

## **P2: User Research, Analysis, Personas, Scenario**

### **The Hungry Huskies Project Report**

**by**

Team Crazy for Jalfrezi

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## P2: User Research, Analysis, Personas, Scenario

### I. User Research Summary

#### A. Secondary research (LEARN)

Our first step was collecting secondary research, with the goal of learning two things:

1. How do other colleges provide student with information about on-campus dining options, locations, and hours of operation?
2. What motivates college students when buying food on campus?

We chose this method because we wanted to gain a better understanding of campus dining and student behavior by reading research, articles in trade food services magazines, and scholarly papers (and student projects) on the topic. We also reviewed dining information provided on several similarly sized university websites. Secondary research was a fast, simple, free way to collect a lot of data in a short period of time. It also provided us with a foundation of knowledge against which we could begin testing our design statement.

Even with a quick, surface review of the materials, we were able to identify our users (college students who eat on campus), as well as collect data from various stakeholders, such as food service managers and dining administrators. We learned from one student project a design question we hadn't considered. Our research showed us that our original idea, to create an app for UW students that would be more useful than the current dining page on the UW website, was already in use at many campuses, with high user satisfaction.

We analyzed the data using affinity diagrams, making lists of our comments and questions and key points from the research, then grouping together common data points. (See appendix for list of links to online research sources.)

We found our data via websites and online documents, so we did not have users for this method.

#### B. Survey (ASK)

Our next step was creating a survey that we hoped would uncover students' habits and motivations when making decisions about where to dine on campus. We chose a survey because it was a useful way to collect data in a short period of time. Also, without the time and funds to host a focus group, we felt that a survey was the most effective tool considering our constraints.

Per the suggestions about using surveys outline in *Understanding Your Users: A Practical Guide to User Requirements*, we hoped to find out how our users (UW students) currently use the system, learn about users' feelings about the current system, and discover users' characteristics and motivations.

We posted the survey link on several UW Facebook pages, including: HCDE Peeps, UW Undergraduate Research Program, UW Dining, and UW College of Engineering, and we emailed it to our classmates. Our target users were anyone who wants to eat on the UW campus.

In analyzing the data, we reviewed the survey, looking for patterns. We noted when survey data corresponded with date from our secondary research. Then we used affinity diagrams to further analyze and categorize the data. (See appendix for survey and responses.)

### **C. In Context Observation and Interviews (LOOK and ASK)**

We conducted three, short “in context” interviews, with the goal of observing users in what we imagined would be a common scenario for students seeking dining options on campus. We chose this method in order to watch users while they used the current system so we could learn about their behaviors, attitudes, needs, and motivations through observation and through conversation with them.

In this exercise, our users included our teaching assistant, a male PhD student around 27 years old, and two classmates one woman about 40 years old and another woman about 30 years old. The first woman is in her 40s and taking the certificate program; the other woman is a full-time student in the masters program.

We wanted to test our assumptions about how users might approach two options:

1. Trying to find answers to their on-campus dining questions on the UW dining site.
2. Trying to find answers to their on-campus dining questions using a method of their choice.

In analyzing the data, we watched the videos we made of the “in context” exercise. We had videotaped the users’ hands on their keyboards and their faces as they performed each exercise. Since all three users asked if they could talk, we used the “talk aloud” data gathering method in this exercise, too. Part of our analysis involved comparing what users told us with their facial expressions while performing the exercises, and part of our analysis involved comparing data from this exercise with our survey results and with the secondary research. We wanted to see if survey respondents and in-context participants had the same answers to our core questions. (See appendix for summary and images.)

\* After our last meeting, one team member visited the District Market, one of the locations where students on a UW dining place can eat or purchase food whether or not they are living in dorms or off-campus. She observed many students shopping for both healthy and convenient foods. She was able to talk to two students and ask about how they found food, but since they live off-campus, they said they just walk along “the Ave.” until they see something they like. (See appendix for images.)

## II. Summary of Findings

We began our research with the goal of helping people on the UW campus easily locate on-campus restaurants and cafés.

### *Secondary Research*

Using SWOT Analysis on the data from our first research method, secondary research, we were able to identify many strengths and opportunities regarding our goal. University websites, research studies, and articles from food management publications provided both quantitative and qualitative data. The two key takeaways about campus dining at large universities: students use their phones for everything and mobile phone apps that provide campus dining information are popular with students across the country.

We also learned that the main things students want to know about on-campus dining include: hours of operation, location, nutritional information, and menu options. However, in spite of wanting nutritional information and wanting to eat healthy foods, time is a big obstacle in meeting both needs. Students want food fast, and they don't want to wait in line.

### *Survey*

Eighteen people responded to our survey; more than 95% of respondents identified themselves as UW students. When asked where they looked for information about campus dining options when they wanted to eat within 10-20 minutes, only 11% checked the UW dining website and only 5% checked the map on the UW dining website. Forty-two percent searched the internet. Twenty-six percent chose to “walk around campus” and look. The third most popular option was asking someone.

Notably, 43% of survey respondents reported using a mobile phone or tablet to search for food on the UW campus when they wanted to eat within 10-20 minutes. 63% of respondents used a phone or tablet when searching for a place to eat within 10-20 minutes off campus. For off-campus searches, Yelp was by far the most used search tool, followed by Google and Google maps. However, these tools weren't highly-selected options when students were asked how they found food on campus.

The last step of the survey was an open-ended question asking students to tell us what would help them locate places to eat on the UW campus. Eight of the 18 respondents suggested an app. Two people suggested signage on campus. One mentioned having menus and locations on a UW site (the UW site has these, but not in a searchable or quickly accessible form). Our survey responses tell us that students we surveyed are currently not finding the information they need and that many either don't use or don't know about the UW dining page. The high percentages of UW students using a phone or tablet to search for food, as well as the numerous requests for an app, support what we learned in our secondary research about students' reliance on phones and the popularity of dining apps.

Our survey results also confirmed what we learned in our secondary research: when students search for a place to eat, they say they care most about the type of food, the hours of operation, and the proximity to their current location. Healthy food was also important, but when time was a factor it became less important.

### *In-Context*

Each test involved giving a subject a laptop with the UW website on the browser, and asking him/her to find a place on campus where we could go to eat in about 10-20 minutes. All three users had trouble finding the dining information they wanted. The site navigation led them to pages with lists of information but no clickable links. Two of the three needed help using the site. None of the subjects were successful at finding the information they wanted. The breakdown points were obvious; two subjects were quite vocal about feeling frustrating and feeling that they were wasting their time on the website. One subject wanted to use the site, while another lost interest when it became too time-consuming. We videotaped these interviews, so we were able to capture their frowning faces as they struggled, and failed, to get their needs met from the site. The third subject was also frustrated, but did not outwardly display the same level of frustration as the first two subjects.

Next, we asked subjects to use the laptop however they wanted to search for food, and they all said that Yelp and Google were their “go to” food search tools.

Our in-context research confirmed what our survey respondents told us: Yelp and Google are popular tools this group of students use when looking for food.

### *Conclusion*

Based on the success of current university dining apps (secondary research), the request for an app by almost half of the students we surveyed, and the high level of dissatisfaction our in-context subjects expressed about the current UW dining web page, we think a mobile solution could be the most useful way to help students find what they want to eat on the UW campus. We also think that our in-context results support a redesign of the current UW dining pages on the UW website.

## **Learning Opportunities**

If we could do it over again, we would rephrase one of the survey answer options. The option was “search using phone or tablet.” We think that it’s more likely that all of the students who selected this option used a phone to search rather than a tablet. Separate options for phone and tablet would have given us a stronger confirmation of phone use.

