SHORT PAPER

Kansei EVALUATION TO MANAGE A PRODUCT BRAND IMAGE

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Abstract: The establishment of a product brand image has the potential to become the obstruction of a new product development. It is necessary to pay attention to an adjacent image which is different from the product brand one, and to incorporate this into the image of a new product. "IF-THEN type *Kansei* evaluation" by the onomatopoeia and the exclamation in Japanese is executed. The samples are three lactic acid beverages. 11 kinds of psychological states are set in IF, as question items. 29 kinds of answer items are set in THEN. The characteristic of each beverage has become clear from the results of χ^2 test and dual scaling. The importance of developing a new product without destroying the product brand image is discussed.

Keywords: *Kansei evaluation, Product brand image, Dual scaling*

1. INTRODUCTION

As a company's activity, it is very important to build up product brand images. The business worth can be enhanced in this image. When the product infiltrates the market and the image is fixed, the product brand image is formed with the corporate image. It is thought that the product brand image is a part of the corporate image (Fig. 1). On the other hand, a problem occurs in which a new product can be developed only within the range of this image. This is a situation that the maker is bound by this image and a new product cannot develop. If a new product can be developed without destroying the product brand image which has been built up, the company will be able to become more active. It is necessary to clarify the present product brand image and the quality components which agree with this image, and to verify whether there is a difference between the product brand images of a new product and the present one. In addition, it is necessary to pay attention to the adjacent image which is different from the product brand one, and to incorporate this into the image of a new product.

Figure 1: The relationship between brand and corporate images.

When a beverage is consumed, this is selected according to the situation and feeling. Some situations different from this and unsuitable for the product brand image are set by IF-paragraph to clarify images not included in the product brand image. The *Kansei* status imagined by assuming that a certain beverage is consumed in such a situation is expressed by onomatopoeia and exclamations in Japanese [1-3]. This is called "IF-THEN type *Kansei* evaluation" [4]. The purpose of this research is to clarify how the customer considers the agreement of a product image and a psychological situation. The range of the product brand image of a beverage can be clarified by setting various psychological situations.

2. EXPERIMENT

The samples were three lactic acid beverages which were very familiar to the customer, and a questionnaire survey was done (A: refreshing taste lactic acid beverage derived from milk by lactic acid bacteria; B: lactic acid bacteria beverage increasing beneficial bacteria and decreases bad bacteria; C: drinking yoghurt with moderate sweetness). 51 subjects for A, 47 for B, and 44 for C participated in this experiment. They were asked how easily the taste of the beverage was recalled by using a four-rating scale (1-4). Next a subject answered the question of "How do you feel when you drink this beverage in this situation?".

11 kinds of psychological states were set in IF as a question item. These were 1: "offensive" (*IRAIRA*), 2:

Table 1: Five categories of 29 answer items

penetrating	<i>Ku-</i> , permeable, touched, relaxed
brisk	ramrod-straight, refreshed, clear, <i>Puha-</i>
relaxing	Aah, home-felt, absent-minded, heartwarming, relieved, <i>Howa-n</i> , leisurely
positive	vividl, cheerful, romantic, active, all right, pleasant
negative	offensive, Hmm, parched, bone-tired, restless, fidgety, dull, cobwebbed

“cheerful” (*UKIUKI*), 3: “restless” (*SEKASEKA*), 4: “absent-minded” (*BO-*), 5: “bone-tired” (*KUTAKUTA*), 6: “leisurely” (*YUTTARI*), 7: “dull” (*DONYORI*), 8: “parched”(KARAKARA), 9: “cobwebbed (MOYA-MOYA)”, 10: “clear”(SUKKIRI), and 11: “fidgety” (*SOWASOWA*). 29 kinds of answer items were set in THEN, and a subject elected these by plural answers. These were a: “Aah”(A-), b: “vivid”(IKIUKI), c: “offensive”, d: “cheerful”, e: “Hmm”(U-MU), f: “parched”, g: “romantic”(KYUN), h: “*Ku-*”(KU-), i: “bone-tired”, j: “home-felt” (*SHIMI-JIMI*), k: “ramrod-straight”(SHAKI), l: “permeable” (*JIWA-*), m: “touched”(JI-N), n: “refresh-ed”(SUKA), o: “relaxed”(SU-), p: “clear”, q: “restless”, r: “fidgety”, s: “dull”, t: “active” (*NORINORI*), u: “*Puha-*”(PUHA-), v: “absent-minded”, w: “heartwarm-ing”(HONOBONO), x: “relieved”(HOO), y: “*Howa-n*”(HOWA-N), z: “cobwebbed”, +: “leisurely”, -: “all right”(YOSHI), and =: “pleasant”(RUNRUN).

