

# Appendix Contents

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## Appendix A: Initial Users Interviews

### Script for interviews:

Hello, my name is [x] and I will be asking you a few questions about your perception of how comfortable you are in finding available spots at public spaces. In particular, I will be asking you about your perceptions in reference to the idea of not being able to find available spots at public spaces especially in peak hours. During this interview, I will be taking and recording notes about our interactions and conversation. At no point will I record your name or any other sensitive personal material.

### Procedure

1. Discuss background and motivations for this project with the participant.
2. Provide a brief summary of the interview process.
3. Review consent form with participant and inform them of their rights before obtaining their signature.
4. Once the participant has agreed to participate in the interview, agree on a time and location at the participant's convenience and discretion.
5. Conduct interview. One member engages in conversation with the participant; another observes the interaction and takes notes. The participant is allowed to review the notes at the end of the interview. The participant may be asked to perform their daily routine.

### Questions

1. How busy do you consider yourself and why?
2. Do you consider yourself a social person? Do you enjoy interacting with people?
3. Where do you spend most of your time? Why?
4. Where do you usually study? Why?
5. Do you usually study alone or with a friend? Why?
6. How long does it take you to find a seat? what was the longest time you spent searching?
7. What can be done to improve this?
8. Does the presence of others bother you? Why?
9. Where do you usually have lunch? Why?
10. If you eat on campus, how long does it take you to get lunch? What about dinner?
11. Do you usually eat alone or with other people? How many people?
12. How long does it take you to find a seat when you are eating alone? With people?
13. What would you suggest be done to improve this?
14. Does the presence of others bother you? Why?
15. How often do you sit at tables that are occupied by people you do not know?
16. If you saw someone eating alone, but there are empty tables, how often would you be motivated to sit next to them? Why?

### Professor Interview

Dr. Xingen Lei, professor of animal science at Cornell University.  
252 Morrision Hall | (607) 254 - 4703

#### *1. How busy do you consider yourself and why?*

I am very busy as a professor here. For now, I have several urgent projects going on and i need to attend to them. Since I am away for a business trip very soon, I have to get most of the things done before then.

*2. Where do you spend most of your time and why?*

During the day, I spend most of my working hours in my office and around my labs. My students and other faulty come to see me and ask questions so I have to be at my office. And I have to attend to a lot emails and other work to do everyday. Also I am teaching a course this term, which is also in Morrison Hall. So I would rather stay here unless I have some meetings held at other parts of the campus.

*3. Where do you have your lunch?*

I have my lunch at Dairy Bar almost everyday because it is the closest dining hall from Morrison Hall and the food there suits me pretty well. I enjoy the ice cream very much.

*4. How long does it take you to find a seat?*

Overall, It doesn't take me much time to find a seat. For one thing, I am usually alone by myself. For the another, I go to get lunch around 1:00 pm to avoid rush hours. So there are not many students.

However, sometimes, I go to dairy bar with several PhD students from my labs and we discuss things during lunch time. It would be a little difficult for a group of people to find a table to sit. There are a plenty of tables in Dairy Bar but these tables are small and can only accommodate at most three people. Dairy Bar is a nice place but I think it would be a problem for a study group to find seats.

*5. Does the presence of others bother you?*

No, not at all. I may chat with people sitting around me unless they have been focusing on their work. Actually I don't care whether there are people around.

*6. How often do you sit at a table that are occupied by people you do not know?*

When I come to Dairy Bar for a quick lunch, I can always find a table for myself.

*7. What do you think can be done to improve Dairy Bar to make it a better place to sit?*

I think the place is already really good though. The food, the environment and the people. I would recommend bring in larger tables for a group of people to sit together.

**Student Interview 1**

On a Saturday, Cornell student in Duffield Hall reviewing for her prelim next week. She took a whole round table for her study.

1. How busy do you consider yourself and why?
  - a. The major requires lots of tim. I consider myself busy during the week.
2. Do you consider yourself a social person? Do you enjoy interacting with people?
  - a. Consider yourself as normal person. Pretty social: hang out with friends, play video games with friends.
  - b. Play smash, cards
3. Where do you spend most of your time? Why?
  - a. Apartment and Duffield.
4. Where do you usually study? Why?
  - a. Somewhere in ECE Lounge, Duffield.
5. Do you usually study alone or with a friend? Why?
  - a. Study alone. Because I don't know that many people in class. Work in random time. Do it really late. Interviewee is a senior in college and seems very happy.

He has no problem sitting with strangers or interact with strangers. However, when eating, he would prefer to sit alone to enjoy his meal. Having said that, he thinks his quality of eating is not affected by the presence of others.

- b. Drinking
- 6. How long does it take you to find a seat? what was the longest time you spent searching?
  - a. During lunch: Don't bother looking if it seems like all tables are full. Too much effort to find place.
  - b. Don't sit where people sit.
- 7. What can be done to improve this?
  - a. Square tables:
  - b. Not much that you can do.
  - c. See if what classroom open at what time to look up and go there and get room.
- 8. Does the presence of others bother you? Why?
  - a. Not always. You would rather have the whole table for yourself.
  - b. Yes. it does.
- 9. Where do you usually have lunch? Why?
  - a. I don't usually eat lunch. If I do I either probably subway (collegetown), Mattins
- 10. If you eat on campus, how long does it take you to get lunch? What about dinner?
  - a. Lunch: Avg: 10 mins if there is a line. 5 mins for no line.
  - b. Dinner: Foods at 7-11. Buy eggs. Impressive.
- 11. Do you usually eat alone or with other people? How many people
  - a. Usually alone. Go out to eat with someone (once / week)
- 12. How long does it take you to find a seat when you are eating alone? With people?
  - a. Dinner: On the living room.: alone. 1 egg / time when you wooking.
  - b. Eat while I'm alone.
- 13. What would you suggest be done to improve this?
  - a. Nothing
- 14. Does the presence of others bother you? Why?
- 15. How often do you sit at tables that are occupied by people you do not know?
  - a. Never do that
- 16. If you saw someone eating alone, but there are empty tables, how often would you be motivated to sit next to them? Why?
  - a. Never

=> Interviewee seems to have her own space everywhere. She prefers to sit alone or eat alone at public places. She doesn't feel comfortable with strangers sitting on the same table with her. Having said that, if someone asked her if they can sit on the same table her at public place, she would still say yes but feel uncomfortable inside.

### Student Interview 2

1. How busy do you consider yourself and why?

I am really busy. I have enrolled in many courses this term and I am also doing a research project in a lab.

2. Do you consider yourself a social person? Do you enjoy interacting with people?

No. I am not at all enjoying communicating with others.

3. Where do you spend most of your time? Why?

In my room, in the lab and in classroom. I almost spend all my time working on my own stuff.

4. Where do you usually study? Why?

I usually study at Mann Library and sometimes I cannot find a seat I will go back home studying in my room.

5. Do you usually study alone or with a friend? Why?

I prefer study alone. I get more ideas when I am alone. It is hard for me to concentrate while too many people are nearby.

6. How long does it take you to find a seat?

When in a library, finding a seat usually takes me 5-10 minutes.

7. What can be done to improve this?

I cannot think of a way yet, since there are so many people on campus with limited public space.

8. Does the presence of others bother you? Why?

Yes. The presence of others does bother me for sometimes it would be hard to get involved in the work that I am doing. People would talk to me and that contracts me a lot.