We also forgot to have the in-context subjects use a cell phone when we asked them to find a place where we could go to eat on campus in about 10-20 minutes. Again, that test would have provided us with confirmation about search preferences (phone or laptop?) and given us information about preferred apps.

## III. Redefined Design Question & Design Requirements

### A. *Redefined Design Question*

Our initial design question (P1) was based on an international student's story about his obstacles using the campus cafeteria as an undergrad. At that time he hadn't feel confident about his English skills, so he never asked questions about his food options. Instead, he selected foods that he saw on posters in the college cafeteria.

From this story, we thought that there must be a way to help international students find the foods they wanted (and avoid the foods they didn't want based on preference and on dietary and/or spiritual guidelines). We identified a problem, and quickly formulated our design question:

**Design Question (P1):**

How do we help international students at the University of Washington get the food they want when they visit the school cafeteria?

However, as we began looking into dining on the UW campus, we learned that there is no school-run or centralized cafeteria. Instead, there are small cafes, restaurants, snack bars, and other dining establishments on campus run by UW-approved vendors.

We realized that our goal of helping international student find their favorites foods, or foods they missed from home, was a larger project than we could manage in just six or seven weeks.

With more thought, talking to a few international students, and after reading more about campus dining in online articles and research, we also realized that we'd made assumptions about what international student want to eat. We visited the UW dining web page, and were confounded by the lack of a search option. There was no way to quickly find what we wanted to eat based on hours of operation, type of food we wanted to eat, or location/proximity to our current location.

Seeking a project that could have a more realistic scope for our time constraints, as well as more relevance to our classmates (whom we would likely need as research subjects), we changed our research question to address a problem anyone on campus might experience:

**Design Question (P2):**

How might we help people at the University of Washington campus find places to eat on campus when they want to eat in 10-20 minutes?

## **B. Design Requirements**

We prioritized our design requirements based on what we learned from our research. First, we learned that when searching for a place to eat on the UW campus within 10-20 minutes, the most important factors to users are:

- Proximity to current location, hours of operation, type of food served.
- Healthy menu options are important, but less important than the first three factors when expediency is part of the equation. (e.g., finding something to eat in between classes.)
- Most users surveyed are looking for a place to eat between 5pm and after 11pm.
- Users wanted to find the information about dining options as quickly as possible.

Next, we looked at how our users prefer to look for dining options on the UW Campus:

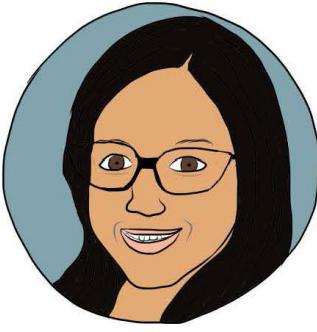
- Users perform searches with a mobile phone.
- Users are familiar with Google, Google Maps, and Yelp.
- Users would use a UW dining app if it helped them find what they wanted fast.

Based on this information our **design requirements** are:

- Provide a way for people to quickly access information about dining locations on the UW campus with their mobile phones: an app.
- A UW-Campus dedicated app, tentatively called “Hungry Huskies” should automatically show nearest open locations at any given time.
- App needs to have a simple, fast search option that provides the three most important factors listed above: proximity, hours of operation, type of food.
- App needs to be programmable to reflect individual’s priorities and preferences.
- App allows users to bookmark favorite locations.
- App needs to provide a walking route/map so user can quickly find location.
- App info should be sharable so people can meet at a location.
- Providing other services, such as nutrition information, directories, reviews.

## IV. Personas & Scenarios

Our primary personas are Amrita and Nathan, and our secondary persona is Murat.

Primary Persona


# Amrita

- 27 years old
- Moved to US from India 10 years ago
- Full-time graduate student
- Lives off-campus
- iPhone user, often tries new apps

**“Can I get healthy food  
RIGHT NOW?”**

**LIFESTYLE**

Amrita has returned to college, seeking a new career after several years in an unfulfilling job. She is new to the university, and hasn't quite figured out how to navigate the campus yet. As a graduate student she spends long days on campus, and often doesn't have the time to eat off-campus or head back to her apartment in a different part of town.

**GOALS**

Staying healthy is a big part of Amrita's daily life; she takes nutrition seriously. She'd rather take a longer walk to a café that offered salad and fruit than settle for a cheeseburger. She would like to find a convenient place on campus, but wants to know ahead of time what's on the menu so she doesn't waste her time walking to a place that doesn't have healthy options.

**PAIN POINTS**

Amrita would normally use Yelp or Google to find places off-campus, but can't pinpoint what she needs while on campus. She has used the university website to search for places to eat, but struggled with the decentralized nature of the information. She had to go from page to page to find hours, menus, and locations. Once she found a likely spot to eat, she could not easily locate it on the campus map or figure out how long it would take her to walk there.

### Scenario 1: Amrita

It's 8:45 pm on a Wednesday night, and Amrita is leaving her last class of the day. She's dreading riding the bus home on an empty stomach and then having to cook dinner when she gets home; she has at least two hours of homework tonight. She decides to eat on campus and catch a later bus so she can take time to eat a healthy dinner.

It's already dark, and Amrita doesn't feel safe wandering around campus or walking very far to find food. She stops in front of a building and pulls her iPhone out of her pocket. She types "where to eat U of WA seattle" into her Google search. The first couple of results (Yelp and Zomato) list restaurants near the UW but not on campus. The fifth search result is the UW Housing and Food Services website.

Amrita clicks on the site, but isn't sure what to do on the site. She finally decides to click on "hours of operation," which yields a list of 38 restaurants. She has to scan the entire list top to bottom to find one that is open NOW, but can't find out where any of the restaurants are located or how close they are to her current location. None of the restaurants have clickable links! She hits the back button to return to the main dining page. She clicks on "locations." Again, she gets a long list of restaurants, but needs to click on each one individually to learn about it. From each restaurant page she has to click another link to find out hours of operation, then hit the back button to return to the restaurant page to click on another link to look at a menu.

Feeling very frustrated and anxious because it's now after 9:15 pm, Amrita asks a passerby on campus where she might find food. She learns there is a café in the next building. She rushes there and purchases a bagel, a bag of chips and a brownie. Sitting on the bus on her way home, Amrita feels guilty about eating junk food when she wanted a salad.

Primary Persona

# Nathan



- 42 years old  
Part-time graduate student/Full-time job
- Lives off-campus
- Married with two young children
- Android user, uses many apps, likes to customize his mobile experience

**“What’s closest to my current location?”**

## LIFESTYLE

Nathan is attending night classes after working all day at his full-time job. He travels 30 minutes from work to campus at least once a week, sometimes more. When he arrives on campus he usually has very little time to find a bite before class. Sometimes he brings food with him, but on those occasions when he needs to get something to eat on campus he never knows what’s available near his classroom or near the library where he does most of his research.

## GOALS

Nathan is generally in a hurry when he’s not in class. He wants to manage his time on campus so he won’t be late to class or waste time after class so he can get back to his family. He’s a conscientious person, and wants to be able to eat in class without disturbing others.

## PAIN POINTS

Nathan eats on campus irregularly, so he doesn’t have a good picture of where restaurants are located. He frequents only a couple of locations on campus, and can’t be bothered to walk long distances or scout the campus for places that might be open. Nathan uses Yelp when off-campus, but for on-campus options Yelp is letting him down.

## Scenario 2: Nathan

As usual, Nathan’s never sure if he will arrive on campus in time to grab a bite to eat before his evening class starts so his drive is a bit tense. Tonight he’s happy when he arrives with fifteen minutes to spare. Luckily, he runs into a classmate carrying a sandwich and a bottle of juice. His classmate points him in the direction of the café, and Nathan dashes off to find his dinner.

