

The Problem With Lunch

CS247 HCI Design Studio

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1 Observation sketches

The initial observations took place in the following five dining spaces:

Day 1 (on campus). The Forbes Cafe located at the Jen-Hsun Huang Engineering Center, a cluster of four different food bars.

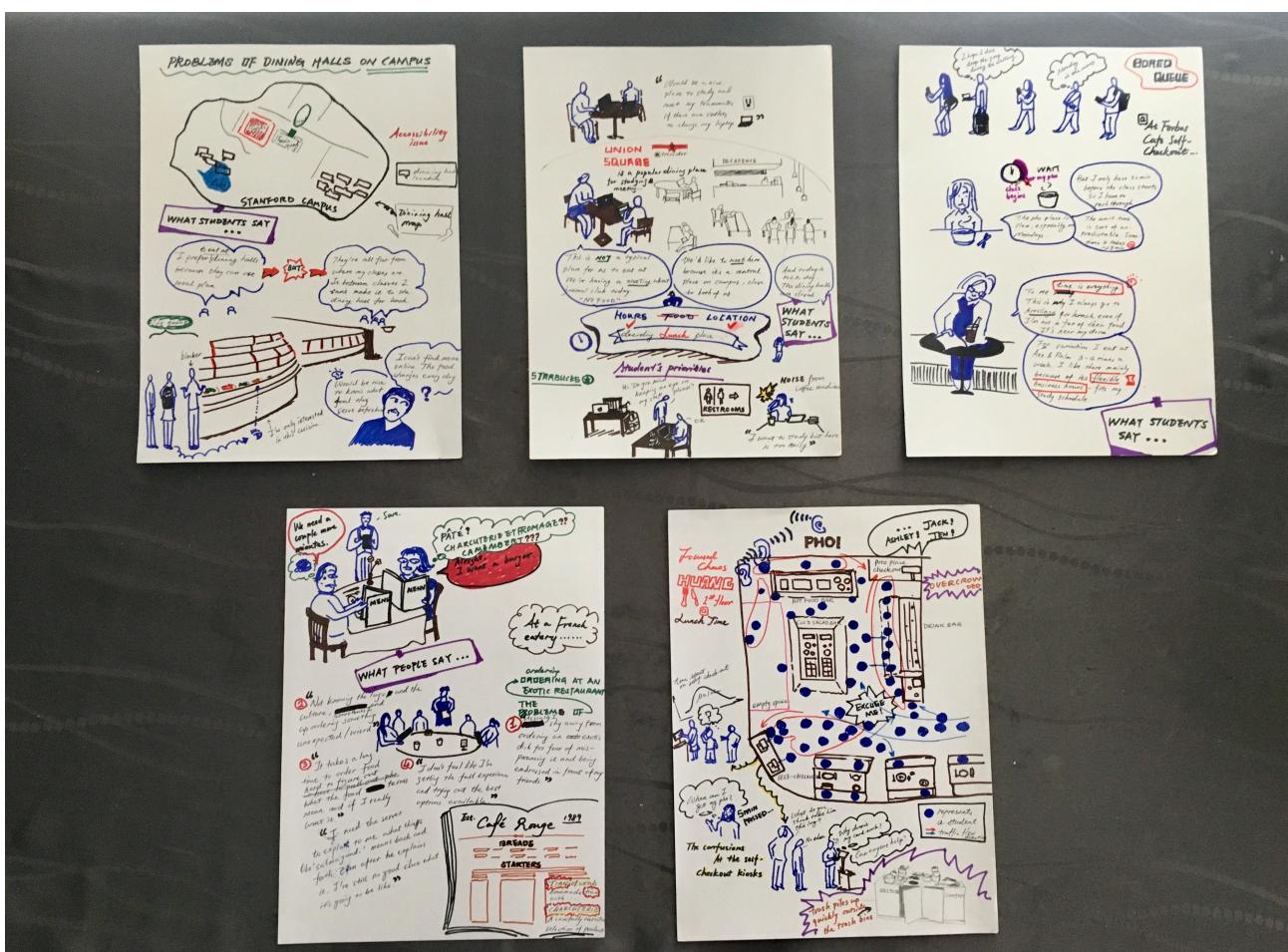
Day 2 (on campus). Lakeside Dining Hall.

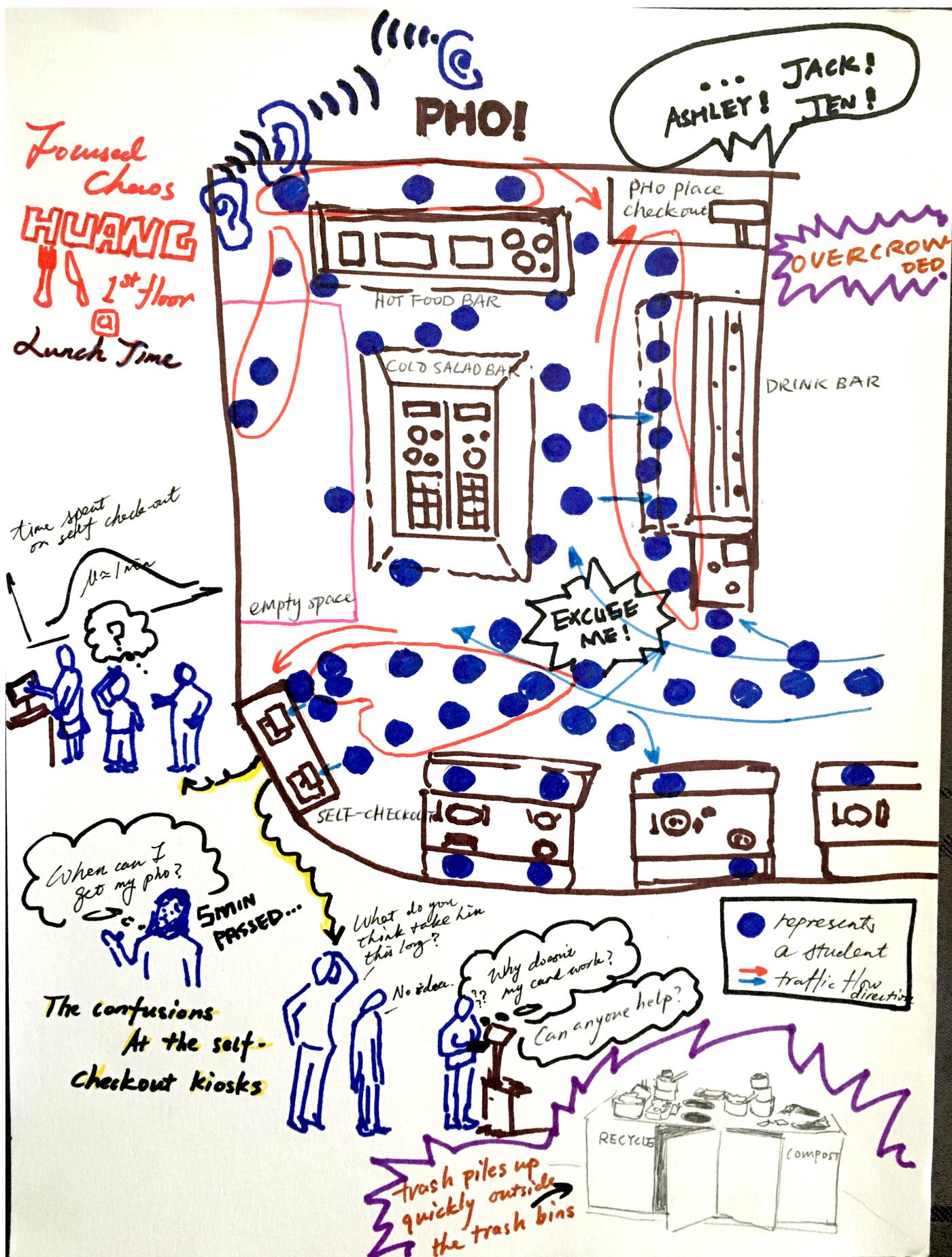
Day 3 (on campus). Union Square located at the Tressider Memorial, which is a hub offering a variety of cuisine.