9. Where do you usually have lunch? Why?

I usually have lunch on campus because I have pretty tight schedule everyday. I don't have plenty of time for me to get to the outside of campus to have lunch and then get back to class again.

10. If you eat on campus, how long does it take you to get lunch? What about dinner?

If I eat on campus, I will spend 20 minutes at most for lunch.

For dinner, I usually cook at home, which takes about 1 hour.

11. Do you usually eat alone or with other people? How many people

I usually eat alone for lunch. For dinners or on weekends, I prefer to eat with people and normally 3-4 close friends.

12. How long does it take you to find a seat when you are eating alone? With people?

It takes me 2-3 minutes to find a seat for lunch because I usually pick the time when there are not so many people. About with people, we don't eat on campus and we book seats at restaurants beforehand.

13. What would you suggest be done to improve this?

I am not pretty sure about the difficulty of finding a seat at dining hall at rush hours since I usually avoid them.

14. Does the presence of others bother you? Why?

Not really. I don't need to concentrate on my work so I am glad to see people around.

15. How often do you sit at tables that are occupied by people you do not know?

I feel comfortable sitting at tables that are occupied by strangers. Sometimes I get a chance to make new friends.

16. If you saw someone eating alone, but there are empty tables, how often would you be motivated to sit next to them? Why?

I will go to sit next to them. Since he is alone eating by himself, I would assume he not be disturbed by someone who is also alone joining him at the table.

=> This interview is very interesting. At first, we think that interviewee seems contradict herself because she initially said she is not at all enjoy communicate with people but she is willing to sit at tables occupied by strangers so she can make new friends. Furthermore, she would sit next to someone eating alone.

### Student Interview 3

1. How busy do you consider yourself and why?

I am not so busy. Since this is the last year of the college, I plan to enjoy life and make new friends.

2. Do you consider yourself a social person? Do you enjoy interacting with people?

Yes. I really enjoy having fun with others and making new friends.

3. Where do you spend most of your time? Why?

I spend time in classroom and also library. And I am a president of a club where I spend a lot of time with my friends in club and hosting events.

4. Where do you usually study? Why?

I usually study at home or law library since it is close to the place I live in. the reason I study at library is that I need Cornell's WiFi to download papers and look up sources for reference.

5. Do you usually study alone or with a friend? Why?

I prefer studying with friends. We can discuss about the problem sets. It is better than working by myself when things are difficult to understand.

6. How long does it take you to find a seat?

When in a library, finding a seat usually takes me 10 minutes. As for dining hall, it would be longer than 10 minutes in rush hours.

7. What can be done to improve this?

I think school can build up more dining halls and libraries for our convenience.

8. Does the presence of others bother you? Why?

Not at all. I enjoy being surrounded by a lot of people. The more people around, the happier it would be.

9. Where do you usually have lunch? Why?

I usually bring lunch with me since it takes time to wait and buy food on campus. Besides, I don't really like the food on campus.

10. If you eat on campus, how long does it take you to get lunch? What about dinner?

If I eat on campus for lunch, I spend 15 minutes for lunch.

As for dinner, I eat at one of the dining halls on campus, which approximately takes about half an hour.

11. Do you usually eat alone or with other people? How many people

I usually eat alone for most cases. On special events, I will eat with several friends outside.

12. How long does it take you to find a seat when you are eating alone? With people?

On campus, it takes me no more than 10 minutes to find a seat. If I have many people with me, it would take more time for find suitable place to sit.

13. What would you suggest be done to improve this?

I suggest we can divide the places and guide people who come alone to one district and guide people who come together to another district.

14. Does the presence of others bother you? Why?

No my quality of eating is not affected by the presence of others.

15. How often do you sit at tables that are occupied by people you do not know?

I tend to sit with people I know. However, if I have no choice I feel ok sitting with strangers.

16. If you saw someone eating alone, but there are empty tables, how often would you be motivated to sit next to them? Why?

Mostly I will not sit with him but to find another empty table. For one thing, I am afraid he will be disturbed by my presence. For the other, if I am alone I prefer to sit by myself.

=> Interviewee is a senior in college and seems very happy. He has no problem sitting with strangers or interact with strangers. However, when eating, he would prefer to sit alone to enjoy his meal. Having said that, he thinks his quality of eating is not affected by the presence of others.

1. How busy do you consider yourself and why?

I'm currently taking 18 credits but I don't really consider myself busy because my classes are manageable.

2. Do you consider yourself a social person? Do you enjoy interacting with people?

Yes, depends.

3. Where do you spend most of your time? Why?

I spend most of my time in Stimson Hall and Uris Library. Mostly because I'm working on problem sets or studying.

4. Where do you usually study? Why?

Uris, because it's quiet and close to my dorm.

5. Do you usually study alone or with a friend? Why?

I study with a friend. We quiz each other on concepts. It allows us to exchange knowledge as well as bring to awareness which material we need to focus on.

6. How long does it take you to find a seat?

Usually less than a minute in Uris because I don't really mind sitting next to people.

7. What can be done to improve this?

Nothing much. But space could be increased and areas that are empty could be filled with chairs and tables.

8. Does the presence of others bother you? Why?

Not really. Unless they're making a lot of noise.

9. Where do you usually have lunch? Why?

Rose. It's close to my dorm.

10. If you eat on campus, how long does it take you to get lunch? What about dinner?

It takes me less than a minute. Dinner takes a little longer because I eat at Okenshields.

11. Do you usually eat alone or with other people? How many people

I eat with other people. Usually there are three to four of us.

12. How long does it take you to find a seat when you are eating alone? With people?

When I'm eating alone it takes me 1-2 minutes to find a seat because I usually don't care where I sit. When I'm with people, it takes us twice the time because we need to find a table that fits all of us.

13. What would you suggest be done to improve this?

It would be nice if students can reserve tables for a fee. Or just add more tables.

14. Does the presence of others bother you? Why?

No, because I usually don't pay attention to them.

15. How often do you sit at tables that are occupied by people you do not know?

On occasion.

16. If you saw someone eating alone, but there are empty tables, how often would you be motivated to sit next to them? Why?

If I'm in a good mood I might ask to sit next to them and initiate a conversation. If I'm not in a good mood I prefer to eat alone.

### Student Interview 5

1. How busy do you consider yourself and why?

Very busy, because I'm involved with a lot of activities on campus in addition to course work.

2. Do you consider yourself a social person? Do you enjoy interacting with people?

Yeah, pretty much.

3. Where do you spend most of your time? Why?

Duffield and Barton. Duffield when I'm working, Barton when I'm training.

4. Where do you usually study? Why?

Duffield because there's a cafe and most people in my major hang out there.

5. Do you usually study alone or with a friend? Why?

With a friend because we're working on problem sets that are nearly impossible to complete alone.

6. How long does it take you to find a seat?

Duffield's usually packed on weekday afternoons. It can take me up to ten minutes to find a seat. Either me or one of my friends comes early to reserve a table.

7. What can be done to improve this?

There could be more seats and outside areas could be used.

8. Does the presence of others bother you? Why?

It depends on the situation. If I'm cramming for a prelim I'd rather be alone.

9. Where do you usually have lunch? Why?

Either at Mattin's Cafe or I bring lunch with me. It's more convenient that way.

10. If you eat on campus, how long does it take you to get lunch? What about dinner?

At Mattin's it takes me 5 to 10 minutes because I have to wait for them to prepare my order.

It takes me fifteen minutes most of the time at Okenshields because is crowded and it's on central campus. It takes me about 25 minutes to eat.

