A STUDY ON THE KANSEI IMAGE OF THE PACKING COLOUR OF INSTANT NOODLES FOR CONSUMERS

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ABSTRACT

Instant noodles have become the major alternative food for most people in order to cater to the current pace of life. There are several kinds of packages and colours for distinct kinds of brands and flavours. The correct match of colours for instant noodles can actually reveal the flavours of the products, make the noodles look tasty and even activate and attract consumers' buying desire. The study discusses the importance of matching the colours of instant noodles by collecting 80 different match colours, choosing 10 types of products from 4 experts as studying samples and using Factor Analysis as well as SD Analysis.

Keywords: Instant noodles, Kansei Image, SD Analysis.

1. STUDYING BACKGROUND & MOTIVATION

Instant noodles were created by Momofuku Ando, a Japanese, who combined traditional noodles and stretched noodles together, and became the current instant noodles that are extremely popular among people during their daily lives gradually for the reason that instant noodles are inexpensive and can make us feel full (Chen， 2011). There is a statistic collected by the Ministry of Economic Affairs at the year of 104 to 105 of the Republic of China showing that 9.2 billion Taiwan dollars were produced in the Taiwan market of instant noodles. Consumers are normally most influenced by the match colours besides the price and commercials when they choose any product. Some of the products that do not have beautiful colours. Therefore, they

use diverse ways to enrich the products and activate consumers' buying desires by making healthy and delicious images. Cui (2012) also argues that amazing colours that can capture consumers' attention play a significant role than the shape of the package.

These designers use colours to express the taste of food (Shi， 2009). It is hoped that this study will be able to provide a reference to designers when it comes to the product packaging by discussing how colours influence consumers so that the packaging of instant noodles can cater to consumers' interest and deliver the correct information about the products and also activate consumers' purchasing desires. Therefore, the study's purposes are：

1. To find out how consumers feel and react about different match colours of instant noodles.
2. To find out the similar perception images shared by designers and consumers alike.
3. Find out the likes and dislikes about the consumers' attitude towards the match colours of instant noodles.

2. STUDY OF COLORS

People's visual organs will respond to the external lights and relevant sense of colours that appears. When looking at the matching colours of anything, people always develop various feelings that includes images and senses regarding the products. This phenomenon is called "the common feeling of colours" (Yong， 2007). The packaging of food has the power to make or break the product on how it tastes or what it might taste like in the form of colours. It is a special combination that people are used to make about colours and tastes based on the experience of everyday life and the society.

In addition, colour is one of the most significant factors in the packaging design of food and gives the very first impression for consumers at the first sight. Also, colour is the most sensitive factor among all the factors (Wang， 2009). Meanwhile not only can colour decorate the image of products but also give hints and correct information regarding its flavours for consumers. Therefore， designers are supposed to base on the ways people learn about and express things and use different kinds of colour brightness to show whether the flavour is strong or not (Shi， 2009).

3. METHODOLOGY

Researchers use some opposite meaning of words to estimate and evaluate things or concepts when they try to know about how consumers see things or concepts which is called structure of value or Semantic Differential analysis SD (Shi， 2009).

Researchers have collected 80 different matching colours of instant noodles and 100 adjectives. Then experts were asked to pick out ten (10) special studying samples in order to put those adjective into categories. This study uses questionnaires and observations to know about

the preferences and feelings of matching colours for the purpose of coming up with the final conclusion of what is the most preferred colour for instant noodles and what is the colour combination.

3.1. SUBJECTS SELECTION

The subjects selected to carry out the experiment in this research consists of two parts, the expert users and the normal users. The expert users group is defined where the subject has eaten the instant noodles at least once or twice a week in the past month. Undergraduates over the age of 20 from outstanding universities are selected as the subjects, in the total amount of 4 persons. Two of them are male and the other two are female. The normal users are basically the participants of the internet questionnaire. 81 completed questionnaires are received on 10am on January 8th, 2016, among which 31 were accomplished by male participants and 50 were completed by female participants. Whereas the experimental subjects are from all ages, representing the percentage of 75.32% are from the age range of 18 to 30.