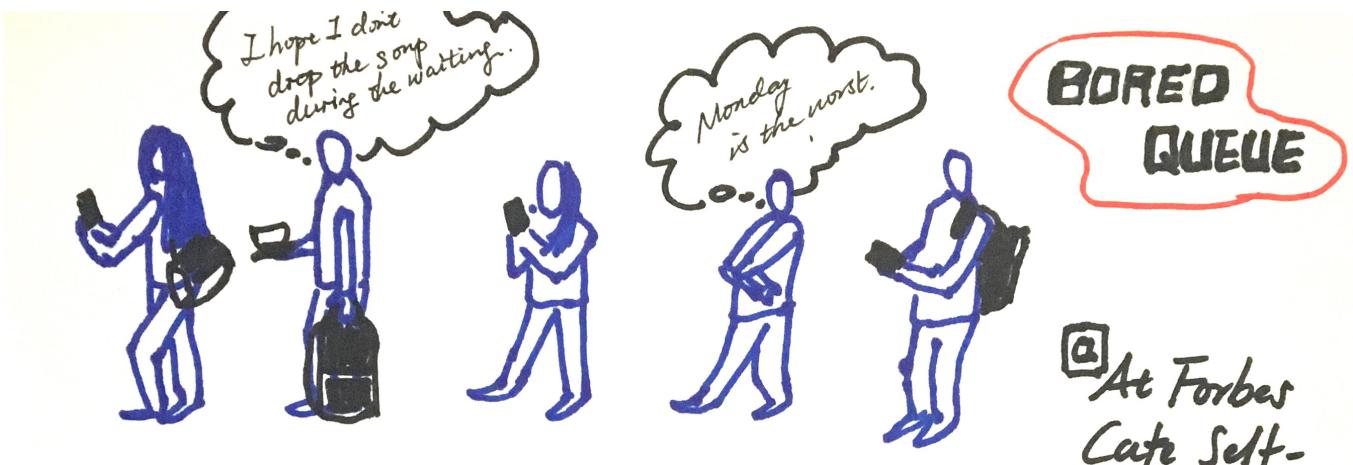
Day 4. Two restaurants featuring international dishes: Jin Sho, a Japanese restaurant located in Palo Alto, CA and Cafe Rouge, a French eatery located in Burlingame, CA.

Day 5. A Starbucks located in Burlingame, CA.

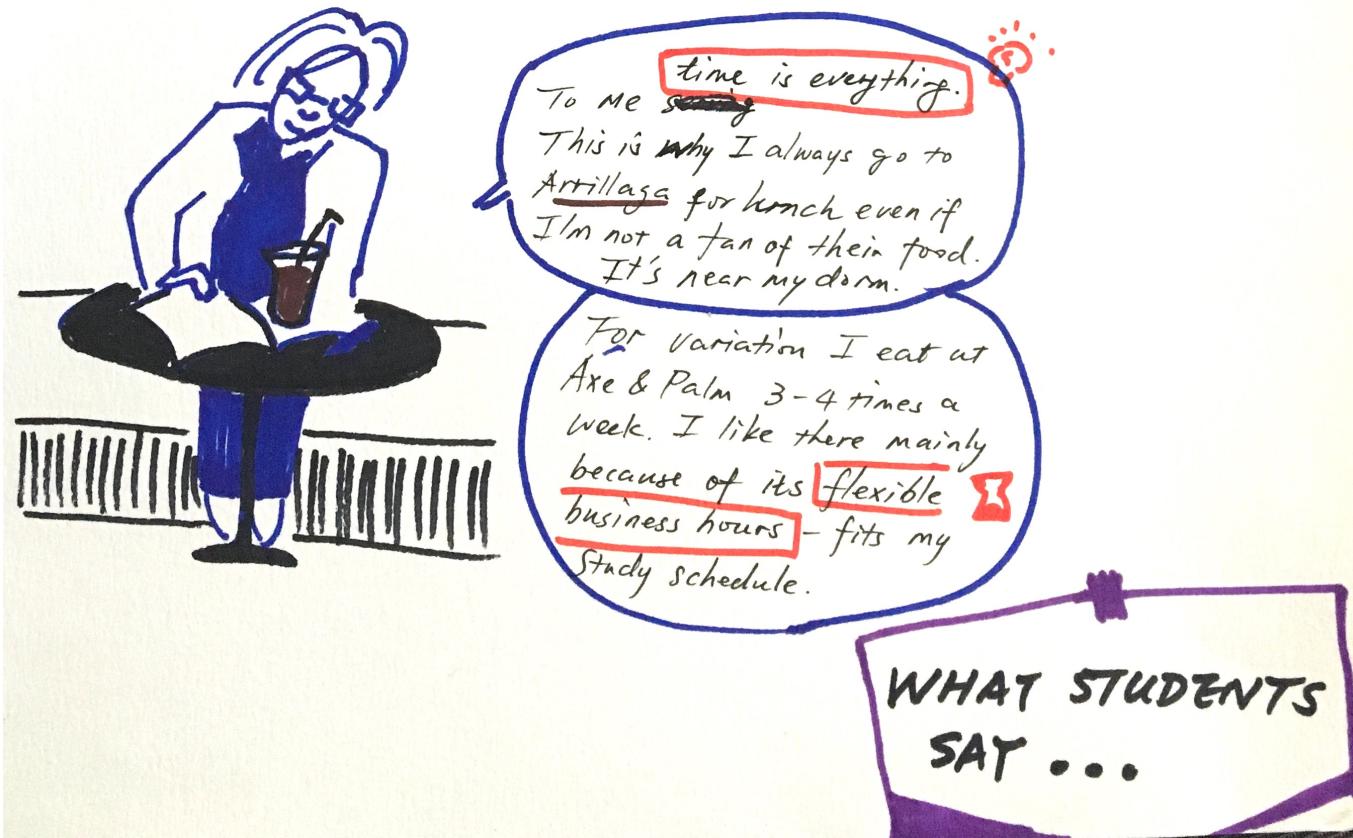
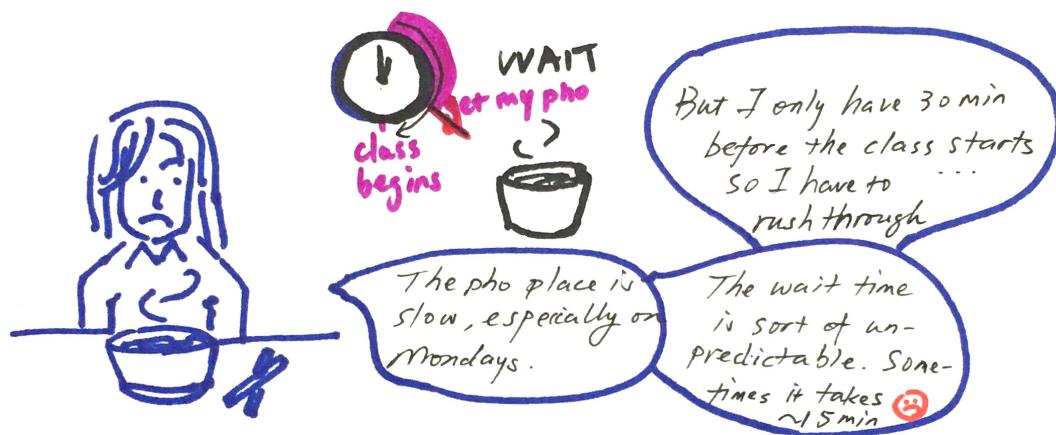
All user interviews were conducted on site and the opinions of interviewees were recorded in the sketches along with my own observations of the sites.



