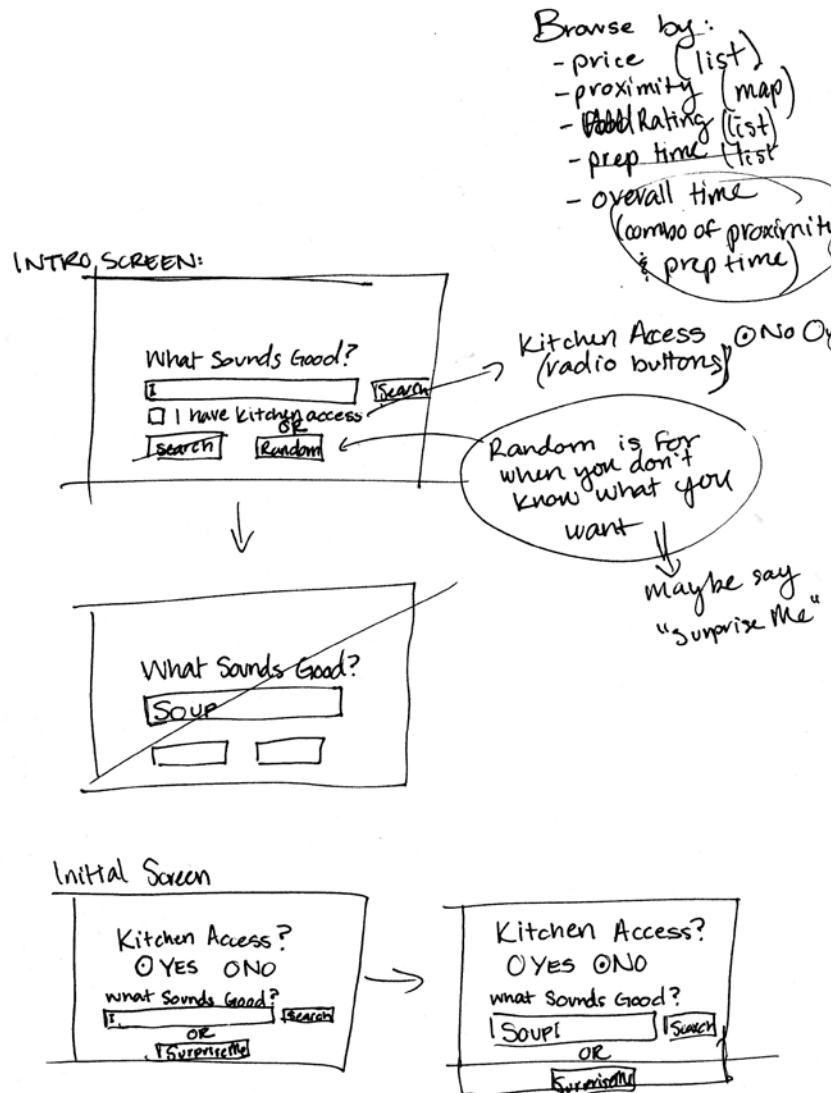
# Sketches

## Specific Restuarant or Store



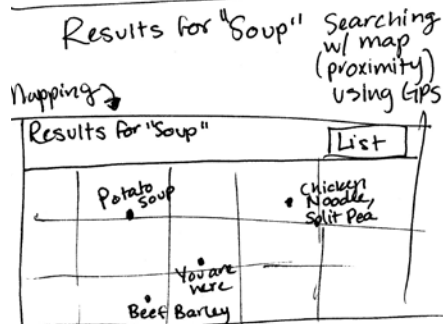
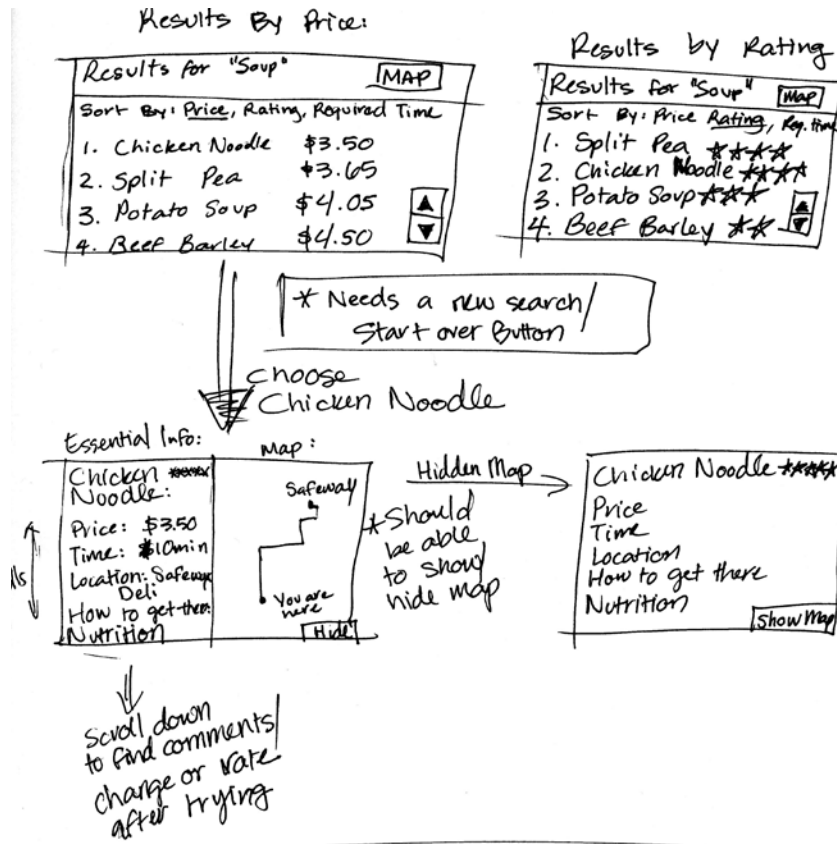
# Sketches

At Work  
Short on Time  
Little or No Cooking Tools



# Sketches

At Work  
Short on Time  
Little or No Cooking Tools



# Sketches

Headed Home  
Cooking Tools Available  
More Time Available

