

# Kansei engineering research on deodorizing airflesheners

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## Abstract

In Japan, deodorizing airflesheners are very popular to make air fresh by deodorizing odor in rooms, toilet as well as inside a car. There are in different features in deodorizing material of Gel and Liquid, in a shape of bottle from tall to low height, in bottle color and so on. These different features will influence the customer's feeling to the products of deodorizing airfleshener. This paper deals with the psychological evaluation of the features of deodorizing airfleshener on the SD scale with kansei words. The evaluated data were analyzed by Quantification Theory Type I that leads to the relational rules between the product feature and the kansei words. The beautiful and graceful kansei consists of low height, middle width deformed round shape, but easy operational feature is based on tall shape design. These results are helpful to develop a new product of deodorizing airfleshener.

*Keywords: Kansei, Kansei Engineering, SD scale, deodorizing airfleshener, multivariate analysis*

## 1. Introduction

Kansei Engineering was founded by M. Nagamachi at Hiroshima University about 30 years ago and it has spread out in Japan as well as in the world. We have developed many new products of a passenger car, a crystal liquid camera, brassiere and so forth. These new kansei products were sold very well in Japan. This is why the kansei engineering is an ergonomic customer-oriented technology for new product development.

Kansei is a Japanese representing a customer's psychological feeling on coming a new product and the kansei engineering is defined as an ergonomic technology transferring the psychological feeling on a product to the new design of it. The kansei engineering starts from grasping the customer's feeling, namely kansei, and treating feeling (kansei) from the viewpoint of physical treatment, and finally transferring

these data into the design feature. It is well known that the kansei engineering were successful in producing a sports car, named Miata, and a brassiere, named Good-Up Bra.

### 1.2 An example of product development

Nagamachi has developed a set of shampoo and treatment using the kansei engineering method, in which category classification method and type II technique were utilized.

#### (1) Market survey

First of all, survey was conducted about hair damage for 20s-50s female customers and we decided the new product concept.

#### (2) Rustling hair concept

The concept "Soft & Rustling hair care" was broken down to several layers of subconcepts and these subconcepts were realized by chemical materials. After reviews of the trial materials with the product concept, we obtained the final product, named "Deesse's".

### (3) Container design

We collected 60 different types of shampoo from different makers and asked ladies subjects to evaluate these materials with the kansei SD scale. The evaluated data were analyzed type II technique, namely analysis by Quantification Theory. After isolation of the final design through the analysis, we proposed the container design to the company designers and finally one of the design was chosen. The set of product, shampoo and treatment, is illustrated below.



Fig. 1. Newly developed shampoo and treatment using the kansei engineering.

## 2. An application of KE to deodorizing material

In this paper, we will apply this technique to the analysis of deodorizing airfreshener design.

We classified the item/category of the collected products as size (height, width), shape, body, color, how to open, smell, direction of logo, size of logo, type of logo.

We select each one kansei word from each factor.

(1) High-grade Factor—the kansei: Highgrade  
The kansei “high-grade” has the following features.

- middle size of height and width
- fat in middle part of container
- pink color

- italic logo character in middle size



Fig. 2. A sample of deodorizing airfreshener.



Fig. 3. The sample very close to “High-grade kansei”

(2) Preference Factor—want to use

The kansei “want to use” has the following features

- low height and comparatively large width
- fat type

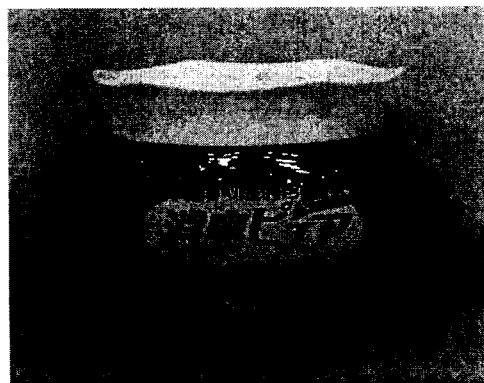


Fig. 4. A sample close to “want-to-use”.

- square, circle
- white body

(3) Fascination Factor—attractive

The kansei “attractive” has the following features.