11. Do you usually eat alone or with other people? How many people

I eat alone when I'm busy. I eat with people when I'm not. Um, sometimes with one friend, sometimes with 2 or 3 friends.

12. How long does it take you to find a seat when you are eating alone? With people?

When I'm alone it takes about 1 minute because I don't mind sitting outside. With people we have to find a space or table that fits everyone. It can take up to 10 minutes in an area with a lot of people.

13. What would you suggest be done to improve this?

Place signs on tables. People who are welcome to strangers can put up an "Open" sign. People who are not can put up a "Do not disturb" sign. That way it keeps things informative but neutral.

14. Does the presence of others bother you? Why?

No. If they respect me, I respect them. It's simple.

15. How often do you sit at tables that are occupied by people you do not know?

Occasionally. But usually they are eating alone and not with their friends. Otherwise it would be very awkward.

16. If you saw someone eating alone, but there are empty tables, how often would you be motivated to sit next to them? Why?

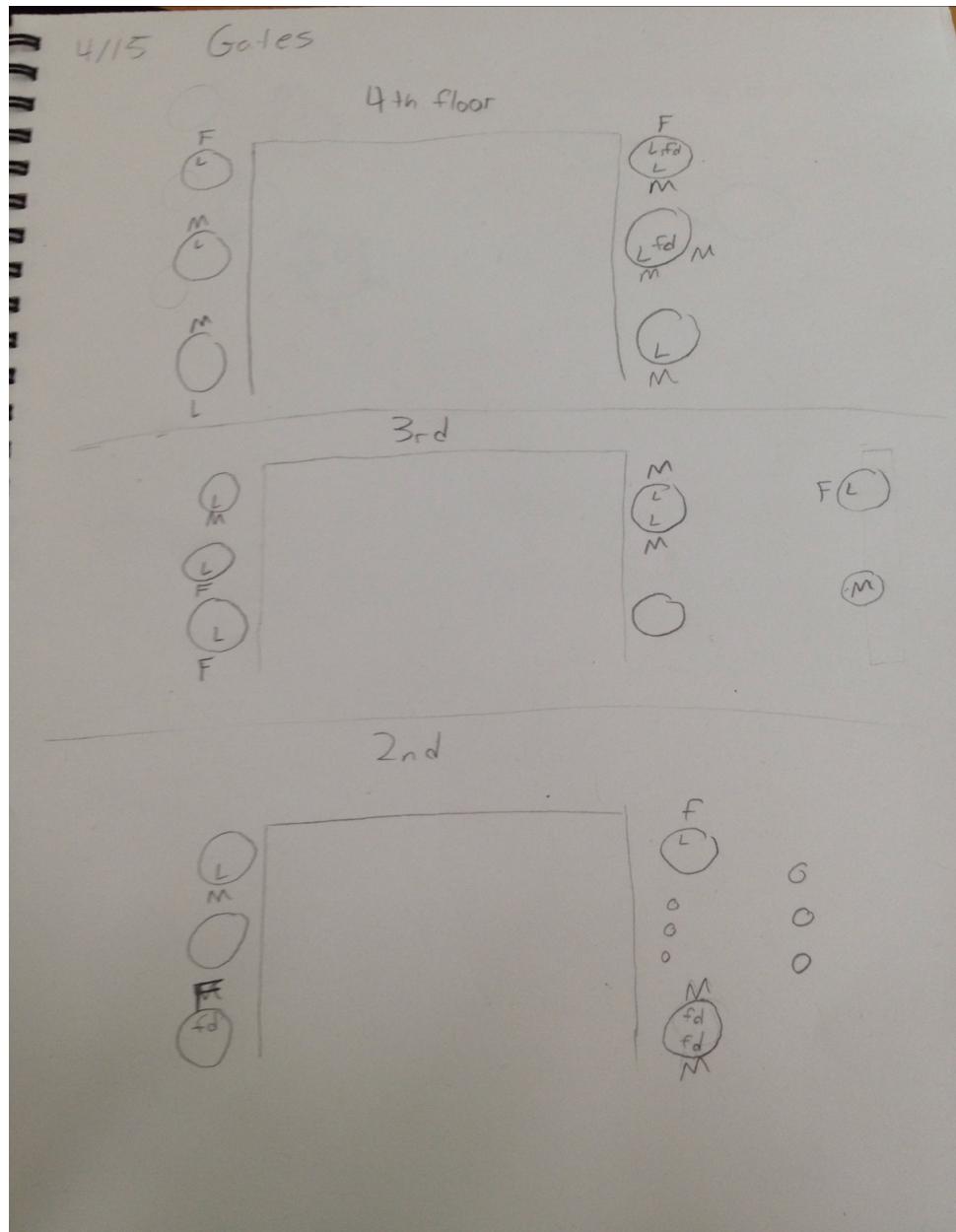
Wouldn't really have reason to sit next to them if there's an empty table nearby.