3.2. EVALUATION TOOL

The adjectives vocabulary adapted by this research are divided into 10 groups, with the rank of No. 7. These adjectives are sourced specially from the pertinent literatures and research papers. First and foremost, 100 adjectives were collected by this paper. After discussing with four expert users with high instant noodles intake, 15 groups of adjectives were initially collected. Accordingly, through the measurement and discussion, 5 groups of adjectives were deleted, and the rest 10 groups are adapted as the evaluation tools. On the basis of comprehensive understanding of the current situation of packaging colours of instant noodles, through the SD analysis as to assess the image of packaging colours of instant noodles, the relatively objective design evaluation is achieved. Furthermore, the common factors are picked up through the factor analysis, and the major factors exerting influence on the packaging colours of instant noodles are understood.

3.3. EXPERIMENTAL PROCEDURE OF THE RESEARCH

Initially, a semantic analysis was conducted to jointly discuss the perceptual image of instant noodles in different packaging colours, secondly the evaluation of expert users is implemented on the basis of announcing the description of research and completing the personal basic data of expert users.

Second, 80 packaging sample pictures of instant noodles are collected, with different matching colours and brands. (referring to appendix 1) Through the discussion conducted for expert users, 10 representative packaging sample pictures of instant noodles are selected. Given that this paper is designed to discuss the perceptual image of consumer towards the packaging colour matching of instant noodles, the letters on 10 selected packaging sample pictures of instant noodles are blurred out (as shown in the following picture) as it is to reduce the perspective impact exerted by texts of taste on the package to experimental subject:

1 	2 	3 	4 	5 
6 	7 	8 	9 	10 

Instant noodles on packaging color sample

Third, there are 100 adjectives vocabulary in the earlier stage of this research. Through the discussion for expert users, 20 adjectives in 10 groups are confirmed in the Likert Scale of this paper, and they are: unsavoury/ delicious; heavy taste/ insipid; disgusting/ fragrant; spicy and hot/ tasty; single/ multiple; dilute/ full-bodied; broiled/ refreshing; queasy/ piquant; greasy/ salubrious; ordinary/ special.

Lastly, the questionnaire is issued on internet and completed by invited experimental subjects. Afterwards, the data and results of questionnaire are collected and analysed in background.

3.4. ANALYSIS OF STATISTICAL DATA

This paper adapts the SPSS software in order to analyse the collected data quantitatively. The collected projects are as follow:

3.4.1. Descriptive statistics

This project is applied to collect the average value and the standard deviation of all the samples.

3.4.2. Factor analysis

Adapted to calculate the factor loadings of all the scales and the factor points of instant noodle packaging samples as to establish the image space of packaging colour of instant noodles.

4. RESULTS AND DISCUSSION FOR RESEARCH

Huang (2000) has once mentioned in the Multivariate Analysis (Sixth Edition) that, the variance is the average value of all the variable values and the squared deviation of average values. It refers to a group of dispersive average value of data distribution. The standard deviation is the square root of the variance, and it refers to a group of data embodying the degree of average dispersion. As the variance and the standard deviation become larger, the discrepancy between variables is getting larger obviously, and accordingly the tendency of dispersion of the distance for average value is becoming larger.

The subjects' recognition of the semantic scale of instant noodles packaging colour can be directly grasped through the view of standard deviation. (as shown in table 1) In view of the standard deviation, while the standard deviation is becoming larger, the subjects have a lower

degree of recognition and correspondence to the semantic scale. On the contrary, while the standard deviation is becoming less, the subjects have a higher degree of recognition and correspondence to the semantic scale.