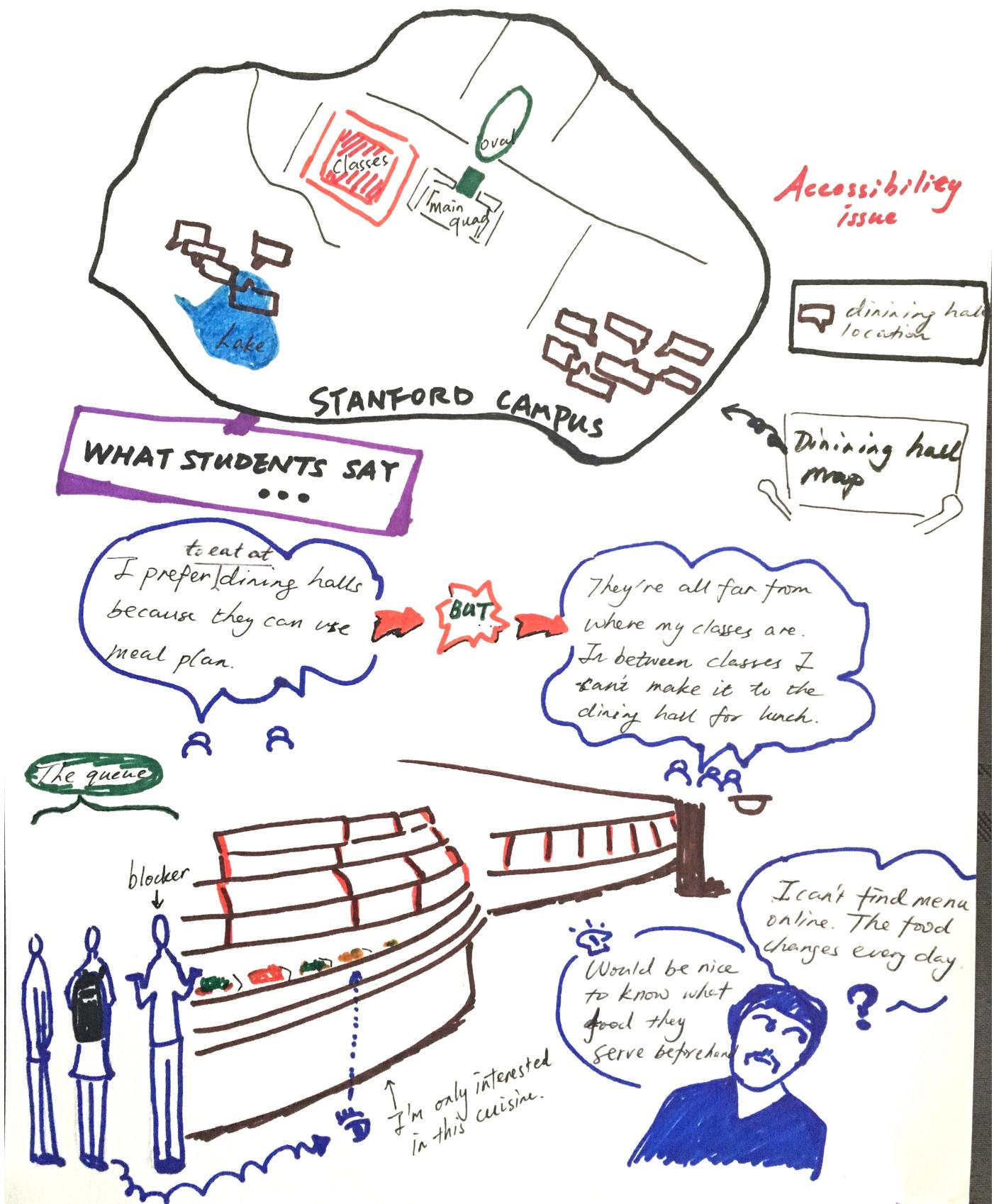




@ At Forbes
Cafe Self-
Checkout ...



PROBLEMS OF DINING HALLS ON CAMPUS





"Would be a nice place to study and meet my teammates if there are outlets to charge my laptop."



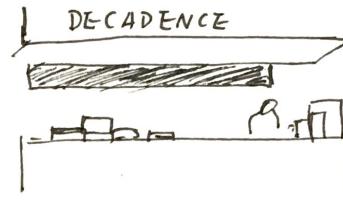
UNION SQUARE



@tressider



is a popular dining place for studying & meeting...

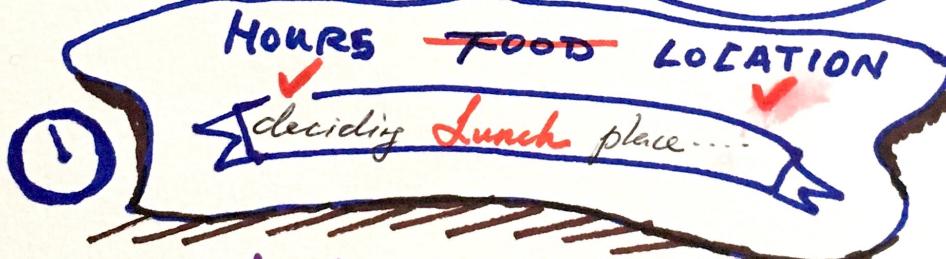


This is NOT a typical place for us to eat at. We're having a meeting about journal club today.

"NO FOOD."

We'd like to meet here because it's a central place on campus, close to both of us.

And today is MLK day. The dining halls are closed.



WHAT STUDENTS SAT ...

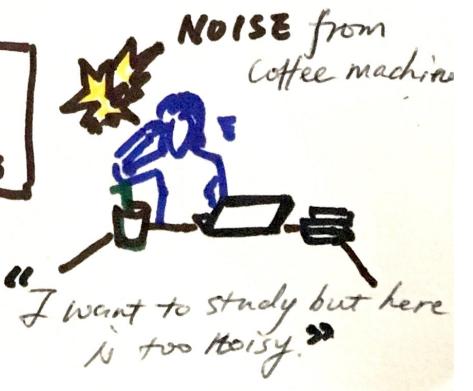
STARBUCKS



Hi. Do you mind keeping an eye on my stuff please?