## Appendix B: Indoor Observations

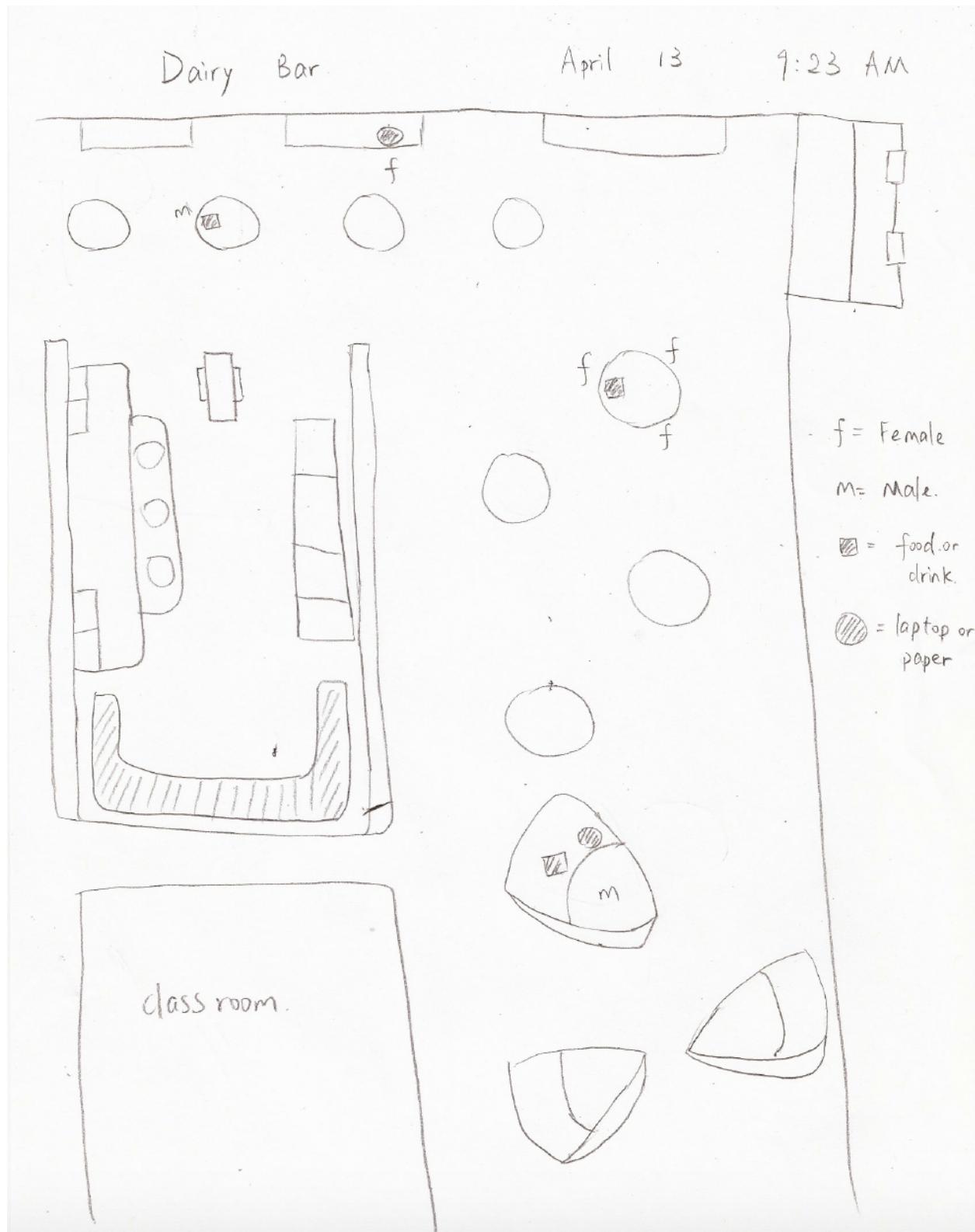
### Observation Protocols

Draw out floor plan and record seating arrangements, activities(eating, working, talking), tone of voice, group size.

### Observation Location 1: Gates Hall



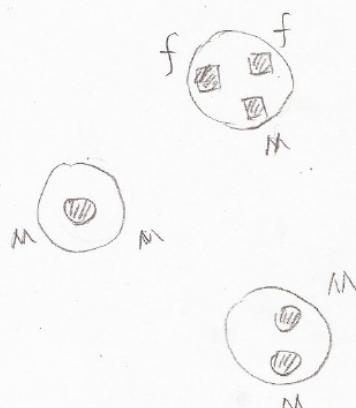
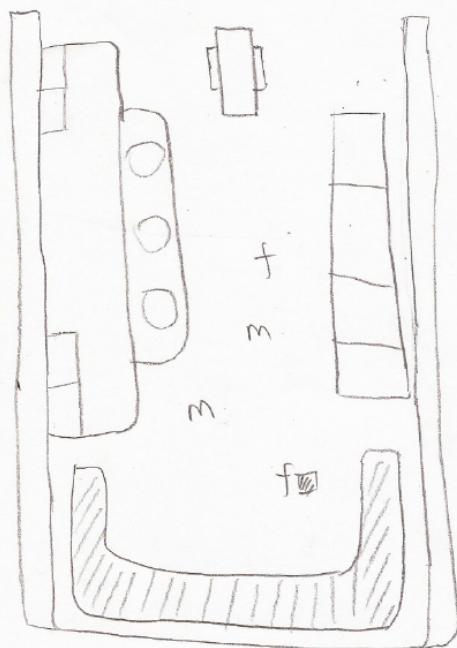
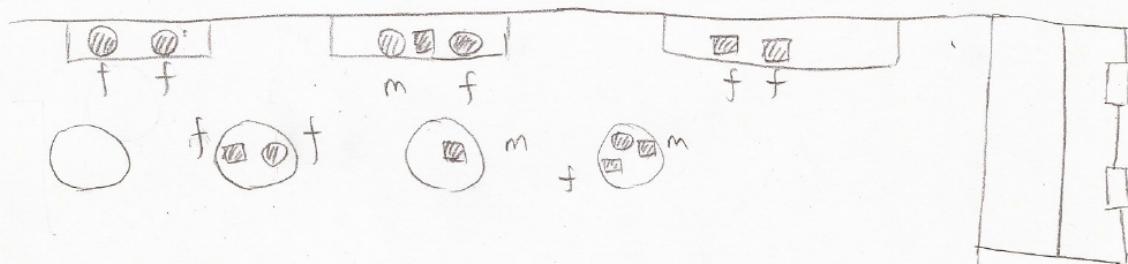
Observation Location 2: Cornell Dairy Bar



Dairy Bar

April 14

2:15 PM

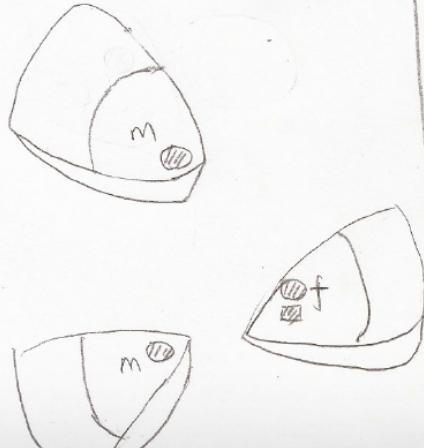
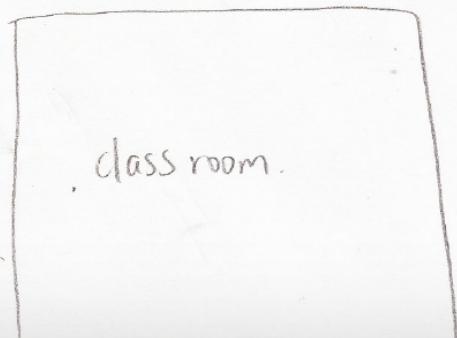


