

Examining Kansei design keywords in Human Design technology (1)

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Abstract

The purpose of this study is to estimate of design and ambience of goods by using 5 Kansei design items (shape , color , sense of material , fit, functionality/convenience). This paper describe that effectiveness of 5 Kansei design items, selecting image words and correspondence of 5 Kansei design items with image words. (image words : the word describing about item image)

1. Introduction

We can say that the experienced good designers understand how to use Kansei design items intuitively. On the other hand, an inexperienced designers and engineers can not design quickly, because they do not know how to use Kansei design items. So, they usually take longer time in designing. this is very important problem, because period to design is more shortly. Moreover, it's very big problem that developers can not share in information. Sometimes there is a big gap of the way of feeling between the planner and the designer about ambience. So this study's purpose is to alleviate these problems through examination into way of estimating ambience.

This study use Kansei design items. Yamaoka (1996) describe that it is a factor to elevate an ambience of the goods. This study use 5 Kansei design items on interface from 9 Kansei design items that suggested by Yamaoka (Fig.1).

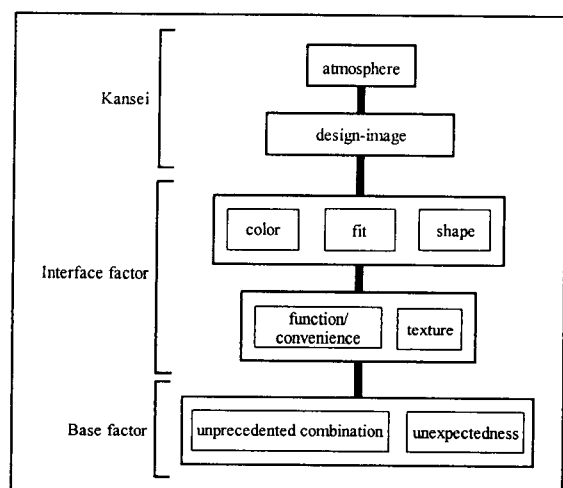


Figure.1

Structure of Kansei design items

2. Method

A questionnaire was done to verify 5 Kansei design items and select image words.

1) Questionnaire 1

A questionnaire was done about 50 samples targeting 115 university students. Select sample items variously from the catalog and so on [the book related to the design, the magazine (design magazine, guide)]. They are clipped with PhotoShop only in the part of photograph. Explain only in the bottom part of photograph if there are specifications such as characteristic function which is not understood, sense of material and color variation. These are introduced to public on the homepage (Fig.2). 115 university student see it, and answer the following contents.

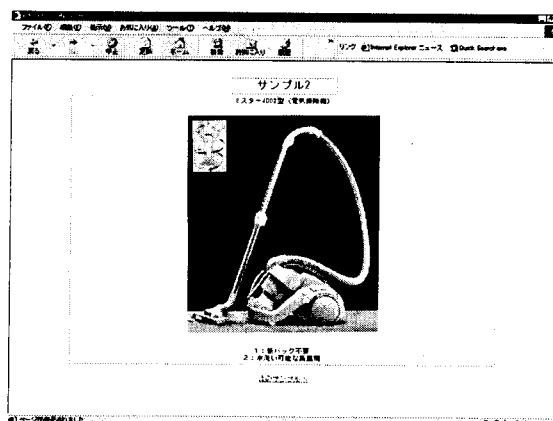


Figure.2

Questionnaire 1 sample image (sample2)

The contents

1: Weight of 5 Kansei items.

I make them answer about weight of the 5 Kansei items by five steps. (1: not important 2: not so important 3: so so 4: a little important 5: important)

It is the thing of whether to be how important as a factor that it feels the Kansei of the goods weight of the 5 Kansei items.

2:Image word

I make them write the image word. When there is no ambience, I have it answer with ' nothing'.

3:Total score

I make them answer the total score by five steps. (1: not important 2: not so important 3: so so 4: a little important 5: important) It is the thing of whether to be how attractive.

2) Selecting image words

Select image words from the catalogs, the books related to the design, the magazine (design magazine, guide) and answer of questionnaire 1's question 2.

3) Questionnaire 2

A questionnaire was done about 20 samples targeting 20 university students.