OK.



"I want to study but here is too noisy."

NOISE from coffee machine



At a French eatery.....

WHAT PEOPLE SAY ...

② "Not knowing the lingo and the culture, sometimes end up ordering something unexpected / weird."

③ "It takes a long time to order food hard to figure out what the food mean and if I really want it."

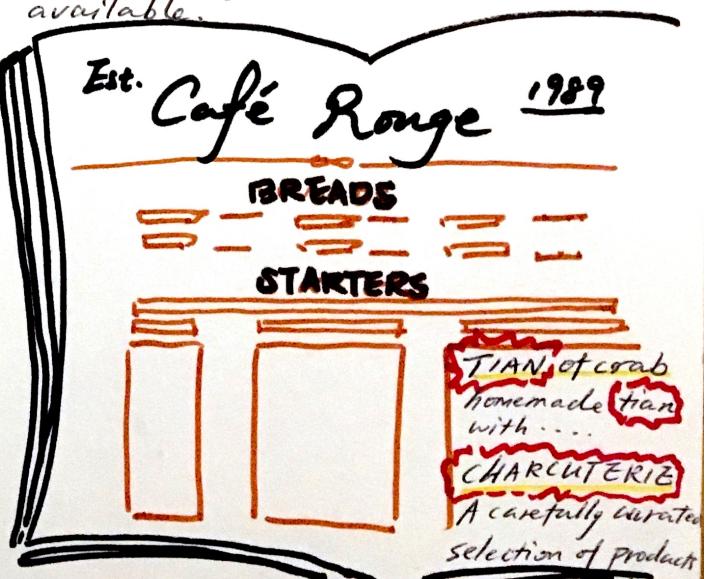
"I need the server to explain to me what things like 'salmagnoni' means back and forth. Even after he explains it, I've still no good clue what it's going to be like."



ordering ORDERING AT AN EXOTIC RESTAURANT

① "Usually I shy away from ordering an exotic dish for fear of mispronouncing it and being embarrassed in front of my friends."

④ "I don't feel like I'm getting the full experience and trying out the best options available."