f = Female

M = Male

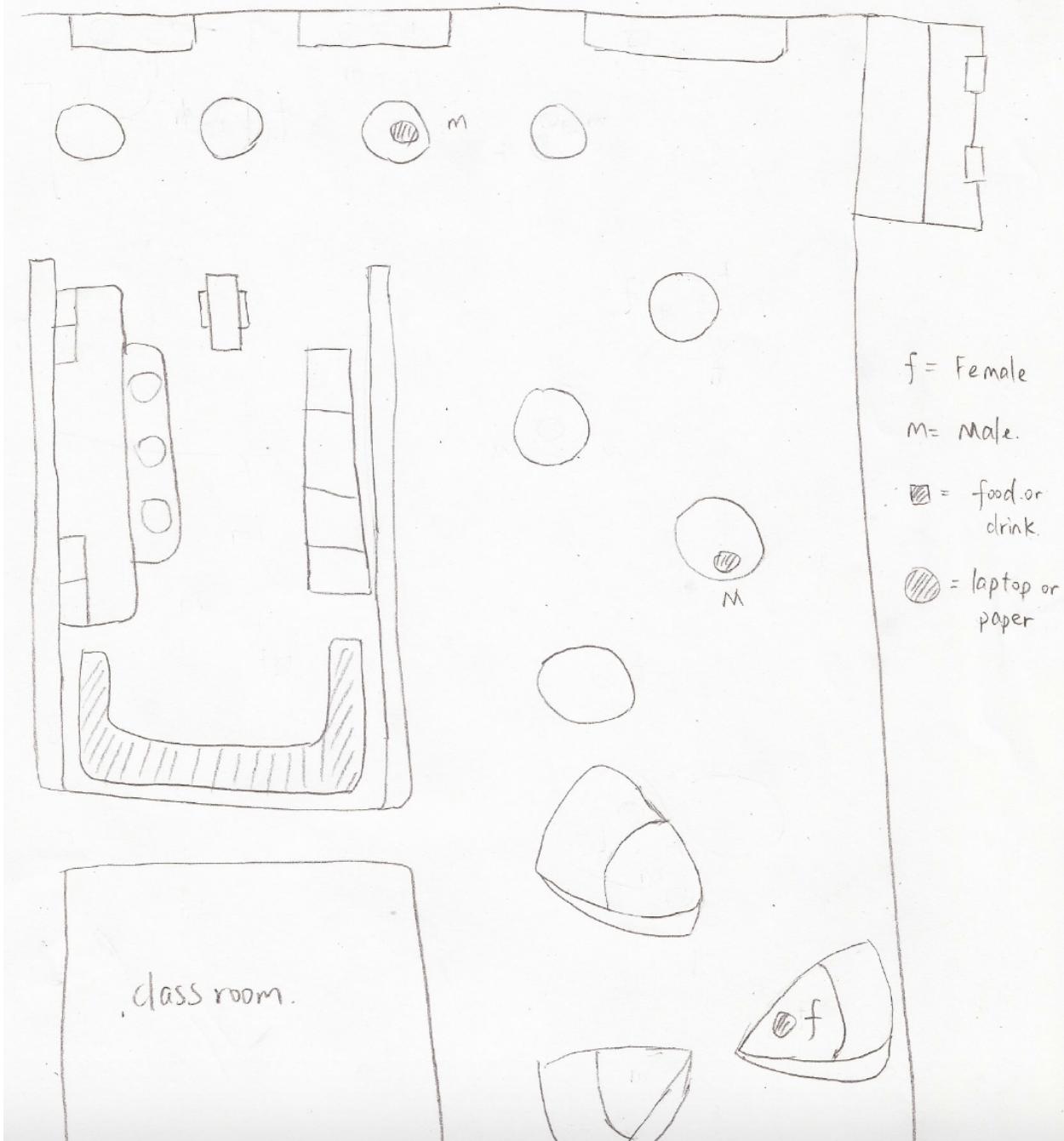
■ = food or drink

◎ = laptop or paper



Dairy Bar

April 15 . 8: 05 PM



### Observation Location 3: Duffield

4 / 13

Duffield

1:23 pm

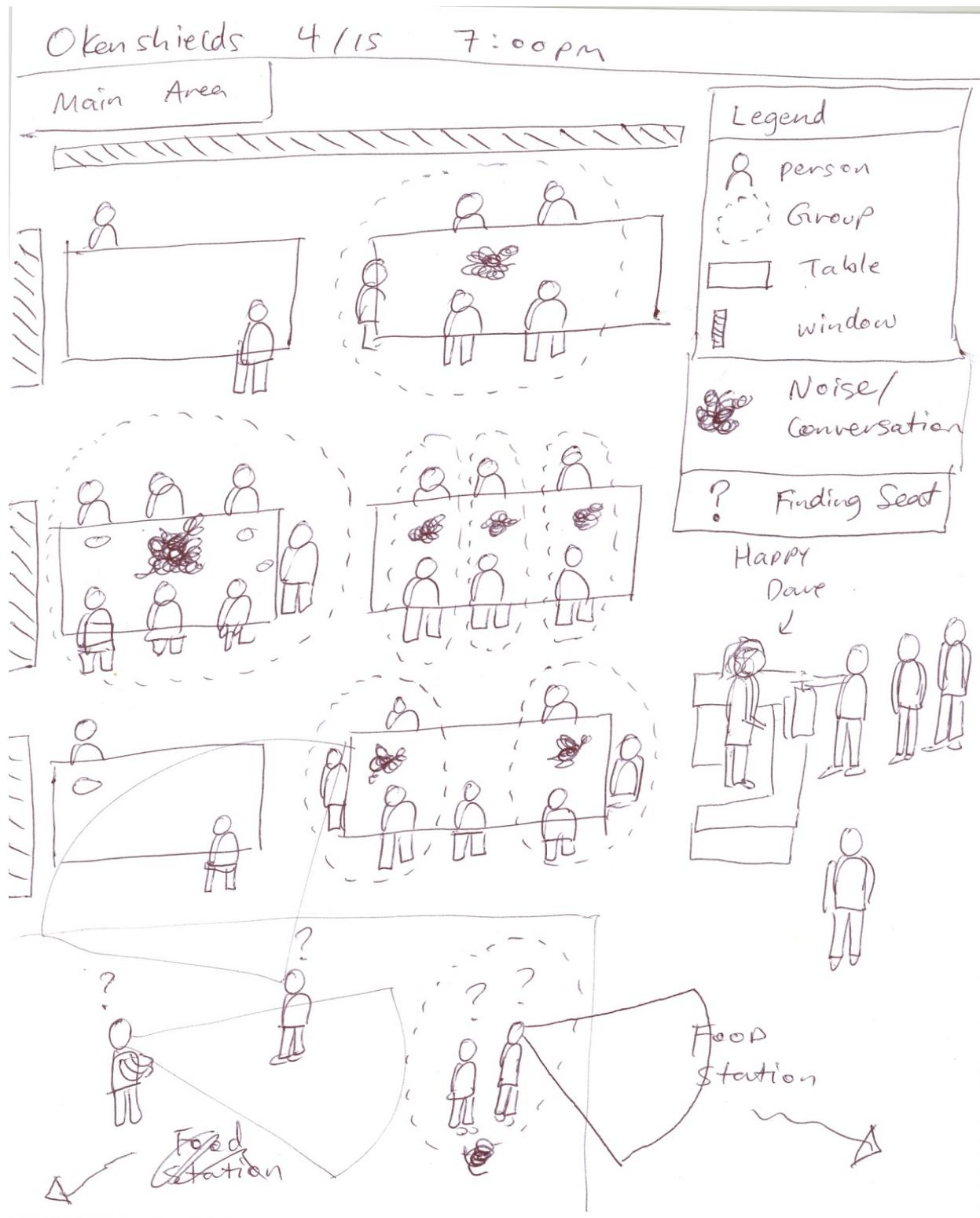
f = female

M = male

L = laptop/paper

$$f_d = f_{00\,d}$$

Observation Location 4: Okenshields Dining Hall



Okenshields 4/15 7:00 PM

Food station

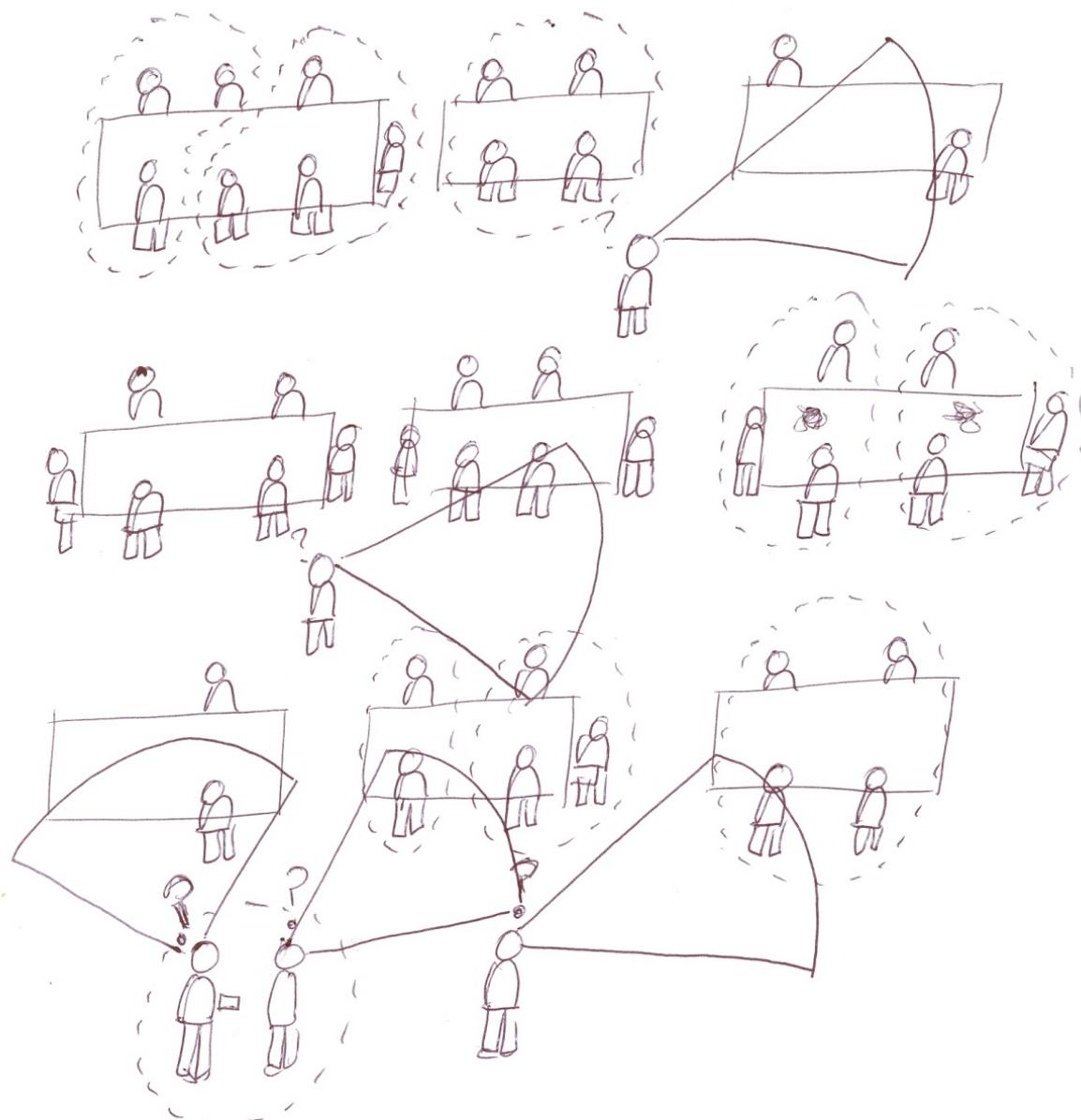


Main Room / entrance



Okenshields    4/15 7:00 PM

Backroom

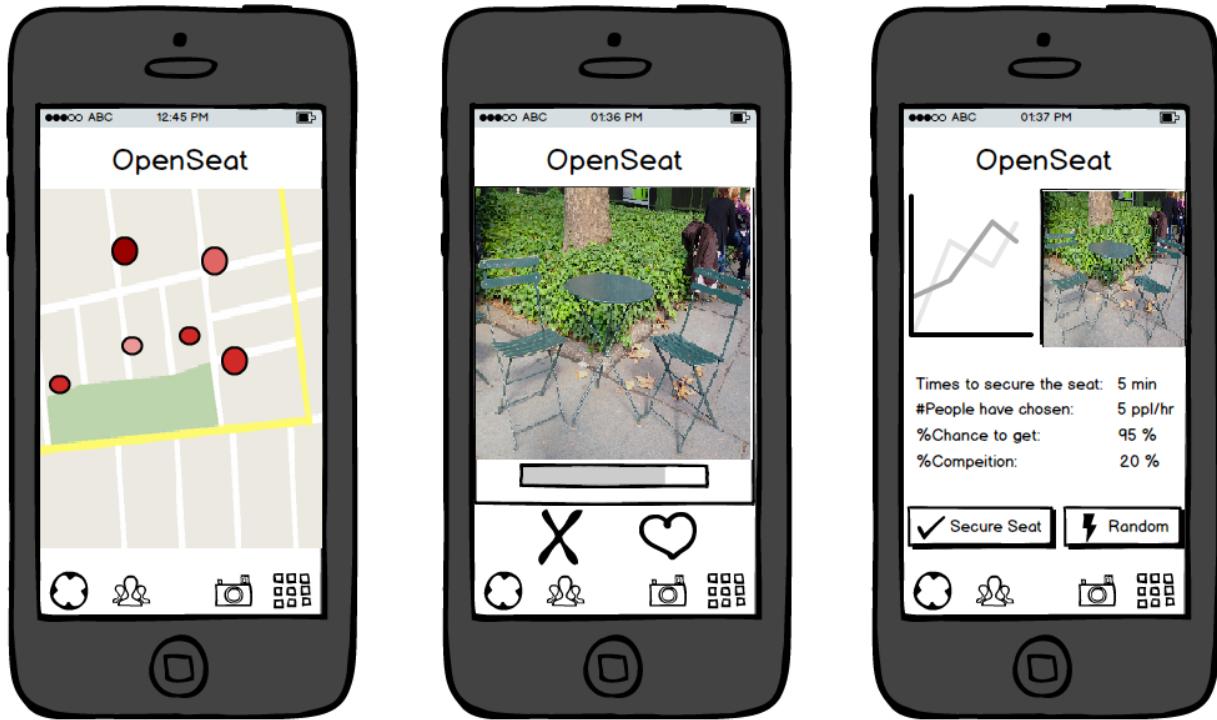


Food Station



## Appendix C: Initial Ideas

### Public Infrared Camera and View on App

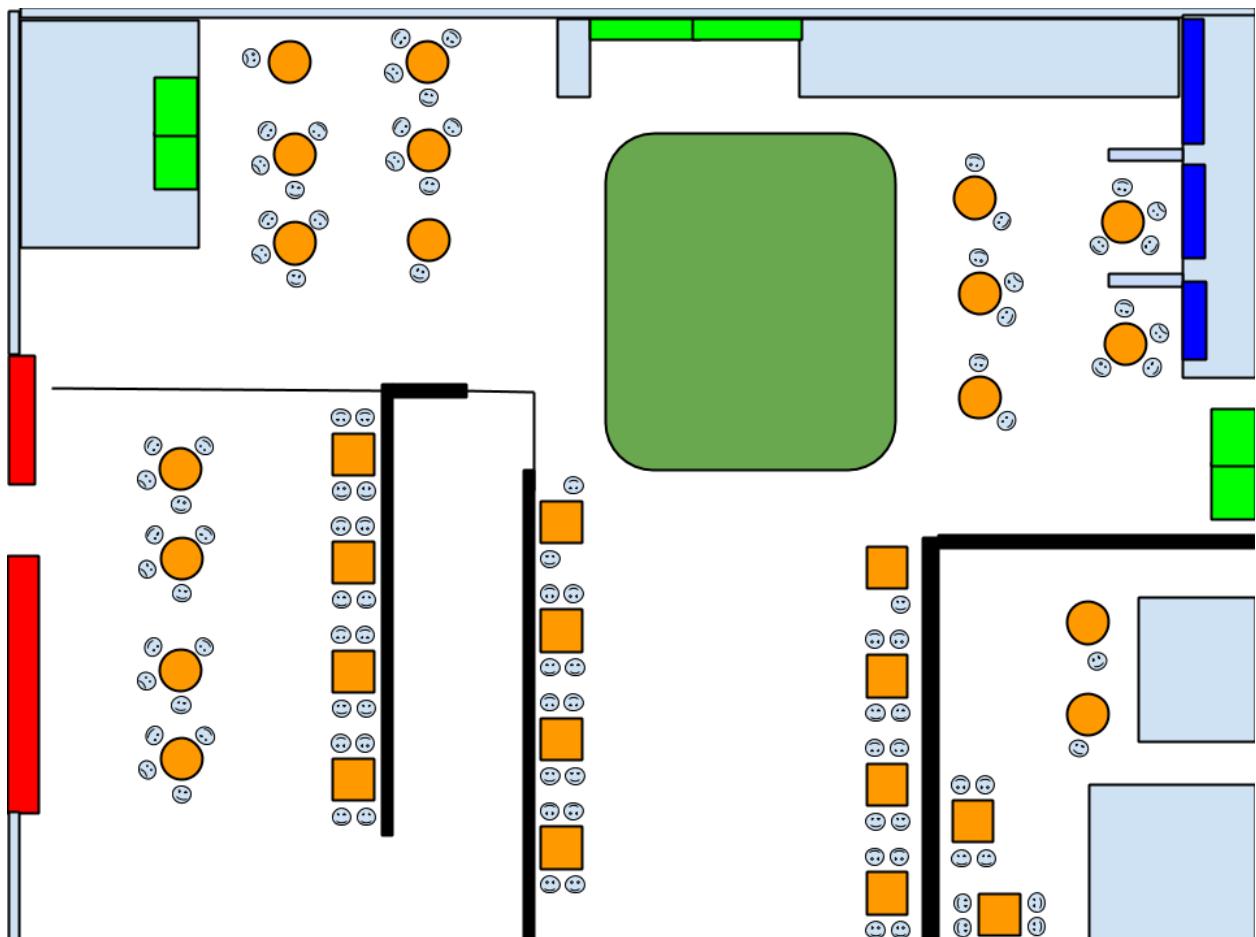


Walker path's tend to be pre-intended. According to UC Berkeley researchers, human spatial behavior does actually has a rule: walkers with a destination in mind tend to keep their direction until they have to change. Keep that in mind, we designed a system that monitor all seatings at favorite public spaces. The infrared camera can solve the privacy issues because we cannot see anything with infrared but we however, can detect if there is an object at certain places. Users can select open seating public space and try to secure it. We also connect it to users' social network so they can easily find friends that are sitting around the area. This location service can be turned off at users' request.

