INTRODUCTION

Touch is a core human interaction, and it allows users to obtain a direct and primary understanding of a product or material. How tactile information affects the generation of design ideas, and can it elicit more creative design ideas remain open questions. The analysis in the current study examines the results of a tactile experiment where participants’ impressions from a set of existing product materials were compared with those from new material.

MATERIAL-INSPIRED DESIGN OPPORTUNITIES

BASIS OF THE CURRENT RESEARCH

In a study of product materials, we investigated existing natural and artificial materials in addition to one new material. We focused on capturing the explicit impressions and on identification of underlying layer of emotions from tactile interactions with the materials. We explored the associations behind each explicit impression given by participants, and we defined them as core emotions. Associations are the stimulus words used to evoke the explicit impressions.

After the core emotions were identified, we conducted a qualitative analysis (see figure), intended to help us understand the character of the core emotions and their possible role in evoking original and creative ideas. The core emotions were classified according to shared general category—the following categories were particularly relevant and corresponded with the captured core emotions: (1) natural object (or physical entity); (2) artificial object (or artifact from living space); (3) abstraction. In order to investigate the potential for creativity, we evaluated with two methods how similar are the material and the core emotions as words (see table).

EXPERIMENT PROPOSAL BASED ON THE INSPIRATION POTENTIAL OF MATERIALS

The experiment above investigated the affect of tactile information on ideas. New materials were found to elicit more abstract-based and possibly more original core emotions. The following proposal describes a plan to investigate whether tactile interaction with a new material will elicit creative design ideas.

RESEARCH QUESTIONS AND PLAN

The following research question are related to the use of materials to inspire designers:

- Can the design process be enhanced by tactile stimuli, i.e., can materials that are new to designers inspire original ideas and contribute to creativity in conceptual design?
- The experiment plan is outlined as follows:
  - Identify new materials with the potential to inspire designers.
  - Compare the tactile inspiration from the new materials with that of the common materials.
  - Compare the creativity and approach of designers. The objective of this future study is to analyze the differences in thinking styles and creativity of designers using new materials as stimuli. Based on the design-protocol analysis method, we will compare the creative outcomes of design ideas and thinking styles in a design session. In this session, the participants will be asked to design a children’s toy that facilitates communication with family members.

CONCLUSIONS

According to the results of the previously mentioned tactile experiment and in-depth analysis of tactile interactions, we found new materials can elicit (1) more abstract-based core emotions; and (2) more original core emotions. This difference can be translated into the increased number of original and dissimilar core emotions elicited by the new material, hence, the new material could affect creative design. Consequently, this study proposed a plan of experiment that would investigate how to inspire original design ideas (i.e., creativity) using tactile interaction with new product materials.