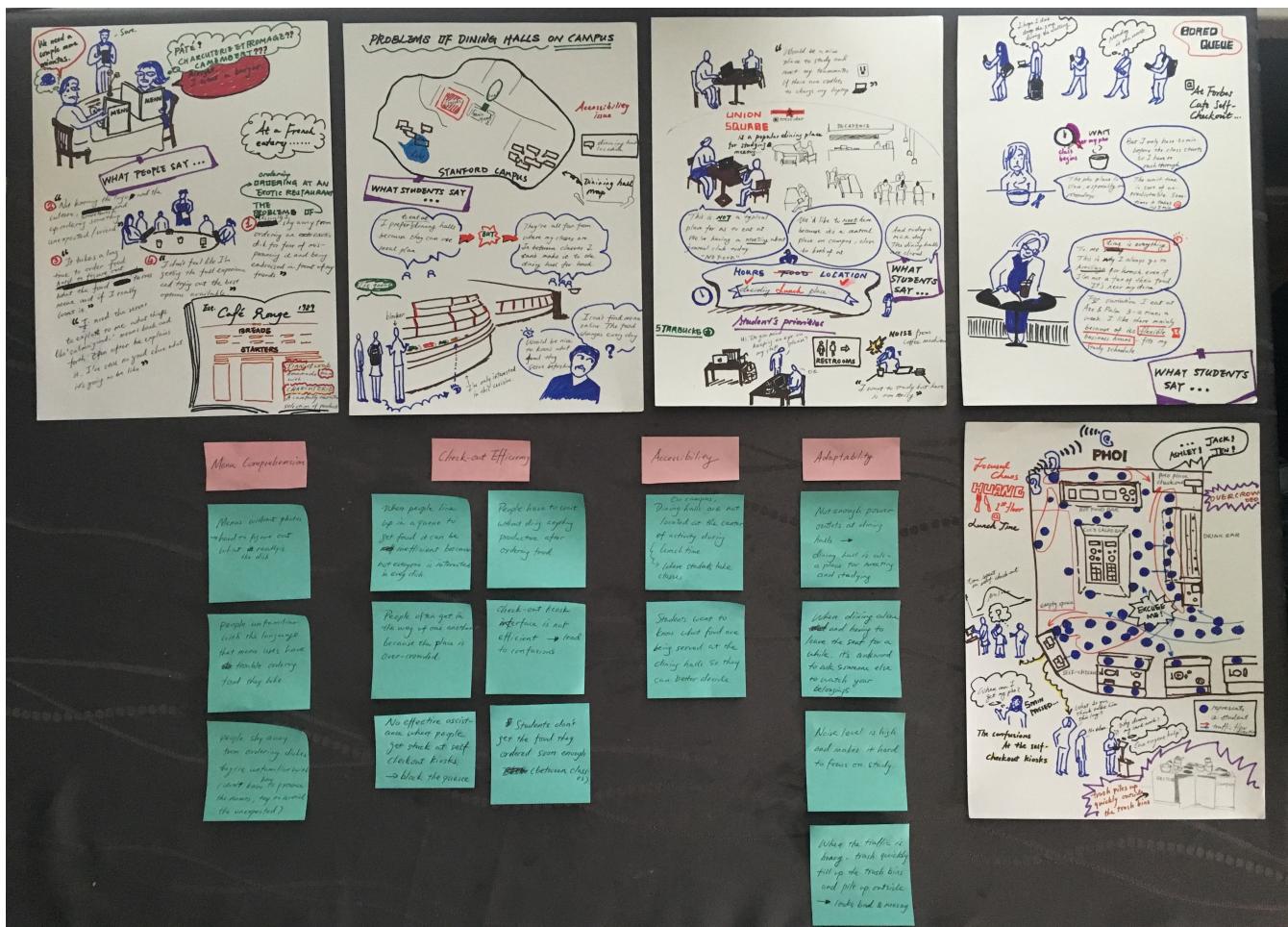


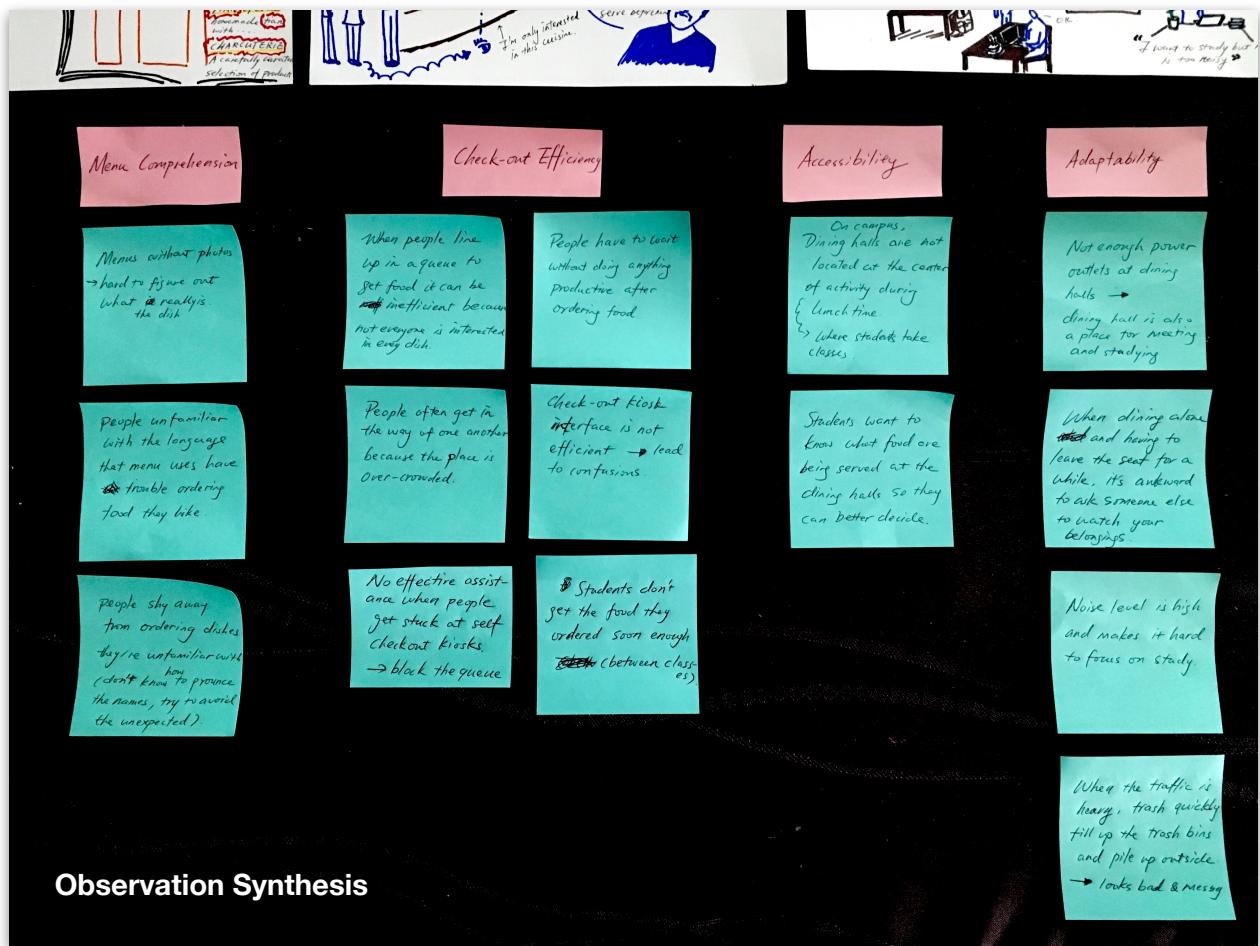
2 Synthesis

2.1 The Synthesis Process

The five days of observation exposed a variety of problems with the lunch experiences and opened multiple design spaces. I organized the observations into 4 main themes: **1)** checkout efficiency **2)** menu comprehension **3)** accessibility and **4)** adaptability.

Theme 1 explores problems with the checkout process in which people try to pay for their food. Theme 2 focuses on the issues people experience when trying to order dishes in a restaurant featuring international food menu. Theme 3 observes inefficiencies related to dining places failing to provide accessible locations and services. Theme 4 depicts the failures of dining spaces to fit in users' purpose, activity and schedule.





Among the four observation themes, the issue of menu comprehension strikes me the most as it is a more widely applicable problem which affects not only efficiency, but also the quality of lunch experience.

2.2 Problem Statement

Ordering food at a restaurant featuring international cuisine is a daunting task, often due to ineffectiveness of the menu designs: for customers who are unfamiliar with the lingo or the culture where the cuisine originates, navigating restaurant menu of international food can be a linguistic minefield as customers struggle to figure out the meanings of words; with text-based menus, customers have difficulty to mentally visualize the menu items and assess their suitability;

as foreign words can be difficult to pronounce, customers may shy away from ordering the exotically-named cuisine in fear of mispronouncing their names — a phenomenon frequently observed when people dine in groups.

Ineffective international food menu design induces stress and demands high mental workload of the customers. It also leads customers to ordering suboptimal food items (dishes either not matching customer expectations or not best representative of the restaurant quality). Aside from a less-satisfactory dining experience, customers also do not feel successful in broadening their knowledge about a particular culture they wish to confront. For restaurant owners, having customers struggling to order the right food means inefficiency in the process of taking orders, lower customer satisfaction, and reduced possibility for customers to revisit the restaurant.

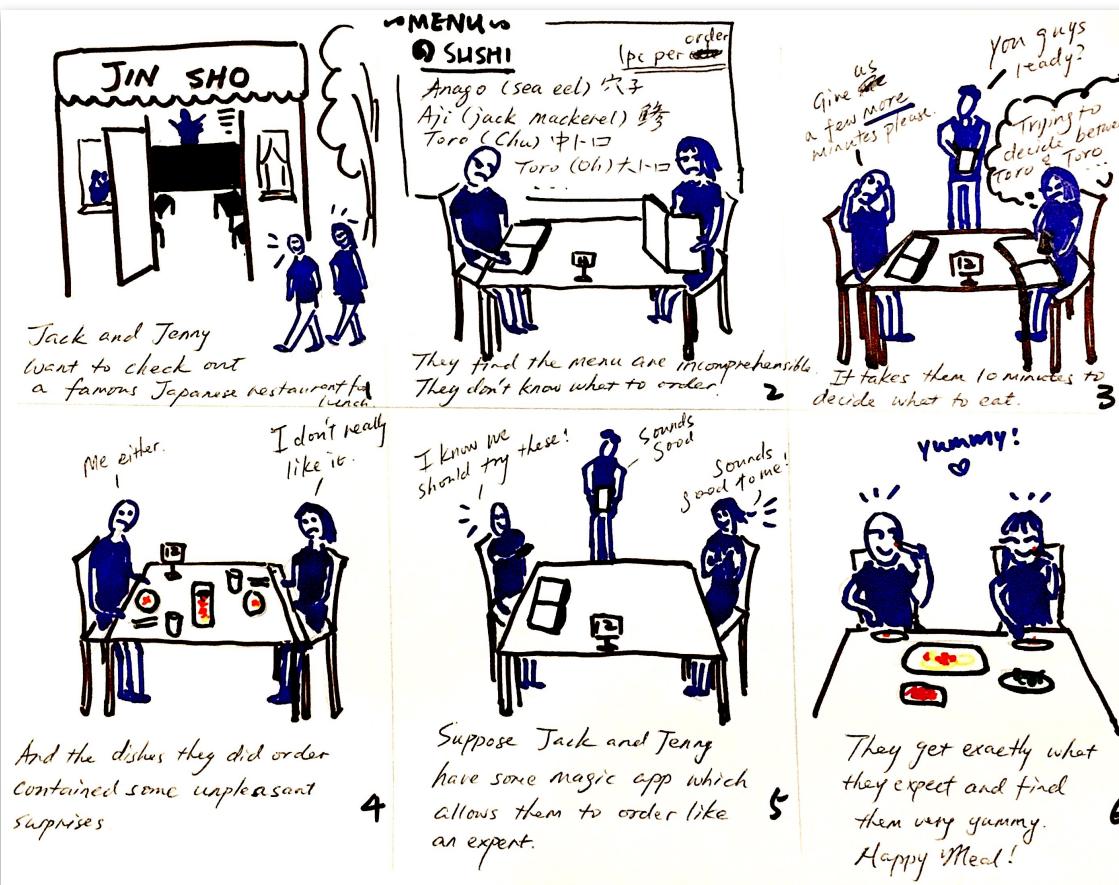
A more intuitive menu design that facilitates cross-cultural communication can potentially lead to happier and better educated customers along with higher operational efficiency of the dining place.