While he waits in line, he searches Yelp for “food UW campus.” He finds a few pins on the campus map, but when he clicks on the pins, they’re all Academic buildings. He doesn’t know what that means. His food is ready, so he puts away his phone and rushes to class. He’s fairly satisfied with his sandwich, but wishes he could find fresh fruit and other low-fat foods close to his classroom. He tells himself he’ll

research campus food options and view the campus food map on his computer when he gets home, but he forgets.

Secondary Persona

**Murat**



- 19 years old
- Full-time undergrad student
- Lives on-campus
- iPhone user, installs and uses many apps, lives on his phone

"I just want to have pizza with my friends!"

**LIFESTYLE**

Murat is living the university life to the fullest. He spends most of his time on campus, studying, participating in his fraternity activities, and sharing good times with his friends late into the night. He loves pizza, which has become his go-to meal. Murat is used to being able to share his whereabouts and activities with his friends via his mobile device, and could not imagine a world where he was out of touch with his social circle.

**GOALS**

Murat never knows where he's going to be, or when he may want to get his pizza fix. He needs to know what's open now, and whether or not there will be pizza. No pizza, no Murat. Murat wants to feel close to his new college friends, and always wants to gather people for socializing.

**PAIN POINTS**

Murat does almost all of his web activities on his mobile device, and finds the UW website poorly formatted for mobile viewing. It's too hard to find the information that he wants quickly. He uses Google and Yelp for searches, but the results are too broad for him when he just wants to find options on campus.

### **Scenario 3: Murat**

It's 9:30pm, and Murat is studying at the library. He needs to take a study break; he's getting hungry. He texts two friends to meet him for pizza, but they are on the other side of campus. They all want pizza, but aren't sure how to find a meeting place since they're all freshmen and don't know their way around campus yet.

Murat texts that he'll find a place and text back. He uses his Yelp app on his iPhone, and types in "pizza UW campus." He sees that there are a few pins for pizza restaurants in the large area on the map that represents the UW, but it takes him several minutes to click through all of them and realize that only one

of them is on campus. He tries to use the “get directions” option, but it’s hard to expand the map on the small screen of his iPhone.

Murat texts his friends that the restaurant is near the Husky Union Building, and suggests they all find it on their own and meet there soon. He asks a group of people standing outside of the library how to find the Union Building. Twenty-five minutes later, they have all arrived and order their pizza. Murat realizes it’s now 10:45pm, and he needs to get back to the library. He hadn’t intended on taking such a long study break.

## Appendix

### I/Stakeholders

- UW students: any student who wants to know where to find food on campus.
- UW staff and faculty: any staff or faculty member who want to know where to find food on campus.
- UW dining administration wants to know: what students want to eat and when, how to meet state or other applicable laws regarding food service.
- UW dining vendors want to know what students want to eat and when, where they will be located on campus, how they will be part of the dining pass system.
- UW webmaster wants to know how to design the pages for the dining section of the website. What to include, what not to include.
- UW dining webmaster wants to know what is important to include on dining web page. How much detail to provide.
- Parents of UW students want to know what is available for their kids. They also want to know what and where they can eat when they visit.
- UW admissions officers want to know about dining options so they can talk about them to prospective students.

### II/Secondary research: summary, notes, additional resources

#### A/Summary

#### **SWOT Analysis of secondary research**

In reviewing secondary research, we categorized articles and research studies into four categories. We also defined/adapted the categories to help us customize the SWOT method:

1. **Strength:** data that aligns with our hypothesis.
2. **Weaknesses:** data that makes us refine our hypothesis or represents an area that requires more study.
3. **Opportunities:** data we can use to gain new insights and data that relates to our hypothesis.
4. **Threat:** data that strongly suggests our hypothesis isn't valid or data suggesting that our hypothesis might not be successful at certain universities.

**In general, a quick search for relevant information yielded articles that support our design idea, mainly:**

- Cell phones are increasingly the primary search (and purchase) tool used by college students.
- Students enjoy using dining apps to find out what's on the menu, hours of operation, location, and nutritional information.
- Students want to eat healthy, but time is a real obstacle (they want food fast, and don't want to wait in line).

### **Strength**

- Articles that cover university dining apps
- Articles containing research about dining apps
- Research on college dining habits and students' needs and motivations
- Research on increasing use of apps
- Articles about nutritional and allergy labeling
- Websites that describe features of dining apps at other universities

### **Weaknesses**

- Cost more to eat health foods
- Study: students not eating servings of fruits and veg

### **Opportunities**

- Some dining apps are part of overall university apps
- Research on students' wants/needs in college dining
- Buying behaviors
- Making purchases on campus with phones
- Student satisfaction research

### **Threats**

- Systems where students have no input

### **B/Notes**

#### **RESEARCH METHOD: SECONDARY RESEARCH Notes**

- List of links to articles and surveys about campus dining, universities and colleges with dining apps, research on dining apps, and more.
- From this list, we downloaded 24 PDF documents, which are not included in the appendix.
- Categorized list of web links below to highlight research by Strength, Weakness, Opportunities, Threats

## STRENGTH

### 1. From a food service trade publication

<http://www.foodservicedirector.com/ideas-innovation/emerging-trends/articles/mobile-apps-taking-bigger-role-promoting-college-dining>

It's no secret mobile devices are playing an increasingly pervasive role in the lives of most Americans—none more so than in the lives of college students, where four out of 10 own a tablet and as many as 75% own a smartphone, according to a 2013 **survey** conducted by education services provider Pearson.

-“Aggie Dish” - University of California, Davis

“Focus groups were the start of understanding the need of why we needed a mobile app,” Boushka says. “What really stood out for me was the high number of people that were going to our static website from a mobile device—the number was so high that it validated that people were accessing our menus from a mobile device regularly—so with that substantiated we saw the need to offer this [app] as a solution.”

“[Students] really just want to know what’s on the menu, is it a healthy option and the daily deals,” Boushka says. “They want to know that core information and they want to know it pretty quickly.”

-UGA Food Service Mobile – University of Georgia

Much like UC Davis, the mobile web application developed for the University of Georgia Food Services was borne out of student demands for easily accessible information about campus dining options.

Since its launch in February 2012, UGA’s mobile app has received an average of between 20,000 and 25,000 hits per month.

“Students can see when a dining hall is 60% full or 80% full and then decide whether they want to be where everyone else is or try to grab a quick lunch somewhere else,” Harper says. “That feature has been very popular.”

## STRENGTH & OPPORTUNITIES

### 2. From a college - you can get info like how crowded the cafeteria is, and a couple other college examples of apps

-U of Georgia Mobile App Features

[http://eits.uga.edu/web\\_and\\_applications/mobileapps/](http://eits.uga.edu/web_and_applications/mobileapps/)

-Boston University app  
<http://www.bu.edu/today/2014/whats-for-dinner/>

Article includes features of new app

BU Food's "Search" feature allows students to narrow their options to their preferences and dietary needs.

BU Food, an app that was released in the iTunes store at the beginning of September, is the brainchild of Santiago Beltran (ENG'17) and Darryl L. Johnson (ENG'17).

"It's all about accessibility, so we worked on making sure that the information is delivered in a context that's friendly for mobile users."

But, the app does far more than tell users what is available in dining halls. Unlike the Dining Services website, BU Food has a sophisticated search feature that allows students to find specific dishes and navigate menus based on specific dietary needs.

students can explore what's available for breakfast, lunch, and dinner at the touch of a button.

BU Food has about 1,200 users, but the number is growing rapidly as more students hear about the app. Users are particularly happy with

<http://www.cmu.edu/dining/news/2014/october/nutrition-app.html>

Nutrition info of this app

<http://www.uwstout.edu/DINING/>

Dining page of website, mentions app, you can download app

[http://www.lsu.edu/departments/gold/2013/02/dining\\_app.shtml](http://www.lsu.edu/departments/gold/2013/02/dining_app.shtml)

Redesign website, new app. Apps more important for delivery. App features.