The following Table show that, the semantic meaning of queasy/ piquant enjoys the highest degree of recognition in sample 1; the semantic meaning of greasy/ salubrious enjoys the highest degree of recognition in sample 2; the semantic meaning of queasy/ piquant enjoys the highest degree of recognition in sample 3; the semantic meaning of disgusting/fragrant enjoys the highest degree of recognition in sample 4; the semantic meaning of dilute/ full-bodied enjoys the highest degree of recognition in sample 5; the semantic meaning of queasy/ piquant enjoys the highest degree of recognition in sample 6; the semantic meaning of spicy and hot/ delicious enjoys the highest degree of recognition in sample 7; the semantic meaning of spicy and hot/ delicious enjoys the highest degree of recognition in sample 8; the semantic meaning of single/ multiple enjoys the highest degree of recognition in sample 9; the semantic meaning of broiled/ refreshing enjoys the highest degree of recognition in sample 10.

Table 1: Mean and standard deviation for sample 1-5

Sample / Measure	Sample 1		Sample 2		Sample 3		Sample 4		Sample 5	
	M	SD	M	SD	M	SD	M	SD	M	SD
unsavoury/delicious	4.494	1.667	5.148	1.501	4.198	1.638	4.802	1.552	4.716	1.534
heavy taste /insipid	3.593	1.889	5.457	1.500	4.506	1.598	3.605	1.869	3.272	1.796
disgusting/fragrant	4.543	1.628	5.000	1.369	4.407	1.555	4.753	1.412	4.765	1.502
spicy and hot /tasty	4.284	1.905	5.642	1.527	4.753	1.529	4.296	1.623	3.197	1.691
single /multiple	4.345	1.898	4.086	1.878	3.790	1.656	4.592	1.409	4.284	1.734
dilute/full-bodied	5.049	1.548	4.407	1.641	4.321	1.556	5.074	1.498	5.172	1.302
broiled /refreshing	3.259	1.896	5.000	1.517	4.419	1.499	3.753	1.655	3.111	1.739
queasy /piquant	4.617	1.609	4.753	1.436	4.148	1.493	4.568	1.413	4.580	1.531
greasy / salubrious	3.704	1.833	5.222	1.414	4.062	1.668	3.753	1.562	3.456	1.606
ordinary/ special	4.209	1.828	3.827	1.822	3.654	1.675	4.481	1.636	3.481	1.450

Table 2: Mean and standard deviation for sample 6-10

Sample	Sample 6		Sample 7		Sample 8		Sample 9		Sample 10	
	M	SD	M	SD	M	SD	M	SD	M	SD

Measure										
unsavoury/delicious	4.418	1.574	5.407	1.403	3.876	1.812	4.444	1.549	4.679	1.759
heavy taste /insipid	3.457	1.725	5.062	1.536	3.580	1.829	4.235	1.575	5.235	1.494
disgusting/fragrant	4.086	1.637	5.308	1.310	3.876	1.676	4.432	1.474	4.851	1.629
spicy and hot /tasty	3.803	1.495	5.419	1.254	3.864	1.489	4.642	1.345	5.025	1.369
single /multiple	3.938	1.653	5.209	1.481	4.519	1.613	3.642	1.805	4.518	1.747
dilute/full-bodied	4.629	1.470	5.086	1.362	4.778	1.557	4.419	1.564	4.629	1.592
broiled /refreshing	3.457	1.674	4.778	1.360	3.518	1.629	4.457	1.492	4.950	1.396
queasy /piquant	4.173	1.439	5.296	1.249	3.901	1.700	4.469	1.566	4.519	1.501
greasy / salubrious	3.667	1.754	5.111	1.517	3.654	1.726	4.309	1.375	4.876	1.444
ordinary/ special	3.888	1.628	5.148	1.542	4.370	1.584	4.049	1.788	4.741	1.679