3 Ideation

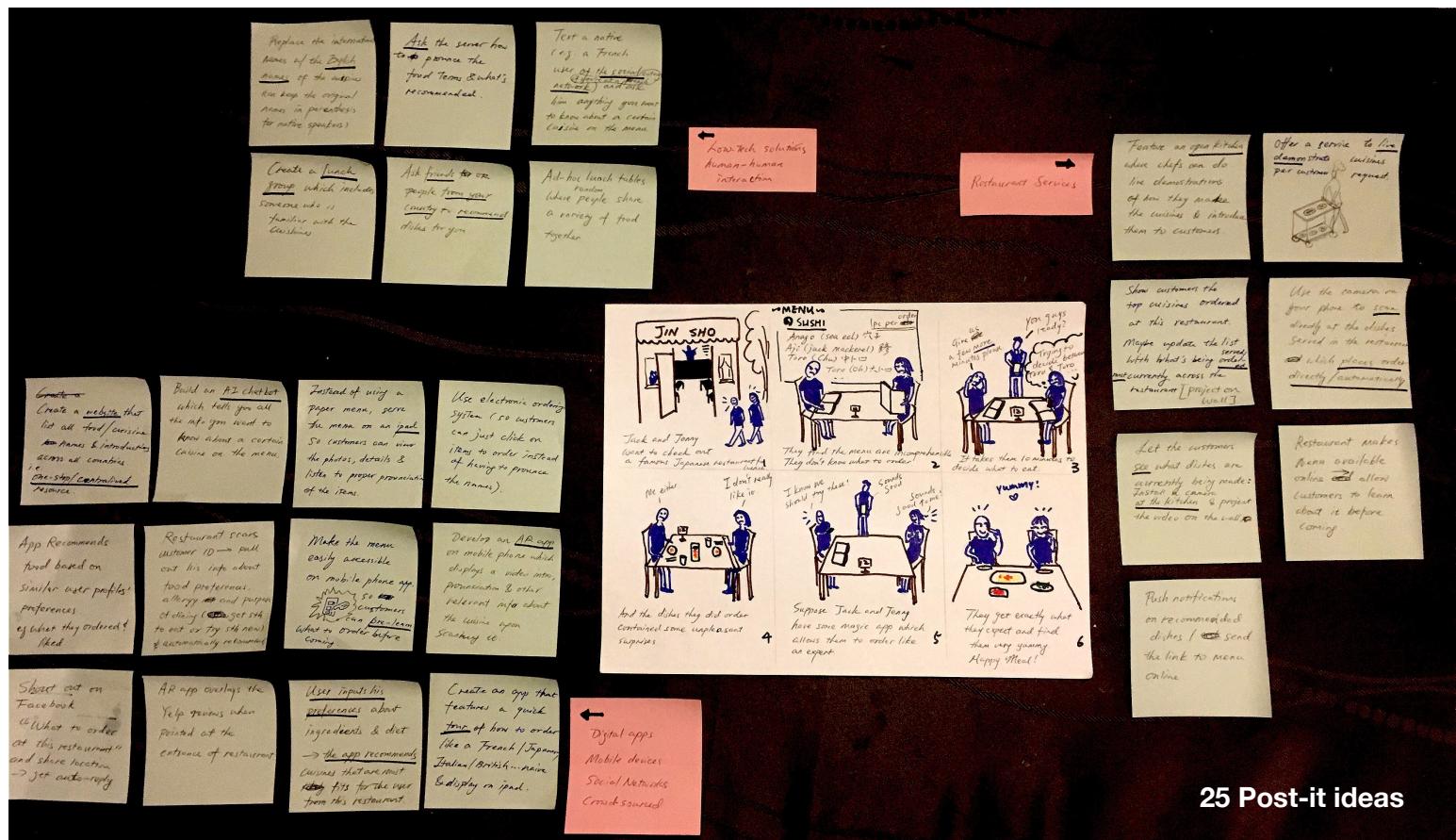
3.1 Storyboard showing the problem (figure on next page)

3.2 The 25 Micro-ideas

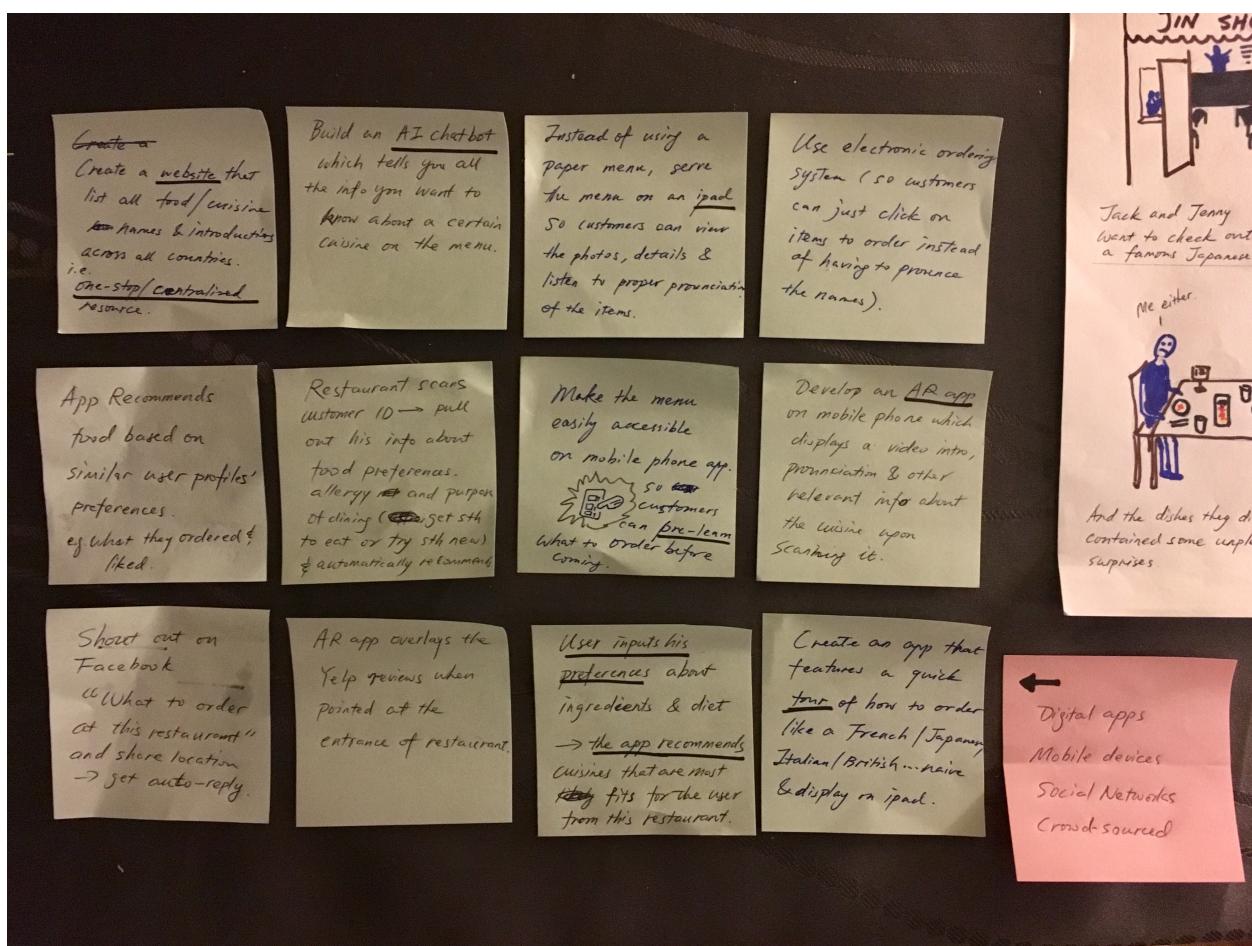
Based on the problem statement, a total of 25 micro-ideas about the solutions are generated and collected into 3 categories based on the participants they involve.