The upgrade began in the summer of 2012 with the launch of LSU Dining's redesigned website. Samuels said changes were made so that the site could adopt a format more favorable to hosting new detailed nutritional information for the items offered in its various locations. This data is made available through the Webtrition menu management online database.

"With this shift, an app has become an even more effective way of getting a message across," he said. "This is LSU Dining's way of staying ahead of the curve."

"Someone unfamiliar with the campus that has no idea where these locations are or what they look like can use the map feature not only to see directions, but can also see a visual of the facility's

exterior," Samuels said.

Another feature of the app allows users to provide feedback on their dining experiences. Through a rating system, guests can provide their opinions on topics including menu variety and quality, promotional items offered, experience with staff and management and facility appearance and atmosphere.

[https://apps.carleton.edu/campus/dining\\_services/menus/](https://apps.carleton.edu/campus/dining_services/menus/)  
Menus at 4 dining halls, stickers designate special foods, food allergy.

[https://www.reddit.com/r/UCSC/comments/368092/made\\_a\\_new\\_android\\_app\\_for\\_viewing\\_dining\\_hall/](https://www.reddit.com/r/UCSC/comments/368092/made_a_new_android_app_for_viewing_dining_hall/)

UC Santa Cruz, android app, view on Github

## STRENGTH & OPPORTUNITIES

### 3. An article about apps that has sources from articles/studies

<http://www.quantifize.com/?p=5198>

Quant info about apps

- A study from Baylor University found that students “are spending close to half their waking hours on their smart phones.” (Source: [SFGate.com](#))
- “75% of consumers are likely to try a new menu item after seeing a mobile ad.” (Source: [Q4 2013 JiWire Mobile Insights Audience Report](#))
- A 2014 Harris Poll survey found that 83% of college students use smart phones on a regular basis, up from 72% in 2013. (Source: [InsideHigherEd.com](#))

A 2013 study estimated that mobile device usage surpassed laptop and desktop usage for the first time that year. (Source: [Emarketer.com](#))

As we know first-hand, building a mobile interface that students will actually use every day is not easy. It requires careful research and in-depth understanding of how students look for information on their phones

”The value of mobile devices lies in their ability to deliver instant real-time information. Our research has consistently found that [students value convenience more than any other factor](#) when buying food on campus. What does this mean for a mobile app? There are a number of common features that have been shown to increase student engagement and influence purchasing behavior. Mainly, students want to know what’s open and what’s on the menu.”

Mainly, students want to know [what’s open and what’s on the menu](#). Also, at this time of year when classes are canceled due to bad weather, students want to know [which dining locations are still open](#)

and which ones will be operating on limited hours. Students also like to be able to **view nutritional info**, especially if they have food sensitivities to ingredients like soy and gluten.

The key is to focus on providing the right information, at the right time, in a way that is easy for students to access from their phones.

## **STRENGTH & OPPORTUNITIES**

### **4. Compare apps with similar-sized and ranked universities, like U of MI, U of IL, Penn State**

U of MI app

<http://mobileapps.its.umich.edu/um-apps>

dining is part of UofMI app, android and iphone, nutrition, allergy,

<https://www.michigandaily.com/news/university-adds-nutrition-information-app>

In December, the University of Michigan application added nutrition facts for the food served at University dining halls. Now, students can access information about food allergens of individual items through the dining section of the app.

the new app function had been in development for a few years before coming to fruition.

<http://www.housing.illinois.edu/news/apps>

U Dining App

- What time will dinner be served? What's on the menu?
- What locations are open right now? How can I get there from here?
- Which menu items are vegan?
- Also find the nutrition and allergen information for menu items.
- <https://www.appannie.com/apps/ios/app/ui-dining-university-illinois/>

<http://news.psu.edu/story/294899/2013/11/12/campus-life/diningpsu-app-now-available-android-users>

App features: news, map, hours, menu, foods/nutrition

<http://www.niu.edu/housing/> - Website similar to UW

## **STRENGTH & OPPORTUNITIES**

### **5. Students at Villanova did a project on dining apps -- this gives us a research question we hadn't considered — and other student-produced apps**

## STUDY --

<http://www.villanova.edu/forms/assets/documents/engineering/vsec/2-MobileOrderingVillanovaDiningServices.pdf>

- Based on a survey of nearly 500 Villanova students, 77.6% of students said that they were dissatisfied with waiting times at on campus dining locations.
- 1. Pre-order their food items
- 2. Schedule a designated pickup time
- 3. Avoid long lines during peak lunch-time hours
- Moreover, in the fall of 2012, 67.0% of college students were smartphone users and this number is projected to increase to 85.6% in the fall of 2015. We believe that this expanding market will accelerate the growth potential for mobile food ordering apps on college campuses
- Companies such as Seamless, Grubhub, and Tapingo provide mobile food ordering apps to the restaurant industry. However, no university dining services offer this technology to their students. We believe that this is a segment of the food ordering market that is untapped and has high potential for profit.

<http://uknow.uky.edu/content/students-develop-uk-dining-app>

The app provides the nutrition information for most of the menu items in campus dining halls including calories, fat, protein, carbohydrates, vitamins and minerals. In addition, each user can put their personal health information, such as height, weight, age, gender and physical activity level into the app. It will then calculate body mass index and daily caloric needs. As students eat foods at UK Dining Services, they can select the menu item on the app and a line at the bottom of the screen, representing their daily caloric intake, will begin to fill up.

<http://www.campustimes.org/2015/04/23/ur-students-create-dining-app/>

- students created
- offers daily, up-to-date information about dining halls and a ratings feature for giving feedback
- owned by company students started
- push notifications, dining hall hours, daily nutritional information for each item, and a comments section. The app also allows users to rate menu items at
- using consumer feedback and to “build off the menu to make [it] what students want.”
- a query filter system
- info on their process

## OPPORTUNITIES

### 6. Another trade publication talking about trends in university dining

<http://www.universitybusiness.com/article/hungry-hurried-campus>

- 82 percent said they would eat healthier if time were not an issue
- To meet the growing demand for portable, fresh food, campus dining teams are coming up with creative ways to feed their populations high-quality mobile meals on campus.
- The deli-to-go is located just outside the dining hall. Students use digital menus at a kiosk to order sandwiches to go—all without ever having to enter the dining hall. This service can be paid through the meal exchange from their dining plan, or with Husky Dollars on their Husky Card
- UAB is slowly rolling out Tapingo as its main food-ordering app for both on- and off-campus vendors.
- Other schools are taking advantage of the convenience mobile apps offer. SCAD uses Zingle so students can order pizzas ahead of time for pick up, and Northeastern plans to roll out Tapingo within the next six months.
- Loyola also caters to students' dietary requirements. "At each major dining location on either side of campus, we have allergen stations where we provide dairy-free, nut-free, vegetarian and gluten-free options

<http://globenewswire.com/news-release/2012/09/20/491721/10005703/en/Chartwells-Higher-Education-Dining-Services-App-On-Campus-Brings-Menus-Specials-and-Events-to-Students-Smartphones.html>

## **STRENGTH**

- Chartwells Higher Education Dining Services has released its customizable smartphone app with tailored options capable of matching each unique college or university brand identity. Released to selected markets, the app provides dining menus with detailed nutritional information, specials and events for college students dining on campuses managed by Chartwells. - See more at: <http://globenewswire.com/news-release/2012/09/20/491721/10005703/en/Chartwells-Higher-Education-Dining-Services-App-On-Campus-Brings-Menus-Specials-and-Events-to-Students-Smartphones.html#sthash.ee9PaTTi.dpuf>

- App On Campus provides users with a map of all dining facilities on campus which identifies the locations, addresses and hours of operation for every dining outlet. A unique feature includes a searchable calendar which allows students to select a specific date to view menu items. Students can also learn about promotions, events and special meals, including those that are made without gluten, sustainably sourced, vegan, vegetarian or balanced. - See more at: <http://globenewswire.com/news-release/2012/09/20/491721/10005703/en/Chartwells-Higher-Education-Dining-Services-App-On-Campus-Brings-Menus-Specials-and-Events-to-Students-Smartphones.html#sthash.ee9PaTTi.dpuf>

<http://www.theutcecho.com/?p=3922>

- “The Campus Dish App allows our Crossroads customers to see all of our menu offerings and nutritional information from their mobile devices,” Corcoran said.