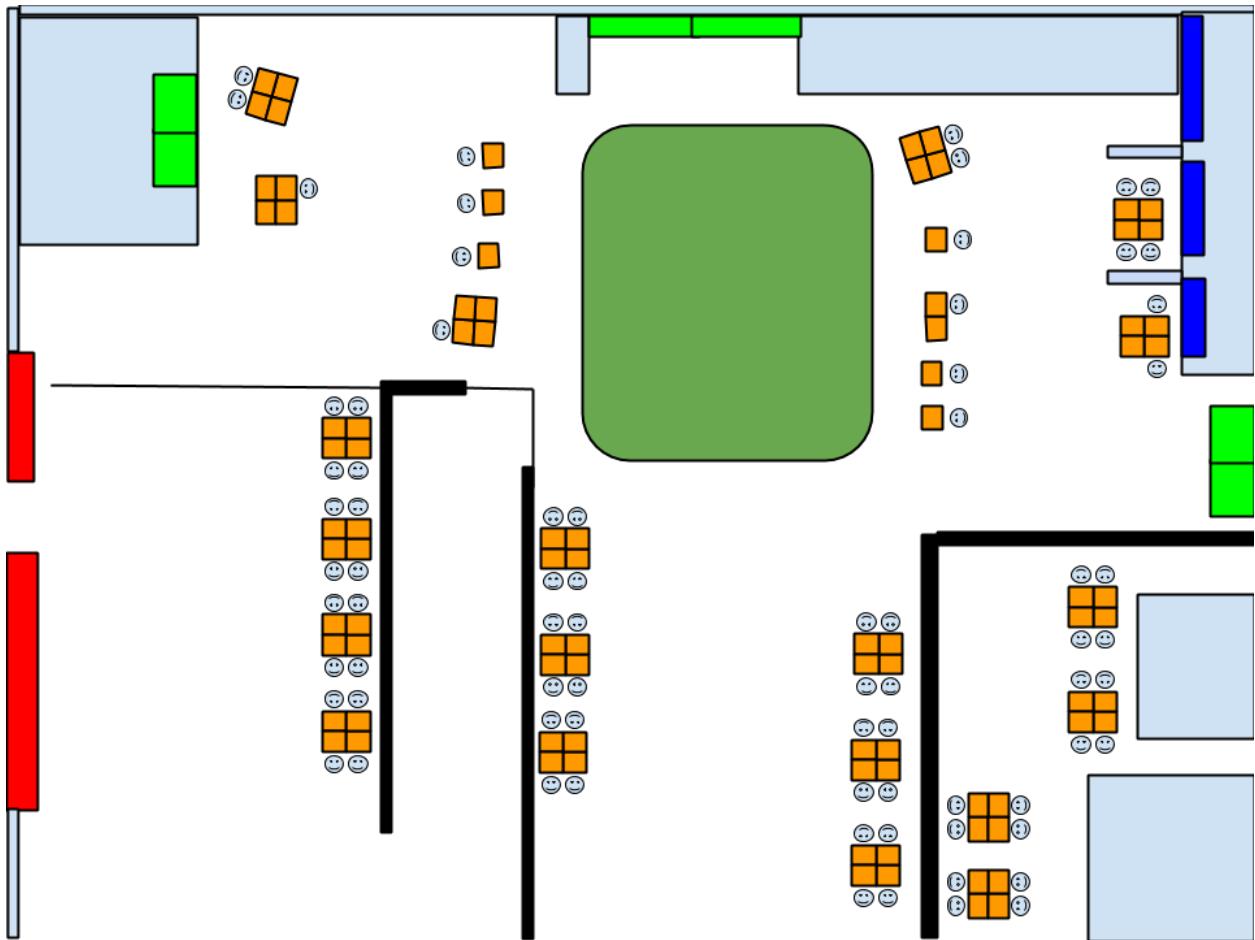
## Appendix D: User Testing

### 4 Prototype:

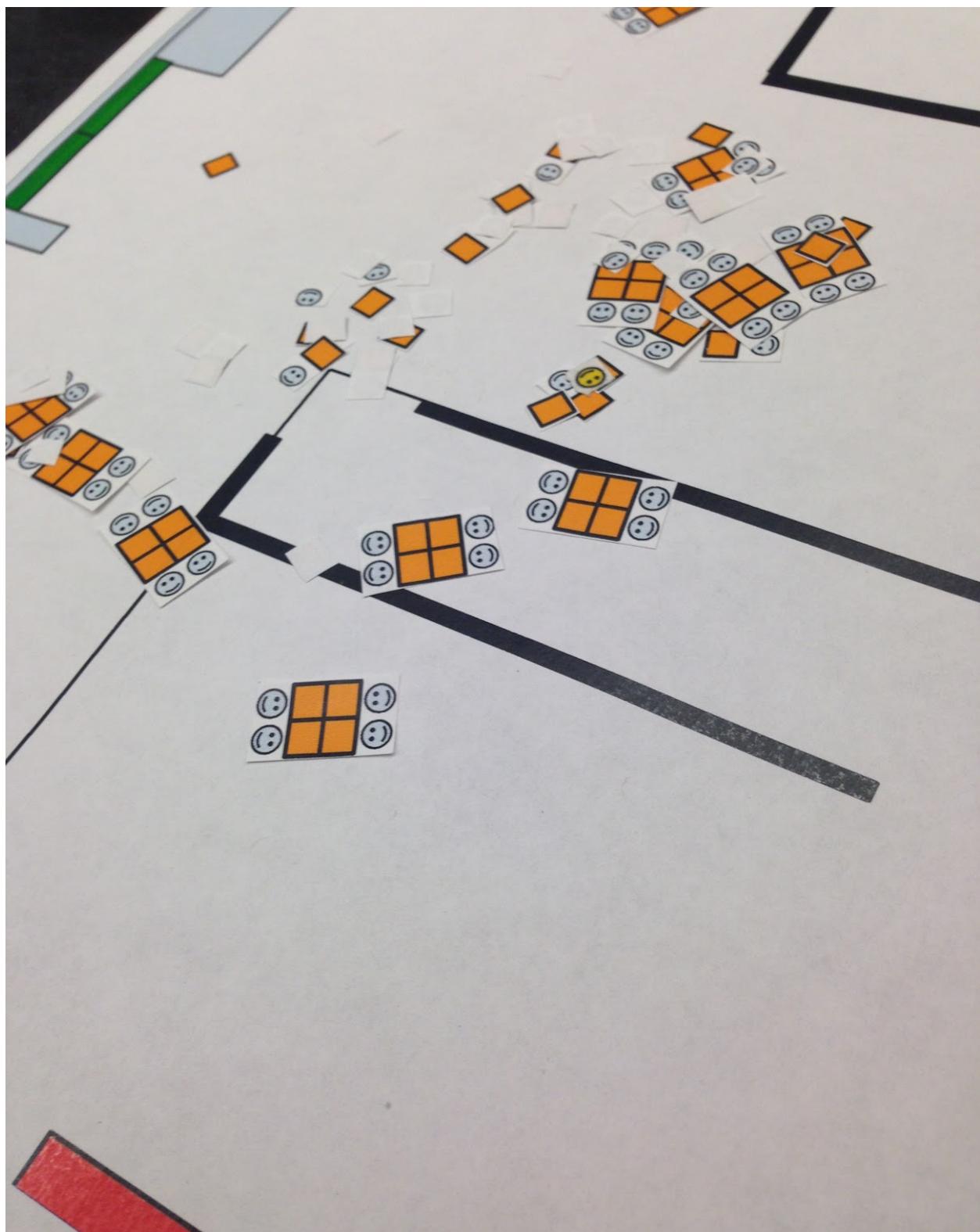
1. Normal Duffield (digital version is not available)
2. Duffield with Lego Tables (digital version is not available)
3. Duffield with Lawn



4. Duffield with Lego Tables and Lawn



Tables, Strangers and Users in paper-cutouts:



Task:

1. User just bought lunch from Mattins and needed to find a seat in Duffield.
2. User always have the option to quit finding seat and go somewhere else to sit.

Script for interviews:

Hello, my name is [x] and I will be asking you a few questions about your perception of how comfortable you are in finding available spots at public spaces. During this interview, I will be taking and recording notes about our interactions and conversation. At no point will I record your name or any other sensitive personal material.

Protocols:

\*The prototypes have to be separated into 4 corners of a room.

The order of which prototypes are tested first were randomly picked for each interviewee for the purpose of reducing bias. \*

1. Can I have your consent to record your responses in this user testing?
2. Explain prototypes' details:
  - Tables were orange
  - Strangers were blue
  - The interviewee was yellow
  - Red was used to mark points-of-interest such as cafes.
3. Introduce them to the normal Duffield prototype.
4. Give interviewees task to find a seat by place their icon (yellow smiley face). Remind them that they always have the option to go somewhere else and not sit in the scenario.
5. Ask the interviewee explain for their actions.
6. Introduce them to the Duffield with Lego Tables prototype.
7. Give interviewees task to find a seat by place their icon (yellow smiley face). Remind them that they always have the option to go somewhere else and not sit in the scenario.
8. Ask the interviewee explain for their actions.
9. Introduce them to the normal Duffield with The Great Lawn prototype.
10. Give interviewees task to find a seat by place their icon (yellow smiley face). Remind them that they always have the option to go somewhere else and not sit in the scenario.
11. Ask the interviewee explain for their actions.
12. Introduce them to the Duffield with Lego Tables and The Great Lawn prototype.
13. Give interviewees task to find a seat by place their icon (yellow smiley face). Remind them that they always have the option to go somewhere else and not sit in the scenario.
14. Ask the interviewee explain for their actions.
15. Thank you for their time and give them the cookies!