Storyboard showing the problem



25 Post-it ideas



Post-it ideas close-ups

3.3 The 5 Index-card ideas

Five more detailed ideas were then formed by combining micro-ideas drawing from the same category:

Idea 1

Instead of using the traditional paper-based and text-based menu, restaurants create digital menus displayed on iPads which feature images, translations (by allowing user to select their preferred language), and pronunciations of the food names. This digital version of menu can be easily shared online so user can do the learning before they arrive on site.

Idea 2

A mobile app scanning a restaurant menu and automatically recommending the right food items for user. The app stores user information such as the user's country of origin, diet preferences, allergy information, etc. in order to improve the performance of recommendation algorithm.

Idea 3

An augmented reality app displaying an information overlay on top of a camera image of a food menu or food dishes — the information displayed can be name translations, images of the food items, Yelp reviews, and so on.

Idea 4

An interface allowing customers to see what are being ordered and served most frequently at this particular restaurant, as a way to provide recommendations about what to order to customers who are unfamiliar with the restaurant or the menu.

Idea 5

Create a database which gathers information about every possible cuisine using a web crawler and a website to display the data. This website serves as a one-stop, centralized resource to which people can refer when in need of looking up cuisine information. The website can further feature mini-reviews and meta-reviews for each dish written by registered users.

3.4 The Final Solution

3.4.1 Description

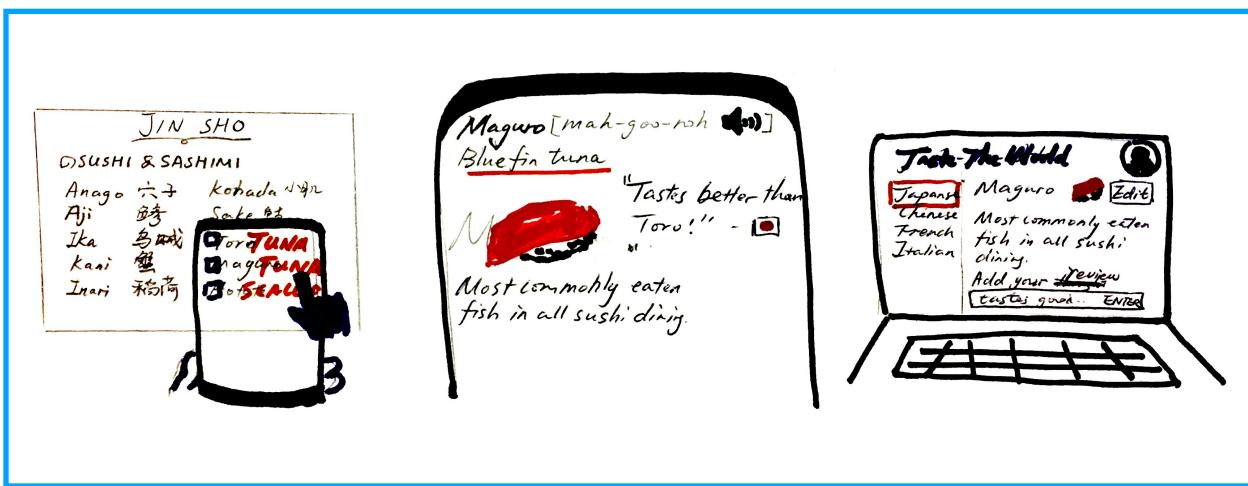
The final solution incorporates useful elements from the five index-card ideas and takes shape as an augmented reality mobile app, named *Taste-The-World*. The basic components and functionalities of this app's ecosystem include:

1. a phone camera to take photo of objects of interest, e.g. a menu provided by the restaurant or a plate of food that looks particularly interesting to user.
2. computer vision software to recognize food items from the image.
3. software that retrieves information about these food items from the system's database and creates an interactive information overlay on top of the camera image. The AR overlay displays their translated food names along with a thumbnail image for each food item.
4. user is able to use his/her finger to pick a small area of interest from the camera image. User can hence pinpoint a single menu item that he/she wishes to know more details about. Upon zoomed in, the AR overlay shows details about a particular cuisine: more images, ingredients, recommendations/meta-reviews from similar users, and any fun or useful facts about the cuisine. It also allows user to listen to the proper pronunciation of the original food name, if he/she is interested and wants to pronounce it correctly when ordering this item.
5. an accompanying website showing information about every possible dish existing in the world. While the basic information about each cuisine can be automatically mined from the Internet. This website is a place where users from around the world can collectively edit information about the cuisine that interest them and record

their reviews (in their own languages, the app will be able to translate based on individual user's language preference). Data mining is done on the backend of the website to correlate users from similar backgrounds in order to generate meta-reviews more efficiently and effectively.

- the backend of mobile AR app is powered by the same database shared with the website.