–When a user pays five dollars or more at participating locations, you earn a reward point, Corcoran said. Payment methods do not restrict earning these points, so whether students pay with cash, credit, debit or even campus points, they will receive a reward point as long as they spend five dollars or more.

–“We knew what students want, which is to make life easier and save some cash,”

<http://food-management.com/news-trends/5-things-app-threatens-college-dining-students-protest-indiana-and-very-special-bday>

#### -U of Oregon

AT A GROWING NUMBER of colleges and universities, students just have to do a little tapping and swiping on their smartphones or tablets to get the day’s menus, dining venue operating hours, nutritional information, even how crowded the eateries are. “This is something students have really been asking for,” said Tom Driscoll, director of food services for University Housing at the University of Oregon when his department debuted its iNutrition application last year. ...

[http://www.nacubo.org/Business\\_Officer\\_Magazine/Magazine\\_Archives/Sept\\_2015/Upping\\_the\\_App.html](http://www.nacubo.org/Business_Officer_Magazine/Magazine_Archives/Sept_2015/Upping_the_App.html)

#### --phones for more than apps, buying stuff

While the typical student ID card provides cashless ordering and payment solutions for most purchases on campus, the mobile app goes a step beyond. Among the most recent entrants in campus e-commerce are flexible and full-service platforms that facilitate activity in certain niches of student life, particularly auxiliary services.

### **STRENGTH & OPPORTUNITIES**

#### **7. Washington State Univ has an app**

<http://dining.wsu.edu/order-online/>

-download app, dining part of overall app

#### **8. UW 6th in food services**

<https://www.hfs.washington.edu/#gsc.tab=0>

<https://www.hfs.washington.edu/dining/awards/#gsc.tab=0>

### **WEAKNESS**

#### **9. Do apps promote unhealthy foods?**

<http://www.dailytexanonline.com/2015/09/24/popular-dining-apps-promote-unhealthy-eating-habits>

Nearly one in four freshmen gain an average of 10 pounds during their first semester at college.

—Data from a recent infographic suggests it may have to do with the fact that 40 percent of people would like to pay for quick-service meals via their mobile devices, and restaurant entrepreneurs are taking notice.

—Hooked and Favor are the go-to food purchasing apps.

## **10. Ranked apps**

<http://appcrawlr.com/iphone-apps/best-apps-dining-locations?q=dining+locations&deviceSeo=android&prefix=top-apps&price=&device=android&max=12&offset=12>

## **STRENGTH & OPPORTUNITIES**

### **11. Studies on mobile dining apps on campus, cites Baylor U study. Also info on students feelings about on campus food options**

-<https://www.linkedin.com/pulse/why-mobile-apps-critical-campus-dining-adam-o-donnell>

—Yum.Buzz, our new plug-and-play mobile platform designed specifically for the college dining industry.

<http://reslife.net/marketing-via-technology-use-of-social-media-and-apps-at-the-university-of-florida/>

—Dining hours and options

[http://scholarworks.umass.edu/cgi/viewcontent.cgi?article=1172&context=gradconf\\_hospitality](http://scholarworks.umass.edu/cgi/viewcontent.cgi?article=1172&context=gradconf_hospitality)

<http://collegeservices.nacas.org/university-dining-as-a-third-place-experience-the-next-big-thing-2/>

— On-campus research includes interviews, focus groups, and campus surveys to understand the buying behaviors and satisfaction for the food service locations and the meal plans.

For Cal Poly San Luis Obispo, the trend analysis allows us to realize a clear and completely customized story to rebrand, update, reshape, and reinvent. We form the strategic plan with both quantitative and qualitative analytics to process and understand where the gaps are and, then we start to build concepts that address these gaps.

## **WEAKNESSES**

<http://college.usatoday.com/2012/07/13/food-for-thought-the-challenge-of-healthy-eating-on-campus/>

- In fact, many students aren't even eating one serving of fruits or vegetables in a day,

according to a study of student eating habits published in the Journal of Nutrition Education and Behavior last August.

- New York (CUNY), for example, where promoting healthy eating has become a major priority in recent years. [The Healthy CUNY Initiative](#), which aims to transform CUNY into the healthiest urban university in America by 2016, introduced the [Campaign for Healthy Food \(CUNY CHeF\)](#) in 2011. The campaign, with the

[https://shareok.org/bitstream/handle/11244/9691/Lee\\_okstate\\_0664M\\_1047.pdf?sequence=1](https://shareok.org/bitstream/handle/11244/9691/Lee_okstate_0664M_1047.pdf?sequence=1) - master's thesis on food service/dining experience in college

<http://www.xula.edu/planningir/documents/Dining%20Services%20Satisfaction%20Survey.pdf> – survey on student satisfaction

[http://www.uconnruddcenter.org/resources/upload/docs/what/policy/StudentPerceptionsNutritionLabeling\\_HEJ\\_4.13.pdf](http://www.uconnruddcenter.org/resources/upload/docs/what/policy/StudentPerceptionsNutritionLabeling_HEJ_4.13.pdf)

[https://www.researchgate.net/publication/258296476\\_Increasing\\_Efficiency\\_of\\_Large\\_University\\_Dining\\_Hall\\_Usage](https://www.researchgate.net/publication/258296476_Increasing_Efficiency_of_Large_University_Dining_Hall_Usage) – study

<http://www.ucdmc.ucdavis.edu/publish/news/newsroom/5673>

–A new national study of eating out and income shows that fast-food dining becomes more common as earnings increase from low to middle incomes, weakening the popular notion that fast food should be blamed for higher rates of obesity among the poor

<http://cornellcals.tumblr.com/post/120041298811/new-research-shows-dining-hall-food-labels-nudge> –Cornell study on calories and nutrition info

<https://books.google.com/books?id=D-5GX0PqArcC&pg=PA5&lpg=PA5&dq=research+university+dining&source=bl&ots=AYgEJe->

[LiR&sig=lxXs\\_bOKv0WniCw9Ru6jq1Aquk0&hl=en&sa=X&ved=0CFEQ6AEwCDiqAWoVChMI97LUG-](https://books.google.com/books?id=D-5GX0PqArcC&pg=PA5&lpg=PA5&dq=research+university+dining&source=bl&ots=AYgEJe-)

[DayAIVRD6ICh0GrgCl#v=onepage&q=research%20university%20dining&f=false](https://books.google.com/books?id=D-5GX0PqArcC&pg=PA5&lpg=PA5&dq=research+university+dining&source=bl&ots=AYgEJe-)

–study about eating healthy at college

<http://vuir.vu.edu.au/25137/>

<http://tjsquires.net/wp-content/uploads/2015/02/research-proposal-summary.pdf>

<https://www2.indstate.edu/news/news.php?newsid=4186>–cross-cultural research on dining

<https://www.questia.com/magazine/1G1-375184549/hungry-but-hurried-how-college-and-university-dining>

–In 2010, when Adriana Marie Reyes of The University of Arizona surveyed 219 undergraduate students for her honors thesis on what influences college students' eating habits, 82 percent said they would eat healthier if time were not an issue.