## Appendix E: User Testing Data

#	Details	Normal Duffield	Lego Tables	The Great Lawn	Both
1	Male 21	He would sit in Goldman Lounge.	Goldman Lounge because he likes that lounge and he doesn't have to interact with strangers	He would sit in the 1 person preoccupied table that is in front of the lawn. He likes the lawn	He wouldn't detach the table because he doesn't want that one person think he's mean and doesn't want to sit with that guy. He would sit at that 1 person preoccupied table in front of the lawn
2	Male 22	He would give up, go somewhere else.	He would bring the small table in the middle of Duffield and move it by the window to sit.	He would sit on the grass. He likes it.	He would sit on the grass. He would detach the table to sit on the grass.
3	Male 21	He would give up, go somewhere else.	He would give up, go somewhere else.	Sit on the grass	Sit on the grass
4	Male 21	He would give up, go somewhere else.	He would give up, go somewhere else.	Sit on the grass	Sit on the grass. Detach the table
5	Male 21	He would give up, go somewhere else.	He would bring the small table to Duffield's entrance to sit..	Sit on the grass	Sit on the grass. Detach the table
6	Male 22	He would sit in Goldman Lounge.	Goldman Lounge because no one is there.	Sit on the square table near the lawn and Goldman lounge.	Detach the square table in front of the lawn not inside the lawn.
7	Female 20	She would give up, go	She would give up, go somewhere	She would still give up, go	Sit on the grass

		somewhere else.	else.	somewhere else.	
8	Female 19	She would give up, go somewhere else.	She would give up, go somewhere else.	Sit on the grass	Sit on the grass. Detach the table
9	Male 21	He would give up, go somewhere else.	He would give up, go somewhere else.	Sit on the grass	Sit on the grass. Detach the table
10	Male 20	He would give up, go somewhere else.	He would give up, go somewhere else.	Sit on the grass	Sit on the grass. Detach the table
11	Female 20	She would give up, go somewhere else.	She would sit in Goldman lounge without detaching any tables.	Sit on the grass	Sit on the grass
12	Female 19	She would give up, go somewhere else.	She would give up, go somewhere else.	Sit on the grass	Sit on the grass. Detach the table
13	Male 20	He would give up, go somewhere else.	He would sit by the empty small table in middle of Duffield	Sit on the grass	Sit on the grass. Detach the table
14	Male 21	He would give up, go somewhere else.	He would give up, go somewhere else.	He would still give up, go somewhere else.	Sit on the grass. Detach the table

	# Interviewee	Normal Duffield	Lego Tables	The Great Lawn	Both
People	14	1	5	9	11
Percent	14	9.090909091	45.45454545	81.81818182	100

# Interviewee	# Applicable Interviewee
14	11