The paper conducts a factor analysis towards the average of evaluation result of 10 adjective groups of instant noodles packaging colours. The factor analysis is implemented firstly through the principal component analysis and secondly through the Varimax rotation method rotating the factor axis to right angle. Eventually, the image factor load profile is acquired as shown in table 3. The adjective vocabulary factor analysis load profile indicates that the subjects' reaction towards all 10 adjectives group are affected by two common factors: (1) The first factor includes six groups of scale. (single /multiple; dilute/full-bodied; ordinary/ special; spicy and hot /tasty; unsavoury/delicious; heavy taste /insipid). These six groups are integrated as gustatory factor. (2) The second factor includes four scales. (broiled /refreshing; queasy /piquant; greasy / salubrious; disgusting/fragrant) These four factors are concluded as the preference factor.

In view of two factors mentioned above, the amount of variability being explainable accounts for 85.895% of the total amount of variability. The gustatory factor accounts for 54.053% of the total amount of variability. The preference factor accounts for 31.842% of the total amount of variability. The commonality of each variable refers to the variability amount of variable being explainable by all the factors. For example, the commonality of single/multiple is 0.944, which indicates that 94.4% of scale is given rise to the joint effort of the first factor and the second factor. The rest 5.6% is caused by the error factor. Furthermore, all the commonalities of variables are over 0.801, which indicates that all the scales are exerted less influence by other special factors and error factors, and accordingly are suitable for evaluation.

Table 3: Load factor analysis scale for adjective

Measure gauge	Factor1	Factor2	Intercommunity
single /multiple	0.959	0.312	0.944
dilute/full-bodied	0.966	0.152	0.875
ordinary/ special	0.659	0.221	0.852
spicy and hot /tasty	0.934	-0.247	0.834
unsavory/delicious	0.948	-0.135	0.903
heavy taste /insipid	-0.955	-0.251	0.801
broiled /refreshing	0.243	0.552	0.921
queasy /piquant	-0.597	-0.675	0.877
greasy / salubrious	0.147	0.812	0.873
disgusting/fragrant	0.405	0.896	0.908
Factor variance	5.405	3.184	Total:8.589
Percentage of total variance	54.053%	31.842%	Total:85.895%

5. CONCLUSION AND SUGGESTION

In accordance with the image questionnaire as mentioned above, through adapting the SPSS analysis and on the basis of the results of questionnaire, the following conclusions are drawn by this paper.

(1) The instant noodles packaged with the primary colour of grass green shall be able to convey the perceptual image of fresh and delicious to consumers. (2) The sour and fresh flavour image shall be integrated with green colour packaging as to conform to the consumer's recognition. The spicy and savoury flavour image shall be integrated with red colour packaging as to conform to the consumer's recognition. (3) The instant noodles packaged with bright and light colour can convey the corresponding perceptual image. Finally, it is found that instant noodles packaged using dark, purple and black colours are able to reduce consumer's appetite.

Several suggestions are proposed by this paper for future research in the related field.

(1) Future research should widen the population as well as the profession of subjects in order to enable the research data to be generalised.

(2) The samples mentioned in this paper are illustrated in Table 1 and 2 in order to conveniently compare between samples. Future research is recommended to conduct the research using real life samples in order to ensure the accuracy of the primary research data.

(3) This paper is conducted in the perspective of the colour of instant noodles package. Further research is recommended to be conducted from other angles or perspective such as the style and the model or the type font of used in the design of instant noodles packaging.

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APPENDIX 1

Table 4: 80 Sample for the study

 1	 2	 3	 4	 5
 6	 7	 8	 9	 10
 11	 12	 13	 14	 15
 16	 17	 18	 19	 20
 21	 22	 23	 24	 25
 26	 27	 28	 29	 30
 31	 32	 33	 34	 35
 36	 37	 38	 39	 40
 41	 42	 43	 44	 45
 46	 47	 48	 49	 50
 51	 52	 53	 54	 55

 56	 57	 58	 59	 60
 61	 62	 63	 64	 65
 66	 67	 68	 69	 70
 71	 72	 73	 74	 75
 76	 77	 78	 79	 80