### **Info relating to some STAKEHOLDERS**

#### **1. Food Services for UW**

<https://www.hfs.washington.edu/abouthfs/?id=3575#gsc.tab=0>

#### **2. Nutritional Info for UW menus and pilot study about labeling**

<https://www.hfs.washington.edu/dining/Default.aspx?id=1074#gsc.tab=0>

#### **3. wa state laws**

<http://apps.leg.wa.gov/wac/default.aspx?cite=516-56&full=true>

### **C/Resources**

<http://www.washington.edu/omad/files/2015/02/2015-01-09-UW-State-of-Diversity.pdf>

## III/Survey: survey and summary

### A/Hungry Huskies Survey

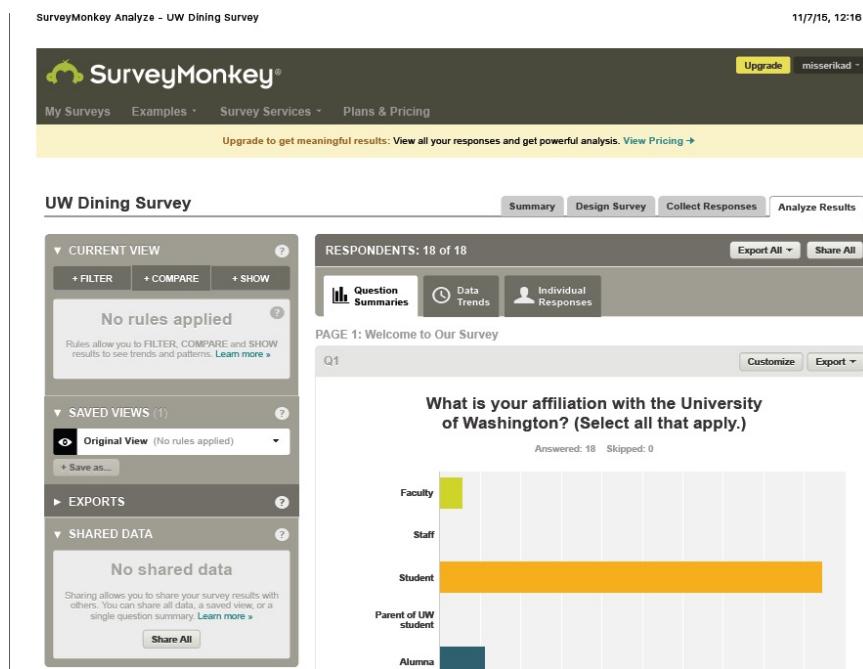
We have included an image of the first page of our survey here, with links to a viewable online PDF and a downloadable PDF.

Please use this link to view full survey (includes survey and responses):

<https://github.com/aageek/518B/blob/master/HungryHuskiesSurvey.pdf>

If you prefer to download the survey, you can use this link:

<https://github.com/aageek/518B/raw/master/HungryHuskiesSurvey.pdf>



### B/Analysis of Survey

We looked for the most popular answers for each question to see if we could establish any patterns of behavior or preferences for options. We focused on “search” since that is the activity people need to perform in some way to find a place to eat.

#### **Search: Yelp and Google/Google Maps are popular search engines**

In general, we found that most respondents didn't use the UW Dining web page when searching for food on campus. We don't know if that's because they don't know about it, don't find it useful, or prefer searching a phone app. When searching for food off campus, Yelp was, by far, the most popular search method. When searching for food on campus, only one respondent mentioned

Yelp and Google Maps, and when searching for off-campus options one respondent mentioned Google maps. This difference could be due to the fact that Yelp was an option on the off-campus questions and Yelp was a write-in in the “other” option for on-campus dining searches.

### ***Search: mobile phone is the tool of choice***

All respondents who searched used a phone or tablet, per the wording of the survey. We assume that all of these respondents actually used a phone since it's smaller and more portable. It's also more likely that a student would bring a phone and laptop to class rather than a tablet.

### ***Search: method changed when respondents wanted to eat in 10-20 minutes.***

37% of respondents used a phone or tablet to search for a place to eat on campus, and when we specified a time limit, that percentage rose to 42% (with another 16% searching the UW website). “Ask someone” remained a top option, more than one-third of surveyed, no matter what the time limit was or if the search objects were on- or off-campus.

### ***Solution: a dedicated dining app!***

Out of 18 respondents, eight suggested an app would help them find dining options that fit their needs.

### **Summary of most popular responses**

- Q1. 95% of respondents are students at UW
- Q2. 47% of respondents ate on the UW Campus 1-4 times a year  
26% of respondents eat on the UW Campus 1-4 times a month  
11% of respondents eat on the UW Campus 5-9 times a month
- Q3. 84% of respondents who eat on the UW Campus do so between 5-8pm  
42% of respondents who eat on the UW Campus do so between 8-11pm  
26% of respondents who eat on the UW Campus do so between 11:30am-2pm
- Q4. The top three methods respondents use to find a place to eat on campus are:  
1. Walk around until you find something(47%),  
2. Ask someone (42%),  
3. Search via phone or tablet (37%). Of the people who check “other” (47%), three go to the Hub, one eats off campus, one uses Yelp and Google Map, one eats with a friend, one eats near her/his class, one goes somewhere she/he already knows.
- Q5. 68% of respondents asked help the first time they ate on campus.  
37% walked around until they found something.  
32% performed a web search via phone or tablet.

- Q6. Didn't end up providing relevant or useful answers, other than to give us the names of a few on-campus and off-campus dining options.
- Q7. 42% of respondents used a phone or table to search the web when they wanted to eat within 10-20 min.  
26% of respondents walked around to find a location within 10-20 min.  
(only 11% checked the UW dining website, 5% checked the UW dining map)
- Q8. 63% of respondents use a phone or table to search the web for off-campus restaurants when they want to dine in 10-20 minutes.  
58% used Yelp to find an off-campus restaurant to dine at in 10-20 minutes.  
37% ask someone
- Q9. Top four factors when selecting a restaurant at which respondent wishes to eat within 15 minutes:  
89% type of food  
89% hours of operation  
89% proximity to current location  
58% affordable prices
- Q10. What respondents say would help them find on-campus dining locations in the moment include:  
8 said an app  
1 said faster WiFi  
2 said signs  
1 said Google Maps  
1 said website with menus and locations

## Analysis

We feel that the survey supported our original hypothesis: a mobile solution would better serve people seeking dining options on the UW campus than the current website.

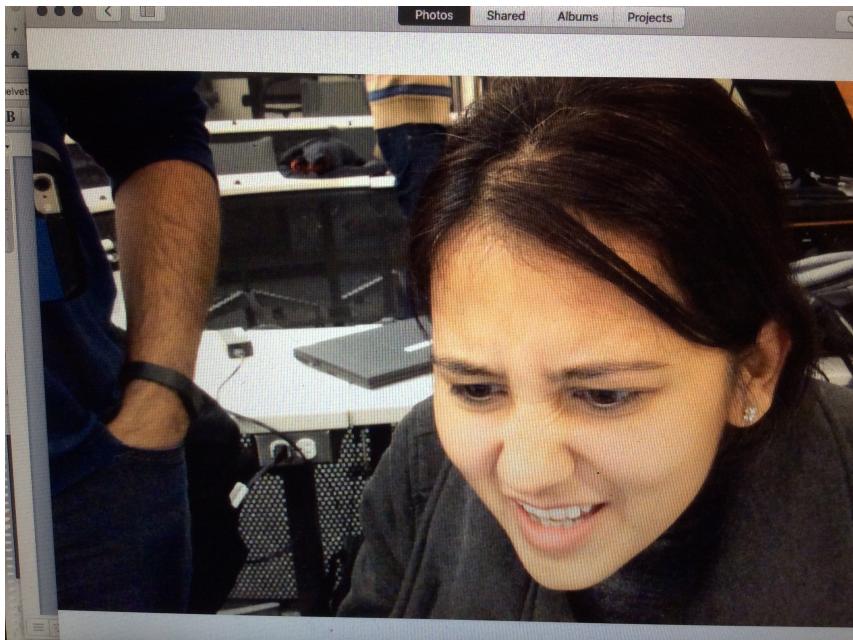
Our survey was taken by classmates, night students who are likely less familiar with the campus than full-time undergrad students. Had we tested incoming freshmen rather than graduate students who take night classes we might have had very different results.

