

## Emerging Themes

The following shows the topics emerging and catching the investigator's eyes during analysis:

### Unexpected Affordances

Even the perceived affordances might be different from what the designer expects. During the pilot session, the participant was provided with a piece of reflective paper. The reflective feature was assumed to stand out most by the investigator. Surprisingly, the first response from the participant was to scoop with the paper to help him pick up the small objects on the smooth surface, which is hard for him to pick up by hand (Figure 42). This indicated that the perceived affordances of the object might misalign with what is intended by the designer.

### Decoupled Functions and Multistability

At the end of the session with Tina, the stove beeped and Tina immediately went into the kitchen to turn it off. 'It was the 90-minute,' she explained. This left a deep impression on the



Figure 42 Unexpected use

investigator. Even though the stove is usually to be used for cooking, Tina was able to decouple one function - timing - from the object and intentionally use it. As illustrated by the highly influential example of a hammer put forward by Heidegger (1996), a tool is 'something in order to and a tool does not exist by itself, but in the context to which it refers. For instance, the stove is a cook used to provide heat during cooking while it is a timer used for timing in the situation mentioned before. This was exactly one example of the multistability of objects appropriated deliberately by the user.

### Autonomy and Shame

During the discussion about mental health, Anna compared the experience of going to see a psychological therapist with that of talking to a smart agent.


*It's also a kind of autonomy. It's not like going to a doctor, saying, you are gonna feel really miserable and you feel like an idiot ... saying that you feel ashamed for yourself. There is no shame in magnets. [Anna]*

This implies that inanimate agents provide security and the sense of security to confide in. Whether she would feel scared to use robots in her life was asked as a follow-up question.

*I mean if somebody brought me a robot, I would give it a name. [Anna]*

She said that she understood what makes people concerned is their life being taken over by artificial intelligence but she knew it was not the present. She noticed that the robot or smart agents are not


infallible. The fallibility reassures her that she is still cleverer.

 *The decision ultimately is mine. I am the one who decides whether it's right or wrong. I always have the choice to opt-out. It is not scary for me. [Anna]*


Though she admits that fallibility can be a kind of reassurance for her, it is not always good to make mistakes. When it comes to a matter of life and death, it shouldn't make a single mistake.

### **Categorization and Openness**

Another interesting observation from the sessions was two different responses elicited by the same object - the sticker. In the first case, the participant was familiar with the intended use of the object and when encouraged to explore how to interact with it even in an unfamiliar way, he stated,

 *I know they're for chairs ... I will never attach this kind of thing on my body. [Robert]*

While in another session, the participant didn't know what the object was used for and could only infer from its physical affordances. He commented,

 *It gives me a sci-fi feeling ... seems to be able to measure something efficiently. [John]*


It was fascinating to see how different categorization of the object influences the degree of openness to interpretation. The first participant immediately categorized the object into household tools and refused to go beyond the normative ways of use. While the second participant was aroused

by the shape and materials of the object, and even stuck it to the forehead to enact a kind of smart device that can monitor bodily measurements. Again, as demonstrated by the hammer example, tools call attention to themselves when the reliable dealings we are accustomed to having with them are disrupted, as does the hammer when its head flies off the handle. The fixated categorization of the objects exerts invisible normative pressure to use it as intended and might undermine the ability of reinterpretation.

### **Willingness to Use**

The style of the objects very much influences people's motivation to interact with them. The style should pique the interest of interacting even though the purpose remains opaque.

The style could be the composition of color, for instance, the brightness, the contrast degree, etc. It can have an emotional impact on users as well.

 *Vivid and bright colors make me pleasant and creative. [John]*

The archaic sense of the object might also influence the perceptions. The rope, which has been existing for thousands of years, manifests as an ancient tool and exhibits a sense of security to use and explore.

## Emerging Concepts

### Concept 1: Information Magnifier

Tina loves reading about botany. She is fascinated by different types of plants and always wants to know more about the plant she encountered in the picture or on the road. The magnifier not only serves as a tool to zoom into the details physically, but also helps delve into the information digitally as well.

One similar concept was also brought up by Anna. She mentioned using a lens to check the photography works closely and get associative information through it.



Figure 43 Information magnifier

shared her observation on the people living in her building.

'This is a building with many aging people living here. And I can tell that many of them are lonely. Some because of the death of their old friends - this happens all the time for people our age and some are not able to make new friends.'

