Individual Reflection

Tactile Experience - Relaxing

Haoyu Dong
Eindhoven University of Technology
5612AZ, Eindhoven
h.dong@student.tue.nl

WHAT I HAVE LEARNT

I have learned material qualities from both physical and sensorial aspects, as well as the user-interaction aspects. Thus, I am able to select materials according to functionality and personality of the materials. Starting from specific tactile experience words, I can formulate the material experience with synonyms and antonyms words, and associations. Then by using these words, I could cluster the material samples and summarize the appropriate material properties that can convey the tactile experience. In our case, we created the concept - motion material, which has moveable parts that can move with the hand movement. Based on the theory of Lederman et al [2], I integrated the exploratory procedure, in our case is lateral motion, with the concept of motion material, which also helped us to frame our user test. In order to explore if the motion materials can provide more relaxing feelings, we used the research method from Brown et al [1]. I have learned the research methods and methods for quality interview from he literature reviews.

In the final design transition to a product - cellphone case, I am able to think and express from a designer's perspective instead of just placing the materials. Due to the contradiction between our experience word and the fact that excessive use of cellphones may cause anxiety and depression [3], it makes no sense to design a phone case that can provide relaxing experience while users are using the phone. Therefore, I proposed a phone case with a lid attached with relaxing materials. When the users use the phone and open the lid, the relaxing materials would be inside and can not be touched. By this, I aimed at reducing cellphone users using their phone. In this process, I am able to integrate certain materials into physical product and express the experience in a designated way.

Figure 1: Individual material collection

LEARNING PROCESS

My learning process in this course is about both theory and practice. Literature review equipped me with necessary theory about material selection, tactile experience and hand exploratory procedure. Most importantly, I am able to implement the theories into our projects.

In practice, I explore mutiple technology, manufacturing process and materials. After finishing the user test protocol, we selected one plain and neutral material, three fur material and three tentacle material (Figure 3). Since I already found the tentacle from carpet (Figure 2 (d)), we decided to make two kinds of similar size tentacles, one with similar softness with no fibers and the other harder one. During one week period, I have made 4 samples. The first one was 3D printed with TPU filament (Figure 2(e)), however, it was not soft enough as we expected and used as a control material in the user test. Then, I 3D printed a mold and casting latex (Figure 2 (g)). Unfortunately, when we conducted the user test, the latex is not dried. In the end, it took about 10 days to dry and the final sample was quite successful - with the expected softness and elasticity, squeezable and playful. In the final user test artifacts, I raised the idea of making the soft tenta-

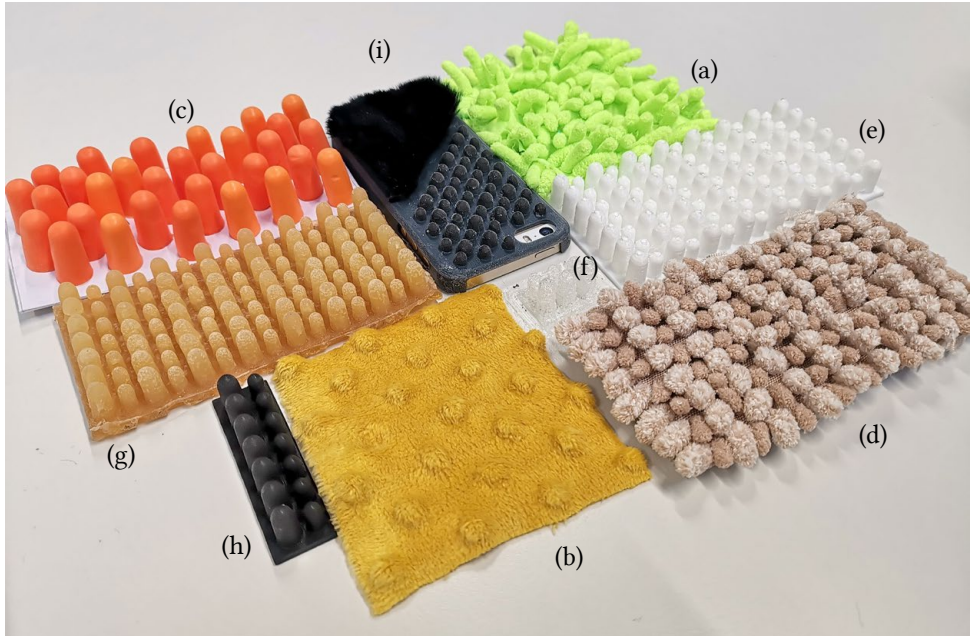

Figure 2: Tentacle exploration collection (a) unpatterned synthetic velvet tentacles (b) fabric with soft fibers and heat embossed with small tentacles (c) highly elastic polyester foam material, inviting to squeeze and press (d) synthetic tentacles with microfibers, inviting to stroke (e) Ultimaker3 3D printed tentacle wth TPU filament (f) Ultimaker3 3D printed tentacle sample with elastic filament FILAFLEX (g) casting latex tentacle with 3D printed mold (h) Connex 350 3D printed hollow tentacle sample with soft material (i) final prototype, connex 350 3D printed with filled tentacles.

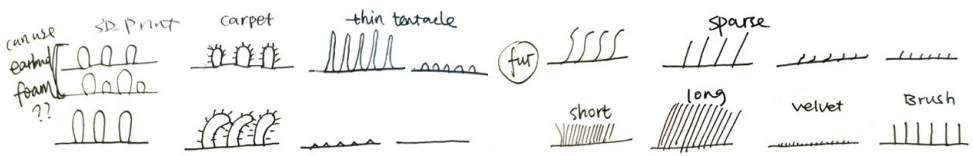

Figure 3: Different types of motion materials for the artifacts.

cles with earbuds (Figure 2 (c)), which is easy to buy with relatively similar shape and softness to the carpet tentacles. Meanwhile, I 3D printed tentacle sample with elastic filament FILAFLEX material in the wearable lab (Figure 2(f)). However, due to the hollow structure and relatively soft material, the sample tends to split. Moreover, due to the lower printing resolution, the thickness cannot be as thin as possible and can not reach the softness we wanted. At last, I tried the Connex 350 3D printer in the d.search lab, which can print an almost perfect middle hollow tentacles with the S40 material (Figure 2 (h)). While making the final prototype, I also tried to 3D print filled tentacles (Figure 2(i)), however, it did not turn out soft enough. At the end of the presentation, I made this tentacle material exploration collection (Figure 2).

CONTRIBUTION

I have played roles of guider and hand-maker in the group. These are my contribution to the eam work: Individual material collection (Figure 1), experience formulation with teammates, making 3D printing user test artifacts, conducting the user tests, brainstorming of the final product, 3D modeling and 3D printing the final prototype, making the process poster.

Generally speaking, the whole project went well due to the good communication between the team members. I have learned different insight from students outside of the Industrial Design department, such as good ability to translate data into meaningful conclusion and cautious attitude towards research.

REFLECTION

Due to the tight schedule of quarter three, I could not spare more time for this elective. Although I have tried my best, I think I can make more progress if I have more time. For example, in the final prototype, I printed the fully filled tentacle which is not soft enough. However, I did not have time to explore how the wall thickness of the tentacle influences the softness and elasticity and the tactile experience.

As a Master student who is willing to look deeper into interactive materiality, this lecture is a good starting point. The exploratory procedure by hands and the research methods from the papers gives me insights on the material consideration in building physical prototypes. So far the knowledge is only about static materials and active touch, yet in the future, I can easily implement the knowledge in dynamic material exploration and shape-changing interface design.

Reference

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