Select sample items variously from the catalogs and so on. They are clipped only in the part of photograph. Explain only verbal if there are specifications such as characteristic function which isn't understood, sense of material and color variation. I make 20 students evaluate by paired comparisons on each samples and write the image words.

3. Result

1) Verify 5 Kansei design items

Do multiple regression analysis. Explanatory variable is 5 Kansei items' value of weight. Criterion variable is the total score. Show the result of the multiple regression analysis in the table 1.

model	non-standardization		observed significance level of the test	collinearity statistic	
	B	standard error		tolerance	VIF
invariable	0.662	0.051	0.221		
shape	0.268	0.012	0.000	0.731	1.369
color	0.181	0.011	0.000	0.702	1.424
sense of material	0.196	0.013	0.000	0.701	1.426
fit	0.116	0.011	0.000	0.808	1.238
functionality / convenience	0.207	0.010	0.000	0.883	1.133

Table.1

Results of multiple regression analysis

We can ask multiple regression expression from table 1.

$$y = 0.268 X \text{ shape} + 0.181 X \text{ color} + 0.196 X \text{ sense of material} + 0.116 X \text{ fit} + 0.207 X \text{ functionality/convenience} + 0.624$$

We are able to use multiple regression expression, because observed significance level of the test of regression model is zero. Because each observed test of Kansei item is zero, 5 Kansei items are influential factor to the total score. It is no multicollinearity problem from the result of collinearity statistic.

2) Selecting image words

50 image words are selected

3) Correspondence of Kansei items with image words

We ask weight by AHP. Show the result of AHP in the table 2.

Kansei item	shape	color	sense of material	fit	functionality / convenience
sample1	0.2515	0.1815	0.1435	0.153	
sample2	0.209	0.22	0.14	0.131	
sample3	0.077	0.0825	0.0925	0.3685	
sample4	0.18	0.083	0.01165	0.182	
sample5	0.182	0.2115	0.107	0.1195	
sample6	0.149	0.0745	0.0895	0.133	
sample7	0.102	0.053	0.115		0.31
sample8	0.18	0.1085	0.15	0.1715	
sample9	0.179	0.091	0.1285	0.124	
sample10	0.2565	0.1205	0.197	0.1145	
sample11		0.1965	0.2095	0.126	0.127
sample12		0.1955	0.2655	0.116	0.1155
sample13	0.2375	0.125	0.164	0.141	
sample14	0.1605	0.0565	0.1075	0.289	
sample15		0.173	0.201	0.189	0.154
sample16	0.2095	0.0895	0.115	0.188	
sample17	0.2015	0.124	0.134	0.1325	
sample18	0.2525	0.2095	0.2095	0.093	0.138
sample19	0.1955	0.1135	0.126	0.182	
sample20		0.202	0.1655	0.175	0.165

Table.2

Results of AHP

4. Conclusion

Show the correspondence of Kansei items with image words in the table 3.

Kansei item	shape	color	sense of material	fit	functionality / convenience
i m a g e	ataakai	akarui	ataakai	ataakai	akarui
	hanayaka	hanayaka	kakkoi	mukiteki	ataakai
	kakkoi	kakkoi	kurashikku	sappari	hanayaka
	kawaii	kawaii	miraiteki	shaapu	kakkoi
	mukiteki	miraiteki	ochiitsuita	shinpuru	kawaii
	oshare	oshare	otonappoi	sukkiri	kurashikku
	poppu	poppu	retoro	yasashii	mukiteki
	sappari	senrensareta	senrensareta	yasuraida	ochiitsuita
	senrensareta	tokaiteki	tokaiteki	yuugana	oshare
	shaapu		yasashii	yuukiteki	otonappoi
w o r d	shinpuru		yasuraida		poppu
	sukkiri		yuugana		retoro
	tokaiteki		yuukiteki		sappari
	yasashii				senrensareta
	yasuraida				shaapu
	yuugana				shinpuru
	yuukiteki				sukkiri
					tokaiteki
					yasashii
					yasuraida
				yuugana	
				yuukiteki	

Table.3

Correspondence of Kansei items with image words

5. References

Toshiki Yamaoka , Examining Kansei design method, Kansei engineering symposium 1996, Science council of japan, 1996