- lowest, but wider
- rounded square
- blue body color
- without logo or small size logo

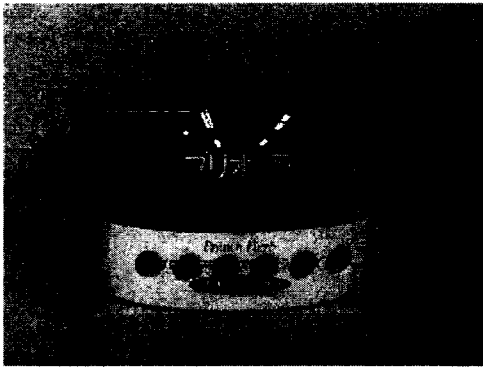


Fig. 5.A sample close to “attractive”.

(4) Content-understandable

- comparatively large size and wider
- fat type or square, circle long type
- purple, pink or blue

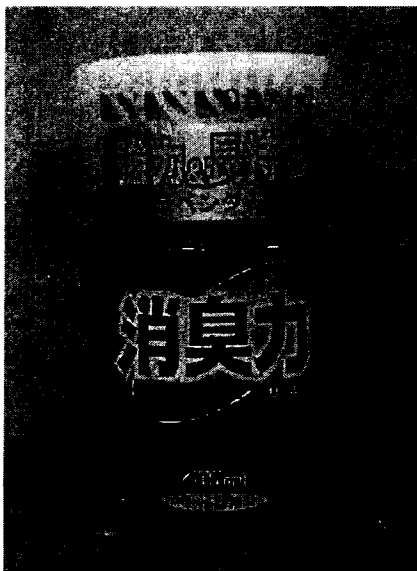


Fig.7. A sample close to content- understandable.

- vertical and middle size logo
- English

(4) Easy handling Factor—easy handling

The kansei “easy handling” has the following features.

- tall and wider
- oval type
- white body color
- horizontal or vertical logo
- large and Japanese logo

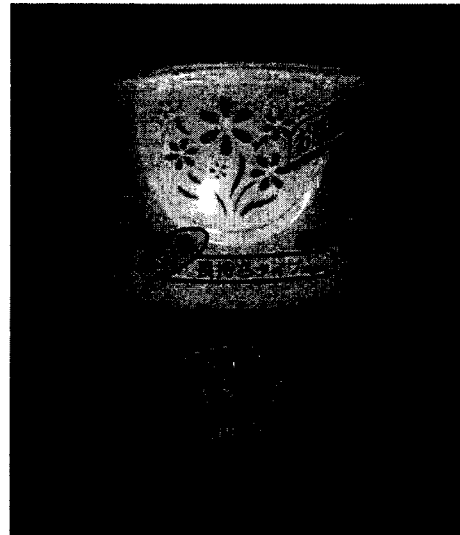


Fig. 8 A sample close to “easy handling”.

We have the data concerning 21 kansei words  
And those kansei words were classified by Factor  
Analysis as the followings;

- Factor 1: graceful, high-garde, friendly, cute
- Factor 2: preferable odor, want-to-use, good smell
- Factor 3: individual, flesh, modern
- Factor 4: understandable smell, understandable content,
- Factor 5: Curved
- Factor 6: easy graspe
- Factor 7: strong smell

If we are able to mediate any ideal feeling on deodorizing material, we can utilize the data of statistical analysis.

For instance, I imagine to make this new product with the kansei; graceful friendly and easy handling;

	Graceful	Friendly	easy handling
Height	rel.low	low	tall
Width	rel.large	rel.large	fine
Shape1	fat	fat	slim
Shape2	square	circle	square
Color	pink,orange	blue	white
Logo1	none	vertical	horizontal
Logo2	none	alphabet	kanji

The conclusion of the new deodorizing material combined the kansei “graceful, friendly and easy-grasp” will be; Low and a little fat body with pink or blue color and with small Japanese character, “消臭ポット”.

Therefore, if we can have the concept for the new product of deodorizing airfleshener, we are able to use the relational data about design features.

#### *References*

- [1]M. Nagamachi, An introduction of Kansei Engineering, Japan Standard Association, 1996.