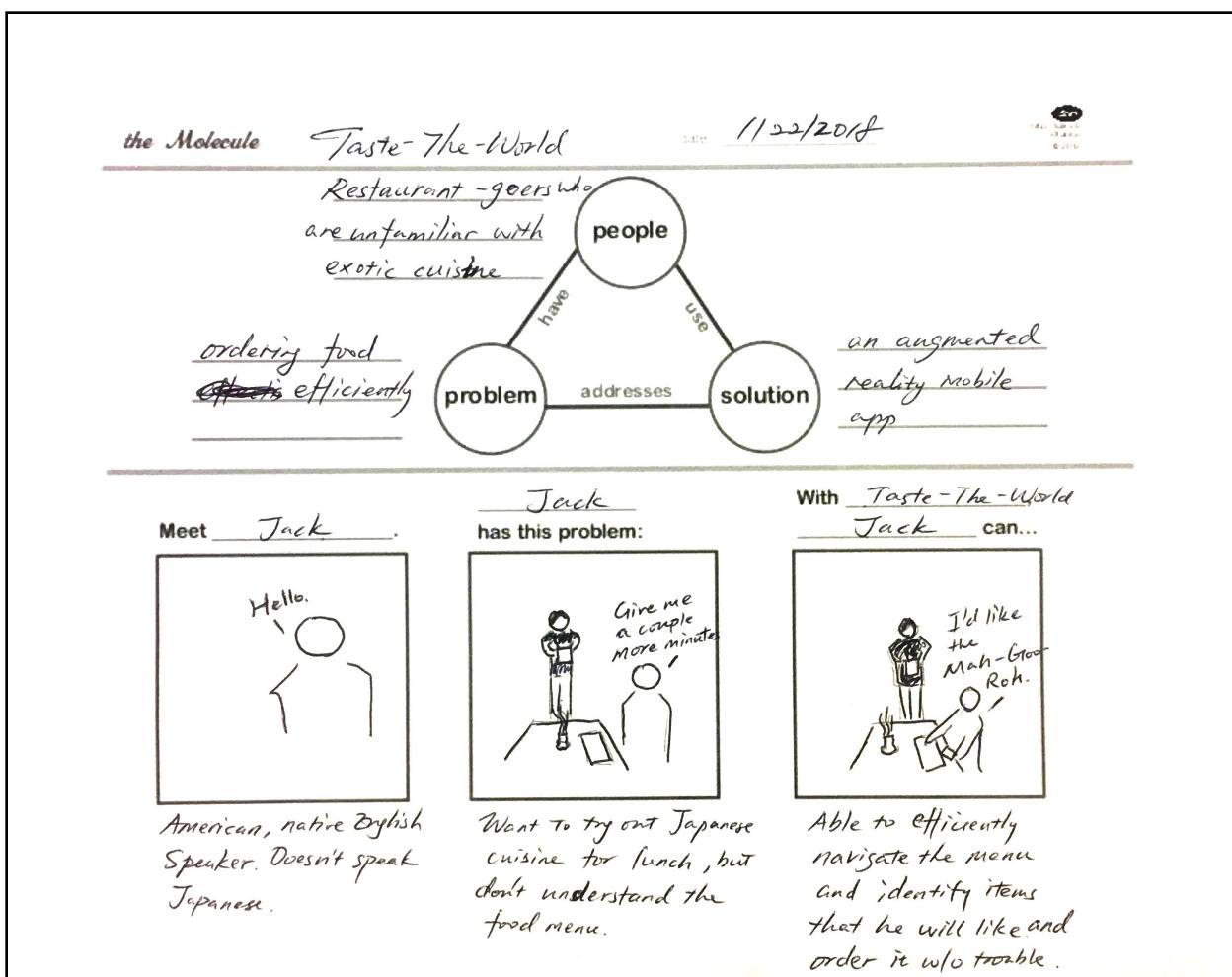
The augmented reality app in this final solution allows user to access data about any food items quickly in a more intuitive and effort-less way by adding interactivity and making software to do the heavy-lifting of information retrieval. The benefit of having a centralized crowd-sourced database is that the solution is highly scalable as it requires no input from restaurant owners — e.g. restaurant owners don't have to manually translate their menus, or take appealing images for each of their dishes, or spend all the efforts to build digital menus. The learning can also happen when user is not in the restaurant, as the app can take images of any food existing in the real world as input. Along the same line, the accompanying website also offers users more flexibility as of when and where to access the information. The solution is very portable, which makes it friendly to international travelers as well.



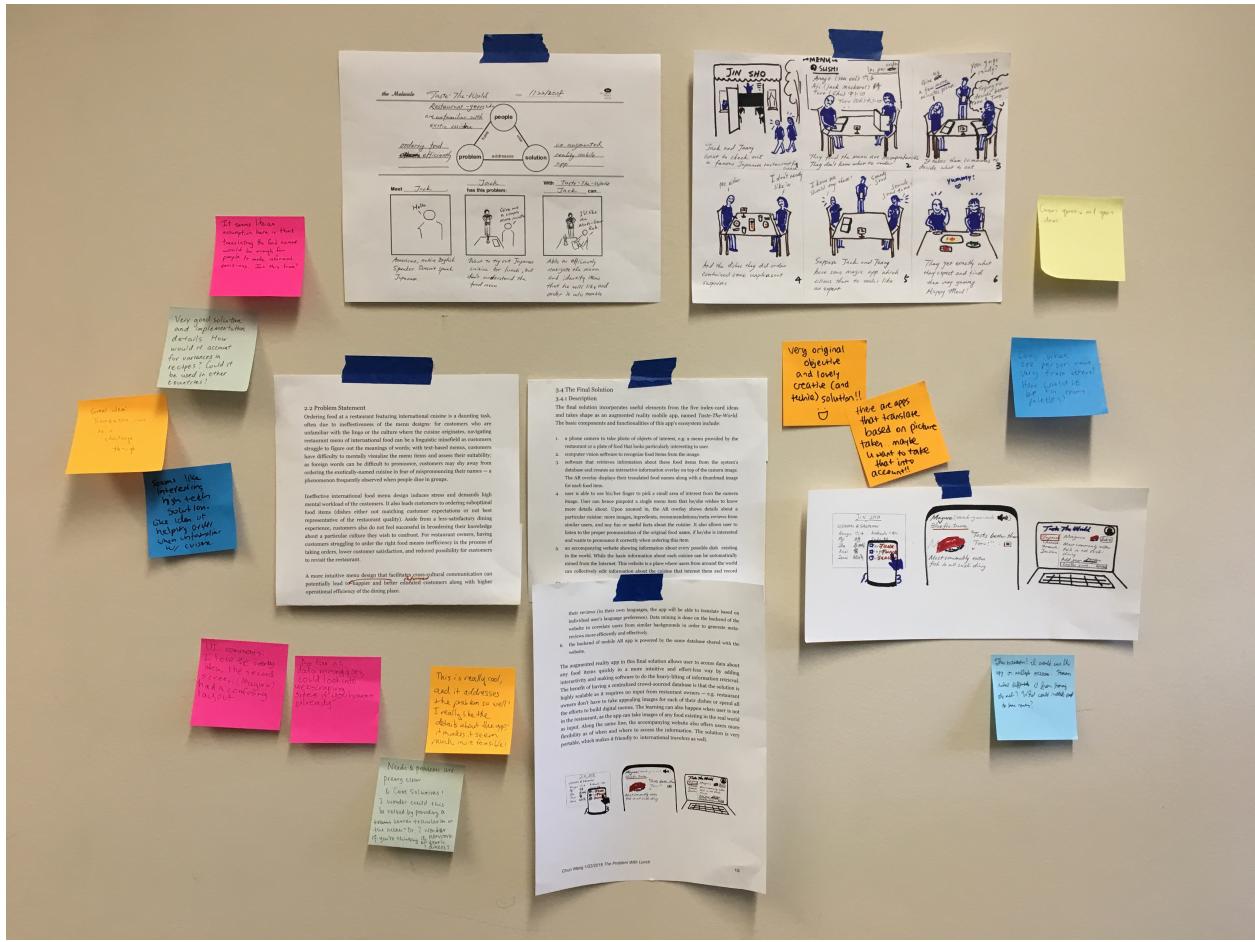
A rough sketch of the solution interfaces

3.4.2 Value Proposition Madlib

Our Taste-The-World app helps restaurant-goers unfamiliar with exotic cuisine who want to order the right food quickly by helping them overcome linguistic difficulty and fostering cultural familiarity unlike printed menus.



The Molecule



Critiques from Studio 3A