However, for such a small survey and small number of respondents, we learned that more than one-third of students used their phones to perform searches, almost half of students said an app would help them find the dining options they wanted in a open-ended question, and when students want to find food quickly, the most important factors of a restaurant are: proximity, type of food, and hours of operation.

## IV/In Context Observation and Interviews: summaries with images

### A/ In-Context Interview Summary: Subject One

This subject is a graduate student at the University of Washington.



**Step1:** The interviewer asked her to find food at the current time using the [University of Washington website](#), which was opened for her to the home page. She began at the Campuses menu and navigated to the Seattle website. She read the various links as she scanned the page, expressing her frustration at the number of links. She then tried the site search function, using “food” as her search term. Her results were not specific to the Seattle campus, which appeared to confuse and irritate her. She found and clicked a link in the search results for “Food Services” which again gave her many results from which she was unable to discern which one she wanted. The interviewer then guided her to the Seattle campus [dining website](#) and asked to find something open at the current time. She then found the hours for all the dining options on the Seattle campus.

When asked about her experience she said she “...would have given up,” and that she “...wanted consolidated information,” that included locations and hours.

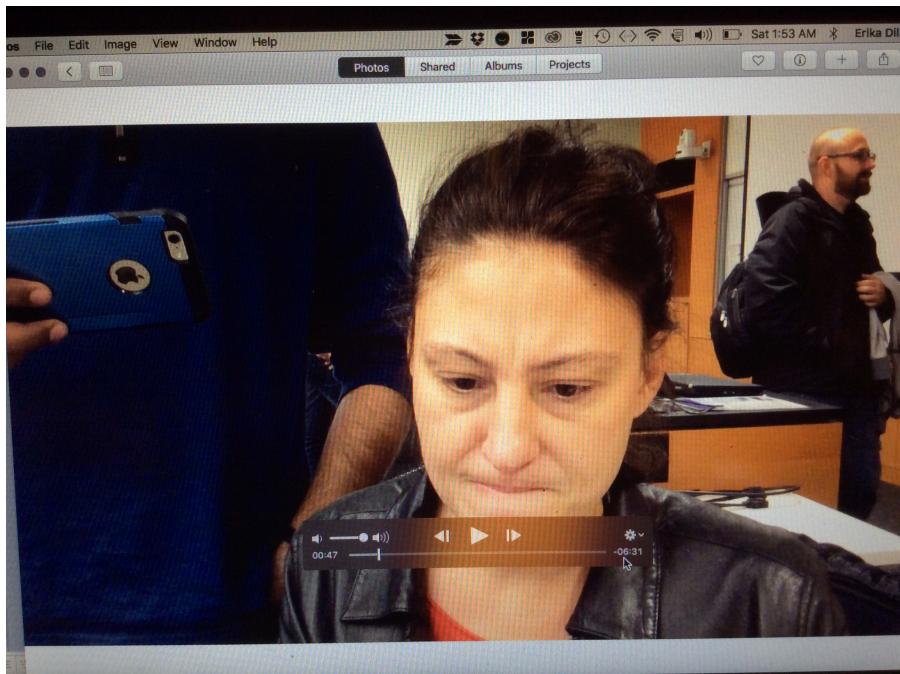
**Step 2:** When asked to use any tool to find dining information she used Google and found information about locations and hours immediately, saying, “This is what I do, first thing.” The interviewer asked if it would be useful to be able to locate dining options that are close by and she said that it would be useful to know what is close by.

## Key Takeaways

- The subject expressed frustration with the current site and was unable to find the information
- The subject preferred to use an external tool (Google)

## B/In-Context Observations and Interview Summary: Subject Two

This subject is a graduate student at the University of Washington. She described herself as somewhat knowledgeable with UW web interfaces.



**Step 1:** When asked to locate currently open dining options using the existing University of Washington [website](#) she first navigated towards search options provide on the campus webpage. She found search results were not valuable at all for her. She navigated through various links in the main navigation on the webpage with no success. She also tried Popular links. She mentioned map in her activity but never followed-up on that.

At this point she mentioned her experience with Web page is quite frustration. We offered help to an extent to see if that helps; we started at Campus Map and in few clicks she was able to complete task. Overall, she expressed frustration with the process of locating dining options with the existing UW websites. Her observations included:

- The overall structure makes it confusing
- Too many options with wrong categorization.
- She was looking for food under Student Services.

**Step 2:** When we gave Subject One the option of using his own search method, she expressed a preference for other methods for locating food, notably a web search (Google). She mentioned Yelp and Google as first choice for this task.

## C/In-Context Observations and Interview Summary: Subject Three

This subject is a post-graduate student at the University of Washington. He described himself as very fluent with web interfaces.



**Step 1:** When asked to locate currently open dining options using the existing University of Washington [website](#) he first navigated to the [Seattle campus page](#) via the Campuses link. He then located the Dining link and navigated to the [Dining page](#), saying “I’m assuming [on] that page that they’d have my options...it looks like they don’t have all the options...they just have some deals.” Next he navigated to the [Locations page](#) where he observed that he couldn’t tell what kind of food the listed locations serve. He proceeded to the [Hours page](#), finding several options that were open at that time.

Overall, Subject Three expressed dissatisfaction with the process of locating dining options with the existing UW websites. His observations included:

- The overall structure make it hard to find what you need
- Many options on UW site and none looked at first glance like they were the right thing
- Didn’t see information he expected on the dining page
  - “I’m assuming [on] that page that they’ve have my options...it looks like they don’t have all the options...they just have some deals.”
  - “I don’t know what kind of food it is”

**Step 2:** When we gave Subject Three the option of using his own search method, he expressed a preference for other methods for locating food, notably Google and Yelp.

- Bypasses searching the UW site by using Google and specifying “University of Washington” in his search and gets better results, “...it’s a unified search interface compared to using various sites.”

