

2d: Design Research Review

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Introduction

After the research check-in, we decided to focus our current design on local inventory management and dressing recommendations, excluding features such as item exchanges and shopping suggestions. Consequently we shifted our research to a more general population with the need of managing their clothing collection. We were able to carry out our research on three students in UW with different backgrounds. The research consists of three stages:

1. **Observational study:** We visited the participant's home and observed their clothing storage (usually in a bedroom), recording the layout, organization, volume and other features of their storage area.
2. **Contextual inquiry:** The participant performed the scenario in which he/she picks the outfit for a day as we observed and questioned.
3. **Interview:** We asked a series of questions on the participant's strategies for managing his/her inventory, and opinions on styles and fashion.

Participants

Participant 1

Michael is a senior undergrad at the University of Washington studying Electrical Engineering. Michael is a 21-year-old white male. Originally from Manitowoc, Wisconsin, Michael came to Seattle in 2013 to attend college. Michael lives in an off-campus house one block north of campus with 9 friends who he met through his fraternity. Michael is interested in entrepreneurship around sustainable energy solutions and hopes to one day start his own company. Michael considers himself to be reasonably “fashionable,” meaning that he invests time and effort into his appearance. The combined observational study and interview was conducted in Michael's room on Wednesday, January 18th. The environment was calm, quiet, and free of distractions.

Participant 2

Annalise is a 21-year-old college female who lives in a house about 3 blocks off campus and has her own room. Annalise's wardrobe was organized amongst different vessels by category: shoe racks, underbed shoe organizer, 2 racks, 2 dressers, a coat rack for heavier items, and a laundry basket filled with shoes.

Participant 3

Jian is a senior undergrad in the University of Washington majoring in Applied and Computational Math Sciences. He originally lived in China, and came to the U.S. 3 years ago for college education. He now lives in campus apartments and is actively preparing for further education in Master's programs. Jian is often described as a hard-working and devoted individual – He has performed well academically and socially. What drives him interesting to our research is his prominent transition of dressing styles. During his first half of the college, he dressed plainly and pragmatically. However he then became attentive to his appearance, started working out routinely and dressed in style thereafter. The research was conducted on Wednesday January 18th and concluded smoothly.

Research Themes

We were able to code common themes from our combined research:

- During outfit selection, participants aren't completely aware of what they have due to constraints on time and effort.
 - *Participants inventory consists of many permutations*
Normally the participants keep 3~20 items in a similar type. And when the items vary in style, exhausting the combination of styles across types becomes implausible for human capabilities.
 - *Participants want to visualize their clothing assets*
Commonly, when a participant decided to try out one specific item, he/she would take it out of the storage area to an open space, along with other selected items, and see if it keeps the uniformity of style. This process requires the physical effort that may inhibit the participant from continuing optimizing his/her selections.
 - *The context enforces a time limitation on the process*
For the participants, the common scenario for dressing is during the morning before school/work. Therefore, they often have a limited time to consider their selection.
- Unworn/out-seasoned items tend to get pushed towards alternative or less-accessible areas by the participants. (i.e. Under the bed, in a separate room, etc.)
- When the participants dispose their unworn clothing in their wardrobe, their most likely action is to donate the items (i.e: Goodwill, donation bin). This is likely because it requires less effort than other methods and is for a good cause.
- Weather is a participant's most important factor for choosing certain clothing, followed by occasion. In terms of style, participants tend to care the most about the consistency -- items need to match each other.
- Participants tend to have a set of items specific for certain occasions/utilities.

- Participants don't take particular pride in organizing his current wardrobe if they are in a short-term or temporary housing. This was applicable to many of our participants due to a selection bias. The researchers are all college students, so college students are easily accessible participants.

Task Analysis Questions

1. **Who is going to use the design?**

People wanting to take more control over their wardrobe and optimize their dressing process (in efficiency and style).

2. **What tasks do they now perform?**

Based on our research at this point, there are two main tasks. The first one is wardrobe organization & management. Participants organize their wardrobe (based on types, style etc.) periodically. Another main task is outfit selection. Participants tend to spend time on deciding their outfit regularly and inevitably. There are also some major external factors on the decision they make, such as weather, occasion, quality/consistency of style etc.

3. **What tasks are desired?**

The desired tasks need to improve the current solution on wardrobe organization and outfit selection.

First, for organization of wardrobe, the following tasks are desired. A better knowledge and awareness of their wardrobe (e.g. deal with excessive items).

Visualization of outfit choices from existing wardrobe.

Also in order to have a more efficient and stylish outfit choosing process, outfit recommendation based on various information (e.g. weather, occasion, etc.) is desired.

4. **How are the tasks learned?**

The design needs to minimize its demand of people's effort. The dressing process aided by our design needs to resemble the one without, so that people deal with less overhead and smaller learning curve.

Other approaches to ensure a better user experience include intuitive, tutorials/guidelines and simple user interface.

5. **Where are the tasks performed?**

Near the clothing inventory of the person using the solution.

6. **What is the relationship between the person and data?**

The data is derived from the person's choices learned over a calibration period.

7. What other tools does the person have?

Tools for better style include observations on style input from other individuals (friends, family and professionals), social platforms such as Instagram.

Tools for wardrobe management could be physical, such as tags, organizers and storage compartments or other digital tools, includes alternative closet management applications (e.g. Closet+, ClosetSpace, Stylicious, etc.)

8. How do people communicate with each other?

We assume communication between people is unnecessary in this system, since this problem space is largely interaction free. If any, it will be indirect, meaning other people's data might be used to optimize the process of outfit selection.

9. How often are the tasks performed?

Tasks are performed every time the participant dresses or selects a new outfit.

10. What are the time constraints on the tasks?

Depends on the person's schedule. For example, time constraints may be more common during the morning

11. What happens when things go wrong?

There are some possible problems to this system.

- Systems requires excessive user input (solution requires a tedious amount of time or tasks). if the amount of effort required exceeds effort saved, people will see less reasons to use the system.
- Poor quality of item recommendation. It may also cause people to lose interest in the system. Satisfactory outfit recommendation will likely require high standards of computer vision & machine learning & data analysis.
- Inappropriate tracking/recording methods could be treated as intrusive.