Soft and hard product attributes in design

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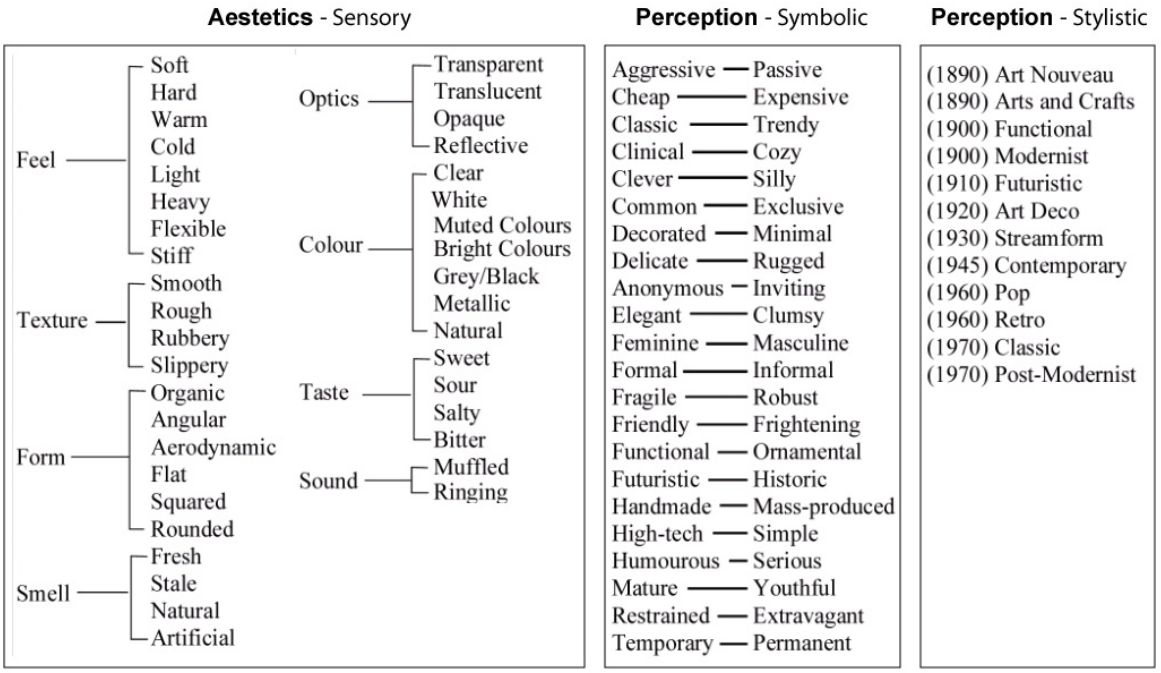
Outline

This present short paper summarises results from previous research and describes the plans for a new experiment that will be carried out in late October. The idea is to discuss these plans at the Nordcode seminar in Helsinki in early October, make changes to the plans, perform the experiment and then report the results in a paper at the end of November.

Background

Products are to a growing extend being sold based on their soft values such as design and styling and the image they can bring the owner. This makes it more important that people involved in product development can communicate these more soft or intangible values. Works within this area is pursued a number of places (Lopez 2003, Pascalle 2000, Goovers 2003, Warell 2001). The authors have experienced the need when searching for materials that can give the product a certain expression (www.designinsite.dk).

In a previous study an interdisciplinary group of 14 students (coming from industrial design, business and engineering) showed consensus on assigning certain words to specific products in order to express the sensory and perceived experiences (Johnson et al. 2003). An initial vocabulary was formulated based on input from the design literature. The study showed that a significant amount of the test group agreed on assigning the same words to 6 specific products (see below). Based on the input from the study the initial vocabulary was revised (shown below).



Plans for a new experiment

We will test the new vocabulary generated in (Johnson et al. 2003) on a larger group of students (56 students) in design engineering in order to
1) expand the list,
2) verify the relevance of the existing contents.

The experiment will be performed in 3 steps:

First the students will describe a product that they are familiar with in their own words. This will give us input to words that are missing in the list. One idea is to use the 4 products that the group of students redesigned last semester (a Vespa scooter, a tumble dryer, a high pressure cleaner and a coffee vending machine). The advantage is that the students have detailed knowledge of the products. This can however also be a drawback: They may have forgotten their first impression of the products. Other drawbacks are that the products represent a fairly narrow spectrum of design expressions. By choosing a broader range of products it is more likely that we will receive a wider range of input that can expand the lists in the vocabulary.

Second step is to let the test group describe the same products using words from the vocabulary. The purpose is to make the test group familiar with the vocabulary.

Third step is the let the test group describe some other products using the vocabulary. The purpose is to verify the present content. There are 22 pairs of perceived attributes and 41 aesthetic attributes in the existing list, and ideally we need the same number of products to test these attributes. But this will give an experiment that is far to large. One solution is to group the words in the list with perceived attributes (like it is done for the aesthetic attributes). Another solution is to identify products for the attributes that was not chosen by the test group in the previous experiment. The table below shows the list of attributes where words chosen by a significant number of participants in the previous study is shown in bold face. Words in parenthesis where close to being significant. In this way the test could be reduced to 29+30 words which is still a large number. A third solution could be to identify products that possibly could be associated with more than one word. This could be done by brainstorming on products to be associated with each word and then see if the same product occurs more places.

<table>
<tr><td colspan="2">Aesthetic (sensory) attributes (bold face = significantly selected in previous experiment)</td><td colspan="2">Perceived (symbolic) attributes (bold face = significantly selected in previous experiment, parenthesis = close to being significant)</td></tr>
<tr><td>Feel: Soft, hard, warm cold, light, heavy, flexible, stiff
Texture: Smooth, rough, rubbery, slippery
Form: Organic, angular, aerodynamic, flat, squared, rounded
Smell: Fresh, stale, natural, artificial</td><td>Optics: Transparent, translucent, opaque, reflective
Colour: Clear, white, muted colours, bright colours, grey/black, metallic, natural
Taste: Sweet, sour, salty, bitter
Sound: Muffled, ringing</td><td>Aggressive – Passive
Cheap - Expensive
Classic - Trendy
Clinical- Cozy
(clever) - (silly)
(Common) – Exclusive
Decorated – Minimal
Delicate – Rugged
Anonymous – Inviting
Elegant - Clumsy
Masculine – feminine</td><td>Formal – Informal
Fragile – Robust
Friendly - Frightening
Functional - ornamental
(Futuristic) - historic
Handmade - Mass-produced
High-tech – Simple
Humourous - Serious
Mature - Youthful
Restrained – Extravagant
Temperary – Permanent</td></tr>
<tr><td colspan="2">Words deleted from the initial list:
Industrial</td><td colspan="2">Words deleted from the initial list:
Clean
(Dull)
Strong</td></tr>
</table>

References

- Joan Martín López, Anne Guénard: Study on subjective evaluation of perceived quality of flap mobile phones and prediction of sensorial profile, ICED03, Stockholm 2003.
- Kara W. Johnson, Torben Lenau, Mike F.Ashby: The Aestetic and Perceived Attributes of Products, ICED03, Stockholm 2003.
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