So the co-speculation result is a pair of magnets that can glow when detecting the movement of the other magnet remotely. Especially during the time of lockdown, many people live in solitude and this can be used to overcome isolation and separation. Besides, the action of glowing is a subtle signal of availability which is quite different from the direct request to have a zoom meeting. This increases the capability of emotion. As put by Anna,

... if you say 'can we zoom', the other person often feels this is not a great moment but I guess we can. As opposed to 'My friend is having a cup of tea, so am I, let's chat!' [Anna]

Moreover, it can also be used to detect abnormalities and integrated with an emergency

It is a way to renew yourself with knowledge. [Anna]

Keeping up with the trend makes me feel young. [Emily]

This concept was ideated to satiate the need of retrieving related information about the topic of interest. It helps strengthen the capability of senses, thoughts, and imagination.

John also envisioned a type of magnifier through which he could easily check the ingredient information on the food package and tell him whether it is healthy for him. He has type 2 diabetes and has to pay close attention to the sugar amount. He also keeps an eye on the nutrients. In this way, the tool can save him a lot of time checking the ingredient table. This concept helps strengthen the capability of body health.

### Concept 2: Chatting Sticker

Anna noticed that loneliness has been a prevailing problem for aging people. Good social interactions and connections are important to well-being. She

system. Anna said there were some people who died and hadn't been found for several months afterward. She shared another story,

*There were two people living in this building, one called Peter and another man called Thomas. And when Peter moved in, they hated each other. But later they became friends. Thomas is not in very good health. For a very long time, Peter would phone Thomas at 8 o'clock each morning to see if he is OK. And a few days ago, Peter didn't phone. Fortunately, Thomas had a friend who is very fit and the friend managed to climb from one balcony to the other and to look through the window. And Peter was on the ground, he had had a stroke. ...it was intended in the other way around that Thomas is not in good health and Peter made the call to check if he is Ok and if not Peter would be the one phoning the ambulance. [Anna]*

So she imagined that the sticker might be able to detect the falling or sense the stillness of the person for an abnormal period of time and set off an alarm. If the person concerned doesn't switch it off after a while, the emergency system will be engaged. This concept mainly contributes to the capability of life and bodily health.

**Concept 3: Magnetic Planner**

For the sake of her profession (photographer),

Figure 44 Chatting Sticker



Anna needs to travel frequently. She imagined a set of magnetic cubes that can be used for planning. They can work as ordinary magnets attached to a huge board for making serious plans. This helps improve the capability of practical reasons.

She also got inspired by the potential of different sequential combinations of the cubes and imagined that they can give some random unexpected plans while shuffled to create a serendipitous experience.

*It can suggest you go to a cafe or a particular landmark and you are going to meet somebody. But it is a random thing and it could be rather interesting ... It's an adventure. On the one hand, it could be intimidating. On the other hand, when you are surrounded by people who don't know you, it is also liberating... It could be something psychologically empowering. [Anna]*

Besides, different levels of significance can be ascribed to the cubes. They can be moved around on the board showing different planning structures as well as randomized for coming up with a surprising plan. This concept could help strengthen the capability of play.

**Concept 4: Tangible News Filter**

Another concept related to the cubes was come up with by John, who is a heavy news reader. He thinks it is important to stay relevant to the present society and he likes to follow the trends of his favorite bands. He subscribed to two newspapers and he didn't read them all but picked out certain types of news to read. Similarly, he

imagined the cubes could be a tangible news filter. He ascribed different types of news to cubes with different colors. By picking out some cubes and putting them in a particular order, he could easily orchestrate the news meal of that day. Random mode is also applicable. This concept helps strengthen the capability of senses, imagination, and thoughts.

Anna also mentioned associating the mood monitor with the news. The filter would suggest news composition based on the mood. For example, if the mood is low then lessen the dose of bad news.

### **Concept 5: Time-space Traveler Binoculars**

Inspired by the street view of the Google map, Anna imagined a type of binoculars in which she could experience the real-time street view all over the world or travel back to the past to experience the urban landscapes of different places.



*Maybe I can see what is going on in Manhattan right now or take a walk in Paris or experience the 16th century of England. That would be amazing.*  
[Anna]

This concept provides a stimulating experience and helps augment the capability to play.

## **Discussion**

The co-speculation sessions with aging people were not plain sailing. Different personalities of the aging people make the facilitation of each session a new adventure. For example, some participants are more talkative and diverging and necessary interventions are needed to steer the direction of diverging. Some participants are more thoughtful and better at abstract thinking, some guidance toward concretized speculation is needed. Overall, it was a great pleasure to co-speculate and discuss with a variety of people. The discussion sometimes went surprisingly deeper than expected. The outcome of the sessions was full of surprises and effectively exposed the blind spots the investigator had. Besides, topics on autonomy and agency, chronological evolution of use, technology-utopian, etc. were touched upon during the sessions, which turned out to be quite inspiring.

### **Situated elderliness**

One recurring pattern in the sessions with the aging people was that they would be positive about the value of gerontechnology, but then hurry to add that they themselves would not need something like that yet (i.e. it was useful for \*other\* aging, with more health issues)