Table 2: Contingency table between sample and category

	penetrating	brisk	relaxing	positive	negative
A	23	40	12	21	0
B	7	19	12	12	9
C	12	32	9	15	1

3. RESULTS AND DISCUSSION

The averages of recalled tastes were 3.0 in A, 3.3 in B, and 3.0 in C.

3.1. χ^2 test of proportion's homogeneity

A χ^2 test was executed to examine what images the three beverages had. 29 answer items were divided into five categories (Table 1). Only IF10 (“clear”) was significant. There were three differences in the ratios among three samples ($\chi^2=27.41$, $df=8$, $p<0.006$), between A and B ($\chi^2=19.75$, $df=4$, $p<0.001$), and between B and C ($\chi^2=11.08$, $df=4$, $p<0.03$). A total result in IF10 is shown in Table 2. A lot of subjects for A evaluated this as “brisk” and “penetrating”. Table 3 is the

Figure 2: Results of dual scaling of A.
Solid circle: Characteristic of A's image
Dotted circle: Characteristic of “cobwebbed” item in A

Table 3 Contingency table between sample and subcategory

	A	B	C
Aah	7	5	3
vivid	7	2	5
offensive	0	0	0
cheerful	0	1	2
Hmm	0	2	0
parched	0	1	0
romantic	2	0	3
Ku-	11	2	6
bone-tired	0	0	0
hom-efelt	1	2	0
ramrod-straight	4	1	5
permeable	2	1	0
touched	2	2	1
refreshed	11	2	6
relaxed	8	2	5
clear	16	10	13
restless	0	0	0
fidgety	0	1	0
dull	0	1	1
active	1	0	2
Puha-	9	6	8
absent-minded	0	0	0
heartwarming	1	0	1
relievable	2	3	2
Howa-n	1	0	1
cobwebbed	0	4	0
leisurely	0	2	2
all right	8	6	3
pleasant	3	3	3

“refreshed”, or “clear” had risen especially. A lot of subjects for B evaluated this as “negative”. The value of “cobwebbed” had risen especially. A lot of subjects for C evaluated this as “brisk”. The value of “clear” had risen especially.

3.2. Quantification method of the third type (dual scaling)

The differences among these samples became clear from the result of a χ^2 test. The dual scaling for each sample was executed to clarify the adjacent image which is different from the product brand one. The contribution ratio in A of the first axis (I) was 0.23, the second axis (II) was 0.24, and the third axis was 0.12. The accumulative contribution ratio was 0.59. The contribution ratio in B of the first axis was 0.21, the second axis was 0.17, and the third axis was 0.14. The accumulative contribution ratio was 0.52. The contribution ratio in C of the first axis was 0.25, the second axis was 0.21, and the third axis was 0.13. The accumulative contribution ratio was 0.59. The 40 scores of IF and THEN were plotted on a two dimensional graph (Fig. 2,3,4). A solid circle indicates the characteristics of image for each sample. A dotted circle indicates the

Figure 3: Results of dual scaling of B.

Solid circle: Characteristic of B's image
Dotted circle: Characteristic of “cobwebbed” item in B

result of 29 kinds of subcategories. The value of “Ku-”,

Figure 4: Results of dual scaling of C.

Solid circle: Characteristic of C's image

Dotted circle: Characteristic of "cobwebbed" item in C

"cobwebbed" item of each sample.

In A, the "brisk" category was related to the image of feeling perky, as in "vivid" or "all right". In B, "cobwebbed" was related to "refreshed", "leisurely", or "Howa-n". In C, "clear" was related to the image of "penetrating", as in like "Puha-", "refreshed", or "relaxed".

IF and THEN pairs with high category scores were considered carefully. When drinking in the "cobwebbed" this feeling did not change and IF9 was a similar image to THEN. This result was common to each sample, and these beverages had no effect in this psychological situation.

3.3. Discussion

The characteristic of each beverage became clear from the results of χ^2 test and dual scaling. Beverage A had not only the "brisk" image but also the image of feeling perky. Beverage B had the "cobwebbed" image which was a negative category. However, this image had the shade of meaning "relaxing", as in "leisurely". Beverage C had the more "clear" image when drinking in IF10 ("clear"). In addition, C included the "penetrating" image. In beverage A, for instance, the "brisk" image is important to make a new product which corresponds to the "clear" situation. This suggests the importance of adjacent image in this case to make a new product without destroying the product brand one.

4. CONCLUSION

The images which had to be reflected in the product development without destroying the present product brand image were "brisk" and feeling perky in A, "relaxing" in B, and "penetrating" in C. The image, which accompanied the present product brand image, was clarified by "IF-THEN type Kansei evaluation" used by this research. In product development, which corresponds to the expansion of the product brand image, this incorporation of the accompanying image might be necessary.

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