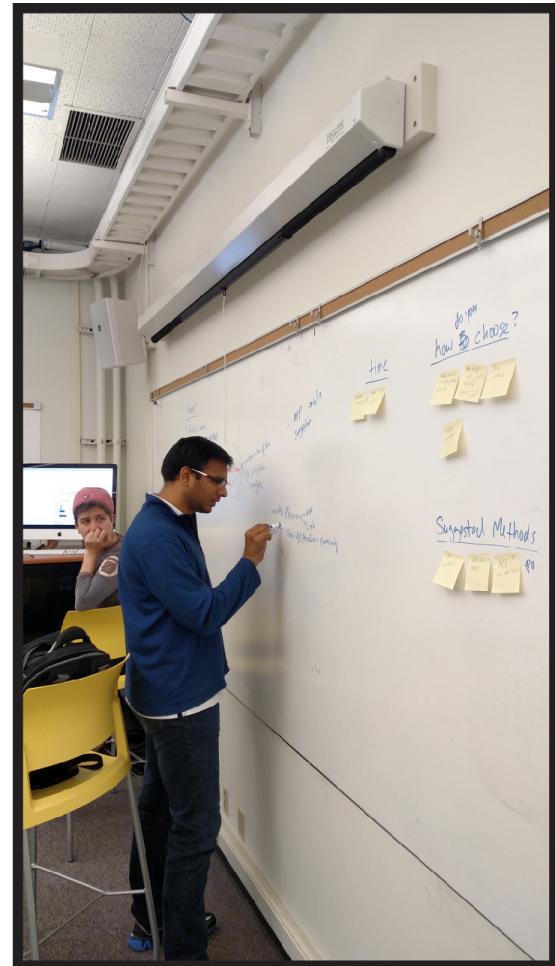
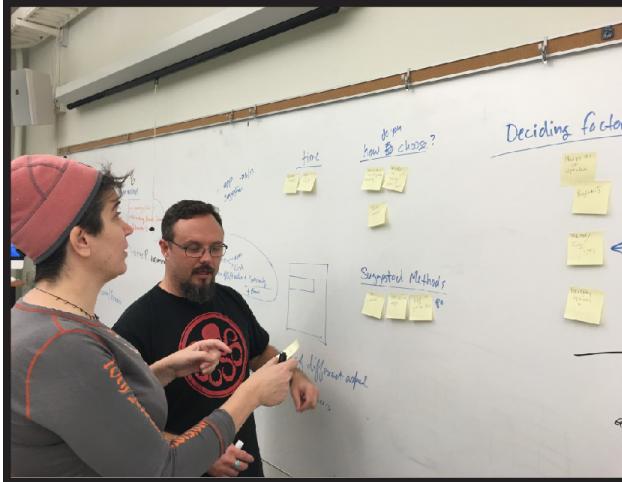
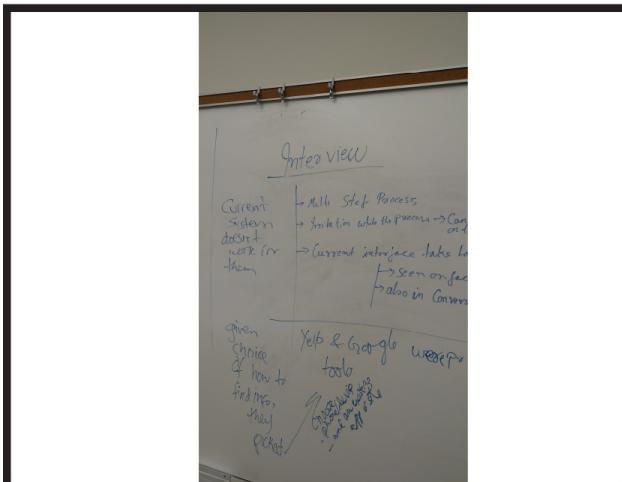
**D/Observation of (presumed) undergraduate students shopping at District Market, 2 blocks from campus and next to several dorms, at 9:00pm.**

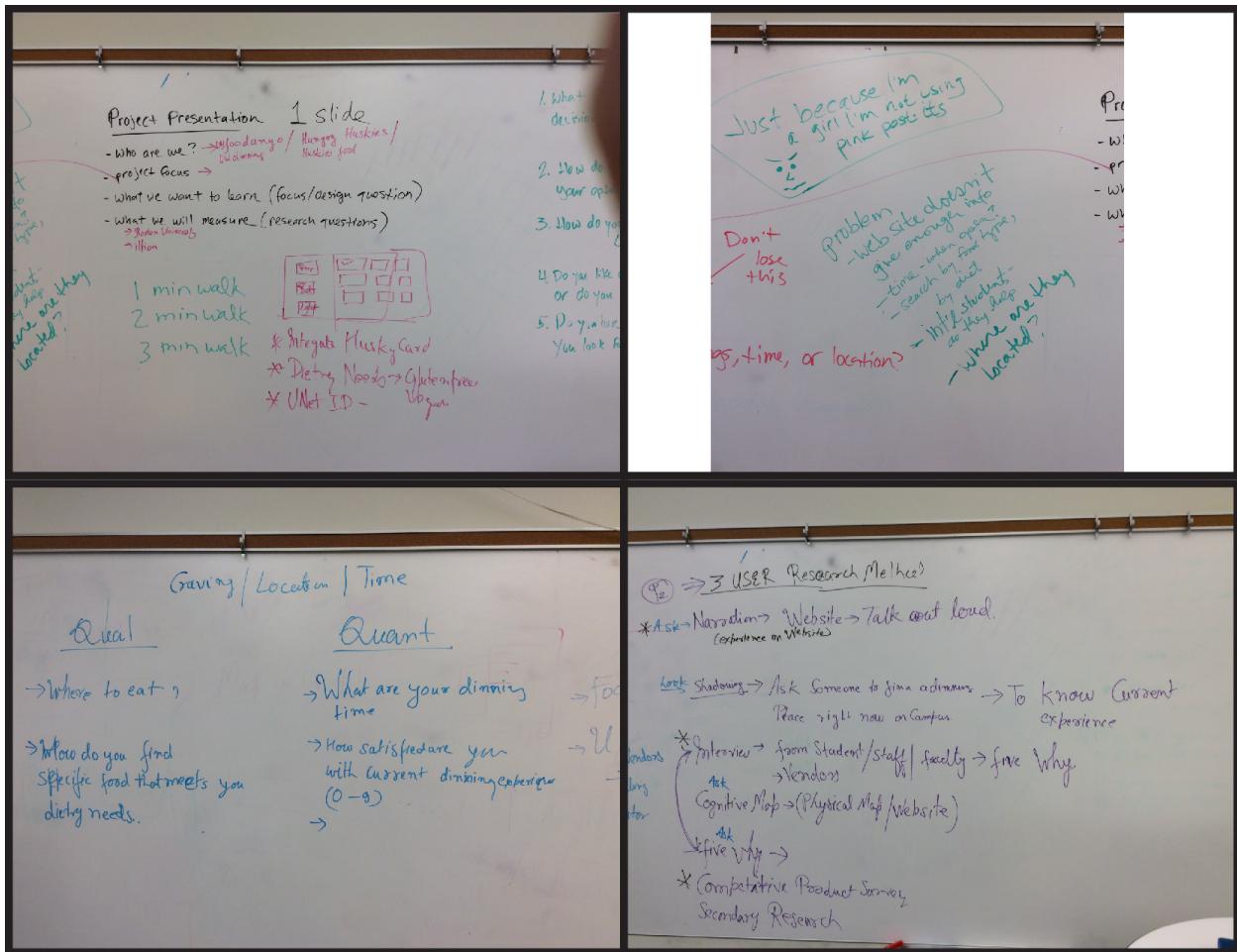
Some students selecting healthy foods, some selecting convenient foods.

**Research Method: In context/ethnographic**



## **V/ Team Crazy for Jalfrezi team meetings**





How can we help people from other cultures learn about available foods and how to shop/prepare them?

Research Questions:

1. What problems are students having?
2. How do they get help now?
3. What cultures? (Chunmoy?)
4. What do they eat? Why restrictions?
5. What 2 cultures? (China, India)
6. Concept of Food → What does it mean?
7. How tolerant are you besides your known habits?
8. Comfort Food from home vs what you want
9. Substitute for what you want

Good

Data Point

- UW
- USA.gov
- Cafeteria
- How you make decision to have to serve
- What resources have been available
- Experience if any
- Who helped you?
- How much info is available about food at cafeteria

How can we help people from other cultures learn about available foods and how to shop/prepare them?

Research Questions:

1. What problems are students having?
2. How do they get help now?
3. What cultures? (Chunmoy?)

