

Summary of Observation

[TITLE]	Participant Observation on House Cleaning
[LOCATION]	Participant's house @ Markham, ON
[DATE]	October 13 2017
[START TIME- END TIME]	9:10am – 9:40 am
[RESEARCHER'S NAME]	YUAN DENG

DESCRIPTION OF ACTIVITY

[Participants]

The participant, Ms. Z, is a 36 years old Asian woman. She is a stay-home mom, taking care of the whole family. Her family members are her husband, 3-year-old son, and herself.

[Physical setting]

Ms. Z and her family live in a two-story semi-detached single-garage house at Markham, ON. The first floor of the house has a foyer, a living room, a washroom, a kitchen and a dinning area. The front door of the house is facing south, while the kitchen and dinning area are facing north. Kitchen has a window open to the backyard. The backyard can be accessed through the door next to the dinning area. All area of the first floor require extra lights during the daytime due to a lack of direct sunshine. The second floor has four bedrooms and two bathrooms. There is also a finished basement in the house.

[Activities]

Ms. Z starts to wash dishes, after her husband and child finished the breakfast and left for work and school. She turns the tap on, washes a bowl using a cloth, then turns the tap off, squeeze water out of the cloth and wipe the bowl. She put the bowl on the countertop close to the sink. Then she repeats the same procedure to wash another bowl, two plates, a glass lunch box and its lid. After she finishes the washing, she fetches another cloth that hangs on dish rack, and wipe dry all washed dishes. Then she put them into different storage places: the bowls and plates on the dish rack, the glass lunch box in the lower cabinet, the lid in another cabinet. After that, she starts to wash two cups. She takes out a sponge brush, which hangs on the back of the cabinet door under the sink, and brush the cups. She washes the cups, places them up side down on a kitchen towel on the countertop, then hangs the brush back to the hook.

Having done that, she pours the water from a water filter jar into a kettle, turns on the power. She fills the jar full again with tap water and put it back to countertop. She grabs a cloth that hangs on the oven handle and starts to clean the kitchen countertop. Every time she finishes cleaning a certain area, she washes the cloth, squeezing the water out, then goes back to clean the next area. After the countertop cleaning is done, she uses another cloth to clean the kitchen range. During

this period, the water is boiling, she turns off the power, just leaves the kettle there. She continues to clean the range, followed by the microwave from the outside to the inside. She also takes out the glass plate in the microwave, washes it, wipes it dry, and puts it back. She cleans the cloth again, squeeze the water out, and then use this cloth to wipe the dinning table and the high chair. If there are any leftovers on the table or on the high chair, she just sweeps them onto the floor. She goes back to the kitchen and washes clean the cloth, hangs it on the dish rack. She takes out a broom and a dustpan from a corner of the living room, and starts to sweep clean the floor of the dinning area. She sweeps the dust into the dustpan and dumps them into a garbage bag, which hangs on a rubber hook on the front door of the lower cabinet. After putting the broom and dustpan back, she takes the garbage bag off the hook, and dumps it to the large trash bin in the garage. As the cleaning of kitchen and dinning area finished, she moves to the living room and tidies up the area. She puts books back to the bookshelf, toys back to the toy shelf, and the blanket into the storage stool. She also kneels down to check if she misses anything beneath the shelves. Then she moves to the foyer, organizing the shoes on the floor and the rack, hanging up some coats and hats. Having done the cleaning on the first floor, she goes upstairs. She enters into one room, picking up the clothes and blankets on the floor. She folds clothes and blankets, putting them into master room's closet. She organizes the magazines on the top of the makeup desk in master room. Then she moves to the study room and tidies up the book and toys in the room. Then, she wets a cloth from the bathroom, and wipes the easel and its tray. After that, she washes clean the cloth, puts it into the easel tray. She finishes all the cleaning.

REFLECTIONS

- When Ms. Z is doing the cleaning, she follows a spatial sequence. She starts the cleaning from the kitchen (north), then all the way moves to the foyer (south). She starts from the countertop, table top, and finally the floor. She starts from the first floor, then moves to the second floor.
- She makes overall plans and manages to do multiple things at the same time, e.g. turn the kettle on in the middle of the cleaning process.
- The organization principle she is applying is to put things back to their own place after the cleaning, e.g. after washing the glass lunchbox and its lid, she put the lunchbox in one place and lid to another.
- She keeps the cloth clean. After cleaning one small area, she would wash the cloth, make it clean and continue the cleaning.
- She uses different cloth for different purposes/areas, one for washing the dishes, one for wiping dishes dry, another one for cleaning the countertop.
- She keeps cleaning tools within an approachable range, e.g. the sponge brush on the back of the cabinet door under the sink.
- She classifies the waste into organic, recycle and garbage according to the requirement of municipality.
- It is not clear how frequent she would clean the rooms that are vacant (guest rooms).

- She didn't cover all the areas in the room, it may be because it is the weekday and she might do another bigger cleaning during the weekend with her husband. Therefore, some cleaning tasks may be her routine, some tasks can wait.
- She didn't use the dishwasher. It may be because there is only 5 bowls/plates/cups to wash.
- She didn't use any dishwashing liquid. Not sure why is that.
- There are different types of organizers in different spaces/areas. For example, a two-levels dish rack for both placing bowls/plates and hanging cloth. There is another rack for seasoning bottles on the countertop. In the living room, there are a small bookshelf and a toy shelf for her son, and a long storage bench.
- It seems that she has a clear plan or arrangement for every item in her house. When she picks up some item, she knows where to put them back.
- Bedding in the master room has been tidied up. It is not clear if she has done the cleaning right after getting up in the morning.
- The whole cleaning task can be broken up into many subtasks and these tasks have different priorities and progress.
- For the future observation, we should consider involve her husband to see how collaborative they are in the cleaning process.

EMERGENT THEMES

The purpose of this observation is to understand the current experiences and behaviors of users as they are completing the house cleaning in order to develop software aimed at helping people save time. It is believed that the wearable technology could support people in being more efficient while providing delightful and satisfying experiences. Therefore, based on the observation and reflection, here are the emergent themes that might help to achieve the goals.

[Water resistant]

House cleaning involves a lot of washing: washing the cloth and the dishes, pouring water, washing hands/tools. Therefore, it is very crucial for a wearable item to be waterproof. More specifically, liquid that spilled on it should be cleaned off / dry easily, or won't interfere from continuing to use the device. The device should be still responsive when the user is using it with a wet hand/finger. That means users don't need to dry their hands/fingers every time they use the device. Otherwise, constantly washing/drying hands will cost more time and interrupt the whole cleaning process.

[Keep track of the progress]

In order to keep the house clean, people have to do the cleaning on a regular basis and require a continuous plan over a period of time. The whole cleaning task can be broken up into many subtasks and these tasks have different priorities and progress. For example, the guest room in our participant's house requires less frequent cleaning than other areas. Our participant needs to keep track of how long it has been since last cleaning, so that she can come back to clean it again with a proper time frame. During the cleaning, she also needs to keep updating the progress in her mind

in terms of what tasks she has done and what tasks still needs to be done. Overall, a house cleaning requires a lot of mental workload.

Therefore, it would be great if a wearable device can help the user to keep track of the cleaning progress in real time to reduce users' mental workload. Here are some features to consider: customize the cleaning tasks, cross out the tasks that has been done, set the schedule for next cleaning, remind of next cleaning area and time, save the statue of a certain task if the task is disrupted.